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Coffee, Music, and Taste: Why We Like What We Like, and Why That Matters

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Coffee, Music, and Taste:
Why We Like What We Like, and Why That
Matters

Honor Scholar Thesis 2021-22

By: Thomas Curdt

Table of Contents

Acknowledgements	3
Introduction	5
Personal Motivation	5
Brief History of Coffee	5
Research Questions	7
Relevant Research	8
Coffee Science	8
Physiological Taste	9
Gustatory Taste	9
Auditory Taste	12
Language and Taste	13
Describing Our Senses	13
Metaphor	15
Worldview and Taste	17
Emotion and Taste	17
Identity and Taste	18
Technology and Taste	20
Reflection	21
Presentation	21
Survey Results	21
Further Research/Areas to Improve	23
Works Referenced	24

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Introduction

Personal Motivation

My coffee journey began at DePauw. As the pressures of my first semester slowly mounted alongside poor sleeping habits, caffeine consumption became a necessary ritual in order to juggle the workload. After a few months of Cafe Allegro, however, I decided that if I was committed to drinking coffee almost daily, I might as well see how I could improve it.

Four years and over one hundred coffees later, I have dedicated my Honor Scholar capstone project—as well as last semester’s Practicum Performance—to this beverage, an interdisciplinary investigation of coffee, as well as music and taste. Using findings from neuroscience, physiology, psychology, linguistics, musicology, and sociology, I break down what it means to taste, the ways in which we communicate taste, and how these experiences affect our perspective, emotion, and identity.

While much of the research for this project is based in academic studies, I also took this opportunity to hone my own coffee brewing knowledge and skill, reaching out to professionals and coffee companies in hopes of learning as much as I could and creating future networks within the industry.

This project is the culmination of my research and hands-on experiences brewing and talking about coffee. I hope that by attending this performance, audience members will be able to not only better appreciate the world of coffee, but investigate their own tastes in an effort to become more intentional consumers, communicators, and individuals.

Brief History of Coffee

Popular in Yemen in the mid-fifteenth century, coffee cultivation and trade began on the Arabian peninsula. Used in religious ceremonies in order to maintain alertness through nocturnal prayers, coffee was known as “*qahwa*.”

Many myths offer explanations for the coffee’s discovery, and while its modern origins are not proven, Muhammad al-Dhabbani, a Sufi Muslim scholar is often attributed with its invention as a beverage. The beverage quickly became popular outside the religious realm and spread across the peninsula in coffee houses known as “*qahveh khaneh*.” These coffee houses became centers of conversation, brimming with gossip, politics, and satire.

Within a century, the drink had spread to Europe. Early European worries about coffee’s association with Islam were dispelled in 1605, when Pope Clement VIII approved of the drink for Christian consumption. The first European coffee houses appeared in Oxford in the 1650’s, modeled off of the cultural and conversational centers of the East—though unlike those of Cairo

and Mecca, women were not allowed. In 1652, the first London coffee house opened, quickly followed by hundreds more.

As coffee's popularity grew, so did its opposition, with various rulers and groups opposing the drink for health or religious purposes, but despite the pushback, coffee's influence only grew across the sixteenth and seventeenth centuries. By the late-seventeenth century, the Arabian monopoly on coffee was no more, as Dutch and French merchants snuck cuttings and seeds of the plant from Arab coffee trees. These plants were quickly propagated across European colonies, eventually out-numbering the Arabian coffee market.

By the eighteenth century, coffee was the beverage of choice for businessmen, scientists, writers, and politicians. Known as "penny universities" European coffee houses would become home to Enlightenment thinkers, scientists, and writers such as John Dryden, Samuel Pepys, Robert Hooke, Voltaire, Rousseau, Montesquieu, and more. The original London Stock Exchange was a coffee shop, multiple foundational Enlightenment texts were written in a coffee shop, and the French Revolution began outside of a coffee shop!

Though less so synonymous with cultural or political centers today, coffee shops still offer spaces for productivity and conversation worldwide. Last year, over 170 million bags, each containing sixty kilograms of coffee, were produced worldwide. The coffee market has continued to grow each year, with coffee leading as the world's most widely consumed psychoactive drug. Despite the effects of COVID-19, the market size of US coffee shops reached over 36 billion dollars in 2020—with continuing upward trends.

References:

Standage, Tom. *A History of the World in 6 Glasses*. Walker & Co., 2006.

"The History of Coffee." *NCA*, <https://www.ncausa.org/About-Coffee/History-of-Coffee>.

Research Questions

In both my research and performance, I will investigate three aspects of taste:

How do we Taste?

-What are the mechanical and physiological mechanisms through which we taste food and hear music?

How do we communicate Taste?

-How do we translate physical senses and taste into language?
-What is the role of metaphor in communicating taste?

How does our worldview affect our Taste?

-How do our emotions affect our taste?
-How does our identities affect our taste?
-How does technology affect our taste?
-How can we be more intentional about our taste?

Relevant Research

Coffee Science

With the focus of this project being taste, I spent less time formally researching coffee science (though most of my free time along with last semester's presentation revolved around informal coffee testing and research). I was fortunate enough to talk with leading coffee researcher, Dr. Steffen Schwarz from Mannheim, Germany. As an expert on coffee, taste description, and head of the Coffee Consulate, Dr. Schwarz's knowledge was an excellent starting point for more formal research on taste and coffee. Other research emphasized the vast biological and chemical complexities of coffee in addition to the sheer number of variables involved in developing a tasty cup. In addition to formal research, I was able to visit Tinker Coffee Co. in Indianapolis, IN., as well as talk to a handful of other coffee brands and professionals for more hands-on research.

Dr. Steffen Schwarz Interview

- Taste is a combination of three senses: haptic sensation, gustatory sensation, aromatics
 - Over 2,000 aromas currently identified for coffee
 - If you're good/expert, maybe can only juggle 11 aromas at a time
- Smaller the aromatic molecules, the faster you lose them

“Coffee Flavor: A Review,” Denis Richard Seninde and Edgar Chambers IV

- Sensory characteristics attributed to volatile and non-volatile compounds produced in all phases of coffee process
 - Growing, fermentation, roasting, and brewing
 - Each step influences the volatile/non-volatile compounds of the next through precursors changing throughout the process
- Impact of processing
 - Greater pyrazines and pyridines in fermented beans
- Impact of Roasting
 - Maillard, pyrolysis, and Strecker degradation reactions

“The Complexity of Coffee,” Ernesto Illy

- “Rubiaceae family, which comprises at least 66 species of the genus *Coffea*. The two species that are commercially exploited are *Coffea arabica*, which accounts for two thirds of world production, and *C. canephora*, often called robusta coffee” (86)
 - Robusta, up to 12m tall, 2.4-2.8% caffeine by weight
 - Arabica, 1.5-2m tall, up to 1.5% caffeine by weight
- Processing and drying aims to get bean to 10-12% moisture content
- “Roasting is a pyrolytic (heat-driven) process that greatly increases the chemical complexity of coffee. The aroma of green coffee contains some 250 different volatile molecular species, whereas roasted coffee gives rise to more than 800.” (89)
 - Maillard Reaction
 - Bean volume increases by half, mass decreases by fifth

Physiological Taste

As a non-STEM major, research on the anatomical, physiological, and evolutionary properties of gustatory and auditory taste was incredibly novel and fascinating to me. Research revealed that gustatory taste is especially multi-modal, recruiting input from nearly all the body's other sensory and perceptual departments. Additionally, human gustatory systems have high evolutionary priority and function. The auditory system, while less multi-modal than the gustatory system, is extremely complex, requiring a mind-boggling amount of precision and calculation from high-level neural processes. While the gustatory and auditory systems are the gateways through which coffee and music are initially perceived, they work together with other senses to create associations in the brain and embody the experience.

Gustatory Taste

“Gustatory system: The finer points of taste,” Bijal P. Trivedi

- Papillae: mushroom-shaped (fungiform), pink bumps on tongue that conceal taste buds
 - 4 types:
 - Filiform: texture
 - Fungiform, foliate, and circumvallate—contain onion-shaped taste buds
 - Each taste bud has taste cells for (at least) 5 basic tastes
 - All of tongue is sensitive to all 5 taste qualities
 - Bitter, sweet, umami, sour, salty

“Taste Memory Formation: Latest Advances and Challenges,” Luis Núñez-Jaramillo, et al.

- Taste memory includes recognition of a taste, along with degree of hedonic value (pleasure), degree of familiarity, and nutritive or toxic characteristics associated with the taste
- Taste learning is a robust and adaptive process, needs to be for evolution
- Appetitive learning and conditioned taste aversion (CTA) memory models
 - New taste+no toxins=Appetitive
 - Allows for increasing range of food allowed, increasing nutrients
 - New taste+toxins=CTA
 - CTA can become “extinct” via increased consumption without toxins
- Nucleus of tractus solitarius (NTS), parabrachial nucleus (PBN), nucleus basalis magnocellularis (NBM), amygdala, and insular cortex (IC)

An Evolutionary Perspective on Food and Human Taste,” Paul A.S. Breslin

- Taste is a sensory modality involving the oral perception of food-derived chemicals that stimulate receptor cells within taste buds
 - Serves two functions
 - Enables evaluation of foods for toxicity and nutrients/helps us decide what to ingest
 - Prepares the body to metabolize foods once ingested
- Taste combines with smell and tactile sensations to form flavors
 - Allow us to identify and recognize food items as familiar or novel

- If the outcome is positive, taste will signal pleasure and reward
- Humans and possibly other omnivores perceive nutrients and toxins qualitatively as sweet, salty, sour, savory, and bitter
 - Bitter compounds largest/most diverse
 - Humans possess about 25 bitter taste receptor genes (T2Rs)
 - Might also have receptors for water, starch, maltodextrins, calcium, and fatty acids
 - No agreement on whether these are unique tastes
- Continuously replaced every 9 to 15 days to compensate for mechanical, thermal, or toxin damage
 - The gustatory epithelium can be removed or destroyed and will fully regenerate
 - One of few organs in humans capable of total regeneration
 - Also highly resistant to senescence and damage
 - Arguably one of the most durable and well-defended of all our sensory systems
 - Humans without taste exceedingly rare
- The Importance of Taste in Omnivores
 - Taste especially important to omnivores
 - Gustatory systems of herbivores/carnivores show lost taste receptors (pseudogenes)
 - Gustatory systems of aquatic carnivorous mammals have even more pseudogenes—probably because they swallow prey whole
 - kinetic/visual taste memory perhaps
 - *Taste sensations integrated with food temp, tactile textures, pain sensations from mouth, volatile compounds detected by the olfactory epithelium, and auditory inputs*
 - Multimodal integration leads to unified flavor gestalt
 - *“Oral stimulation by food perhaps the most richly multimodal sensory experience we can have” (4)*
 - Acceptance and rejection of tastes and flavors is mainly governed by brainstem reflexes
 - Drive rhythmic tongue movements and swallowing for sweet
 - Shuddering and gaping for bitter
 - Learning can reverse innate responses
 - “Palatability of a taste, flavor, or food, is the most labile of the chemosensory attributes” (4)
 - We also learn to enjoy mildly bitter foods, if paired with positive metabolic and pharmacological outcomes, ie: chocolate, coffee, wine
 - Matches between tastes and flavors=flavor congruences
 - Most taste-odor flavor pairings are learned associatively
 - Not only odors, but post-ingestive reward and punishment from nutrients, calories, and toxins
- Reward and punishment that is triggered by taste activation and associated with post-ingestive outcomes not necessarily conscious
 - Aware when brainstem reflexes of acceptance/rejection occur because we’re aware of our responses during the reflex, but these reflexes occur independently of forebrain/don’t require higher processing (5)

- Unconscious Taste Processes Guide Metabolism
 - Taste buds also serve as endocrine organs and secrete regulatory hormones in response to nutrient stimulation (5)
 - Anticipatory processes are essential to optimal metabolism during/after feeding
 - Large meal as an “assault” on nutritional homeostasis
 - Pre-absorptive insulin release (PIR)
 - Blunted PIR associated with obesity
 - Key factor in anticipating incoming nutrients, particularly sugars, are taste receptor responses (T1R2/T1R3)
- Anticipatory responses to ingested toxins as well
 - Humans have more-or-less accurate accounting of total toxic load in food
- Sour stimuli not of nutritional value, but when associated with fruit sugars, synergistic and appealing
 - Also associated with fermentation!
- Umami associated with aged and cooked meats
 - Humans have developed preference for glutamate, ribonucleotides, and umami
 - Cooking predates modern humans
- Fermentation=more readily available macro/micro nutrients, as well as probiotic bacteria
- Agriculture changed diet by greatly increasing grains and starch
 - Humans have lots of copies of amylase gene for salivary glands
 - No conscious perception of maltooligosaccharides/isomaltooligosaccharides (MOS/IMOS)—broken down into maltose then glucose by maltase—but can discriminate the taste from glucose/fructose
 - So high that a cooked starch can become a liquid within seconds in the mouth
 - Probably a taste receptor we haven’t found
- Moderate salt concentrations near isotonicity (osmotic equilibrium) are attractive
 - Carnivores have salt with each meal, herbivores easily sodium-depleted
 - Omnivores in between, but humans slightly more because sweat
- Taste and Human Reproduction
 - Pregnancy alters taste responses and feeding patterns in women
 - More bitter-sensitive/averse
 - Children also bitter averse
- Unfamiliar foods less likely to induce anticipatory metabolic reflexes and are thus less efficiently utilized
- Lack of energy and protein and loss of water/minerals through diarrhea are top two causes of death in children worldwide (8)
 - Here, taste evaluation crucial
- Processed, hyper-appelling foods as Tinbergian “super stimuli”
 - Ethologist Niko Tinbergen
 - Cause obesity and nutritional Catch-22
 - Deliberate overconsumption could be a way of searching for nutrients, particularly protein, at expense of obesity (8)

“Does Food Color Influence Taste and Flavor Perception in Humans?” Charles Spence, et al.

- Flavor according to the International Standards Organization as “complex combination of the olfactory, gustatory, and trigeminal sensations perceived during tasting. The flavor may be influenced by tactile, thermal, painful and/or kinaesthetic effects” (2)
- Does Food Color Influence Perceived Flavor Identity
 - Yes, possibly even visually dominant
- Expectancy-Based Effects of Food Coloring
 - visuals lead to certain expectations of flavor
 - Culture influences expectations for flavor

Auditory Taste

“Hearing,” Andrew J Oxenham

- Amplitude (Loudness)
 - Depends on distance, frequency content, duration, and context
- Frequency (Pitch)
 - Recognition of waveform recognition rate
 - Most common pitch-evoking sounds are harmonic complex tones
 - More than one frequency, all integer multiples of common fundamental pitch
- Timbre (Complexity)
 - Quality of sound (bright, dull, harsh, hollow, etc)
 - Anything that allows us to distinguish two sounds with identical pitch and amplitude
 - Shape and start/ends of sounds important to timbre
- Cochlea: spiral-shaped inner ear structure filled with fluid and hair cells
 - Transfer mechanical signals (sound waves) into chemical ones for brain
 - Like a prism, measures distance of a sound wave in order to discern multiple pitches
- Masking
 - One sound overpowering another
 - Low frequencies overpower high ones
- Spatial Hearing
 - Interaural time differences
 - Time difference between two ears hearing sound

Language and Taste

I was quite struck by Majid and Levinson’s claim, “Language gives us intersubjective sensory experience, without which there could not be a social science of the senses” (10). Language—both “big L” and “little l” (Majid and Levinson, 5)—allow us to communicate our tastes, embody experiences, and give them meaning. Talking about taste is rooted in association and comparison, making metaphor not merely a decorative tool, but a necessity for the communication of experience. The importance of conceptual metaphor, outlined by linguists and philosophers, Lakoff and Johnson, lays an interesting foundation for how we communicate taste. Since metaphor requires comparing two unlike things, language around taste is highly dependent on cultural and linguistic backgrounds and personal experience.

Describing Our Senses

Dr. Steffen Schwarz Interview

- Has to do with *association*
- The best cook is your mother, we love what we used to eat
- “As long as we aren’t Italians, we are pretty lazy in actively describing flavor”
- Italians always compare, like a huge network. Don’t have the absolute desire to have an absolute description, but a relative one
- As omnivores we respect this
- When you read a book, words go to wernicke’s center
 - Wernicke’s and broca’s center
 - One for physiological sound production
 - Wernicke takes the opinion (picture and word connected) associations!
 - It’s “good/delicious”
 - “Good” is not a haptic, taste, aroma, it’s an agreement -27’ish
- Why we use colors to describe flavors—difference between male/female
- Omnivores understand the language of color —55’

“The Senses in Language and Culture,” Asifa Majid and Stephen C. Levinson

- Language (universal) versus language (text/culture-specific) (5)
- The Role of Language in the “New Sensibility”
 - Postmodern treatment of ethnography wrote off the senses, privileging textualization at the expense of perception and participant observation
 - Embodiment movement in psychology
 - Direct activation of motor cortex by perception of gesture or words
 - understanding of one sensory domain by mapping another
 - Association of emotion and sensory experience
 - language delivered in acoustic/visual form
 - Ill-adapted to describing many senses
 - Only access to distal (sight and hearing)
 - distal-focusing/distant
 - Embodiment approaches typically expressed in metaphor

- Pitch of sounds on a high-low dimension in English
 - Thick-thin in Turkish/Farsi
- Can only teach “red” by pointing to it
 - Availability of repeated ostension crucial for learning labels of quale
 - Difficult to learn labels for smells, odor diffuses
- English poor in description of smells
 - Doesn’t make it beyond the expressive power of language
 - Other languages have dozens of smell terms (Jahai speakers)
- Rotting flesh emits distinctive chemicals (cadaverine and putrescine) different than chemicals emitted from the toilet (methane), reporting them as “stink” may literally dull senses
 - Connect to pyrazines
- Cultural landscapes hinted through languages’ treatment of senses
- We’re bad at identifying smell
 - Language can affect it to make even worse
- Language plays crucial role in constructing landscape of consciousness
 - Intermediary between the subjective, individual nature of sensation and the cultural world that constructs the perceptual field
 - Adds a projection outward clothed in public representations of private psyche and vice versa
- *“Language gives us intersubjective sensory experience, without which there could not be a social science of the senses” (10)*
- Cross-cultural perspective demonstrates myriad of categories unknown to Western social science
- Variation and Stability of Perceptual Categories
 - Globalization has meant language contact of a very different kind
 - Cantonese have grown distal (visual/hearing), shrunk proximal (smell/taste) due to Western values’ influence
 - Changing olfactory environment—changes in sanitation/notions of cleanliness—less exposure to olfactory experiences
- Limits of Expressibility
 - How do speakers cope when their language doesn’t have a fully developed system for expressing a perceptual category?
 - Umpila, Kata, and Kilivila have 3-4 words for color
 - Use comparison, iconic-indexical (pointing to things)
 - Umpila more attuned to luminance/reflectance rather than brightness/hue
 - Color-space=full body of color/types of it, color needs at least 3 values to define. Very robust research for a later date!
 - Turkish, Farsi, Zapotec express experiences of simple sounds
 - Use more sound metaphors unlike color (ad-hoc)
 - Perhaps natural analogies lay across different sensory domains
 - color=ad hoc/index
 - sound=metaphor

- Exquisite Expressibility
 - Words abstract over individual instances (ie precise shade of red)
 - Ideophones (not in English)
 - Semai ideophones, changing vowel pinpoints quale
 - Tzeltal word formation, compounding/reduplication changes the intensity
- Final Words
 - Language is never able to capture all the rich qualia of sensory experience
 - Viewing sense-scapes around the world, we can detect domains where one culture sings and another is silent
 - “May be what the cultural aesthetics of the senses plays on, invoking the liminal presence of felt experience” (16)

Metaphor

“Translating the Senses: Teaching the Metaphors in Winespeak,” Rosario Caballero and Ernesto Suarez-Toste

- Introduction
 - Conceptual metaphor theory
 - Symptomatic of particular and systematic ways of thinking rather than being a decorative device for stylistic purposes (242)
 - Is winespeak obnoxious? Inaccurate? Intentionally confusing?
 - No, intra-linguistic
 - Depends on comparing experiences and various associations
 - Sommeliers in between producer and consumer (gatekeepers)
- Pedagogical applications
 - “In wine tasting, metaphor *is* knowledge” (251)
 - Not a later ability, embellishment, or sophistication marker, but necessary
 - Wine literacy is intrinsically cross-modal and requires wine tasting with metaphors

Metaphors We Live By, George Lakoff and Mark Johnson

- 1: Concepts We Live By
 - Most people think they can get along perfectly well without metaphor
 - Our conceptual system is fundamentally metaphorical in nature
 - Concepts that govern thought are not just matters of intellect
 - Govern our everyday functioning
 - Argument is War
 - Imagine a culture where argument is viewed as dance
 - They argue that human thought processes largely metaphorical
 - Metaphors in linguistics are possible because they are metaphors in a person’s conceptual system
- 2: The Systematicity of Metaphorical Concepts
 - Time is money
 - Tied to culture
 - Systems of metaphor

“Metaphorical Mappings in the Sense of Smell,” Iraide Ibarretxe-Antuñano

- Introduction
 - “Fundamental principle of cognitive semantics is that we have no access to a reality independent of human categorization and that structure of reality is a product of the human mind” (29)
 - Embodiment
 - Conceptual categories, meaning of words/linguistic structures are not universal abstracts
 - Motivated and grounded more or less directly in experience
 - The way we reason and experience meaning based in structures of imagination that make experience what it is
 - Metaphor as a basic imaginative cognitive mechanism
 - “Grounds conceptual systems experientially and to reason in a constrained but creative fashion” (Johnson 1992: 351)
- The sense of smell: Property Selection Process
 - Concepts grounded in bodily experience implies that if we are able to characterize the domain of experience that constitutes the source domain, then it’s possible to constrain semantic extensions that occur in corresponding target domain.
 - Smell is internal
 - We are smelling all the time
 - Only when a smell stands out (good/bad) do we notice it
 - Voluntary
 - Smells difficult to identify immediately
 - Difficult to name
 - Smells are cultural
 - Smell and memory very strong—most intense emotional-memory-evoking
 - Olfactory and limbic systems
 - Prototypical smell properties
 - Internal, voluntary, detection, identification, subjective, emotional
 - “Used” part of metaphor, the part from one domain used on target domain (Lakoff and Johnson)

Worldview and Taste

“Worldview” is an incredibly broad, subjective category, and to capture all factors that make up one’s “worldview” would be impossible. However, for this project, I focused on research on taste regarding emotion, morality, and personal identity. Familiarity and knowing the “rules” of a particular genre (Evers, et al., 9) are important to positive experiences with a stimulus. Broader levels of familiarity seem to be attached to social highbrows and professionals, suggesting that omnivorous taste can be learned through education or repeated exposure. Additionally, factors such as age, life goals, and religiosity can have a clear impact on taste preferences. With the advent of technology like streaming services, social media, and other electronic gatekeepers like Yelp, we have developed new strategies to build our tastes. Technology has helped bring people greater access to experiences, but has also commodified some of the most intimate aspects of our identities.

Emotion and Taste

“A Bad Taste in the Mouth: Gustatory Disgust Influences Moral Judgment” Kendall J. Eskine, et al.

- Hume quoted: moral judgments based on emotions rather than reason
- People assess something as morally wrong when it elicits physical disgust
- Cleanliness/freshness=more kindness/less judgment (1)
- Facial motor activity integral to disgust in gustatory, visual, and moral domains
- Moral judgments are affected by taste, especially if taste is disgusting
 - Stronger for conservatives
 - Disgust associated with violations of purity norms
- *As John Ruskin noted, “Taste is not only a part and index of morality, it is the only morality. The first, and last, and closest trial question to any living creature is ‘What do you like?’ Tell me what you like, I’ll tell you what you are” (as cited in Meynell, 1900, p. 174).” (4)*

“Taste and Familiarity Affect the Experience of Groove in Popular Music,” Olivier Senn, et al.

- Groove as ‘a pleasant sense of wanting to move along with the music’ (Janata, Tomic, and Haberman) (2)
- Enjoyable impulse to move may be why humans listen to music during activities that include aspects of temporal regularity
 - Basis for dancing
 - Provides motivation for sports/workouts
 - Makes repetitive work more agreeable
 - Structures cultural/religious rituals
 - Paces even mundane chores
- H1: Familiarity
 - People have stronger groove experience with songs they are familiar with
 - Repeated listening increases liking
 - Also applies to relationships, web design, landscapes, architecture, etc...
 - Familiarity stronger for rock and pop compared to funk

- H2: Style Family Preference
 - People experience more groove when music belongs to style family they like
- H4: Expertise
 - Music professionals gave higher groove ratings to funk (and converse with non-musicians)
 - Very small effect
- Familiarity and taste most important to groove
- Listening experiments mean the participants bring their own backgrounds to research
- General attitude toward dancing may impact groove experience
 - Witek et al. (19)

Identity and Taste

“Changing Highbrow Taste: From Snob to Omnivore,” Richard A. Peterson and Roger M. Kern

- High-status Americans more likely to consume fine arts in wide range of forms
 - More omnivorous than others
- Change partly cohort displacement but mostly all ages
- Not about indiscriminate omnivorousness, but openness
- Criteria of distinction must center not on what one consumes but the way items of consumption are understood
- Social power relationships have changed
 - Mass media
 - Exclusion increasingly difficult at this time
 - Scientific theory
 - Market forces of art
 - Possibly, omnivorism is a way of gentrifying, current favored strategy of status group politics for dominant status enforcement
 - Better adapted to an increasingly global world

“Gender Differences in Musical Taste: The Mediating Role of Functions of Music,” Snježana Dobrota, et al.

- Disclaimer: This article is about Croatian/Slovenian students, probably not the same as Americans?
- So many variables
- Females preferred reflective and complex styles
 - More effective for emotional/social function
- Males preferred intense/rebellious music
 - More effective for political attitudes (only factor really significant for males)
 - Possibly biological? Socialized?
 - Negative correlation between testosterone level and preference for sophisticated music in men (Doi, Bassadone, Venuti, and Shinohara, 2018) (12)

“Exploring the Musical Taste of Expert Listeners: Musicology Students Reveal Tendency Toward Omnivorous Taste,” Paul Evers, et al.

- Musical taste versus Preference
 - Taste: more general evaluative attitudes
 - Preference: direct evaluative judgments typically based in comparison of two musical objects
- Literature Review
 - Music from adolescence perceived more emotionally arousing later in life (Schulkind et al)
 - Musical taste formed in adolescence usually stays stable across lifespan (Holbrook and Schindler)
 - People who study instruments more likely to like “sophisticated music”
 - Also like the music on their own instrument
 - Leads to greater appreciation of music in general (other than rap/hip hop and dance/techno)
- Musicology listeners skew toward “engaged listener” cluster
 - Larger role of musical expertise and development toward cultivation of omnivorous taste
- Omnivore taste and greater overall engagement with music are positively correlated
 - Not necessarily about social status, *education/high involvement can result in omnivorous taste as well*
- Level of a single musical piece, exposure has positive effect on appreciation/liking
- “*Learning the rules that underlie musical structure might be an important factor for having a deeper interest and greater appreciation of that musical style*” (9)
 - Specific piece level, familiarity with piece plays crucial role in anticipating musical events/reward

“The Relationship Between Uses of Music, Musical Taste, Age, and Life Goals,” Emily Hird and Adrian North

- Older people more likely to use music to regulate mood/believe it does
- As age increases, individuals place less priority on education, romantic partnership, and identity-building and more on family, health, and wealth
- Love associated with each use of music
 - Not related to age, contrary to existing literature
- Age implies greater or lesser salience to individual life goals which affect taste standalone as well

“Moral Distinction: Religion, Musical Taste and the Moral Cultural Consumer,” Haydn Aarons

- Pierre Bourdieu—cultural capital etc...
 - Somewhat narrow conceptualization of culture and taste as purely a class struggle
 - “Cultural capital is produced through various forms of cultural socialization accessible mostly to those with sufficient economic capital. Tastes according to Bourdieusian perspectives are empirically demonstrated to entail narrow and exclusive regimes of genre and practice” (3)
- Higher attendance at musical events for regular church attendees
- More theologically conservative have greater preferences/dislikes

- Highbrow music more attractive to religious
 - Still tend more toward omnivorous
 - But the motivation may be separate from pure social class

Technology and Taste

“Don’t Mess With My Algorithm: Exploring the Relationship Between Listeners and Automated Curation and Recommendation on Music Streaming Services,” Sophie Freeman, Martin Gibbs, and Bjorn Nansen

- Introduction
 - Access to a so much music means listeners rely on algorithmic recommenders more often
 - Tension between algorithmic and commercial logics of platform
 - Gatekeepers in music industries not new
 - Shifts taste and mood, two subjective human traits, to commercial and algorithmic data points
 - Control and Transparency
 - Liz Pelly: Spotify as a “big mood machine” 9
- Findings and Discussion
 - Theme 1: Alterity
 - Users often gave recommender system an identity or had an imagined conversation
 - System as other to them
 - Relationship with reliance, trust, understanding, betrayal, etc...
 - Them 2: Theories
 - Many users constructing personal theories to understand how the system works
 - Usually only notice when it’s “bad” or “inaccurate”
 - Theme 3: Tactics
 - Listeners attempting to circumvent algorithmic curation
 - Personal Discovery has more meaning for many listeners
- Conclusion
 - Tension between agency and reliance on streaming platforms
 - Who is the expert?
 - We let our algorithms into our most intimate moments

Reflection

Presentation

The presentation was an absolute blast! A little over twenty people participated, with a mix of friends, family, professors, and Honor Scholar peers. Overall, I am happy with the flow and general mood of the event, as everyone seemed engaged, comfortable, and curious—both listening to the research and trying each coffee. This was confirmed in the audience survey.

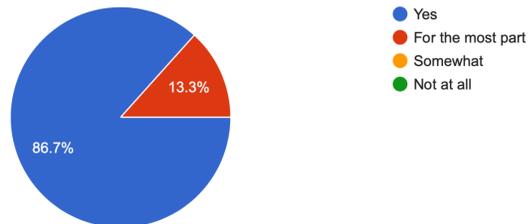
I was especially focused on making my ideas as clear as possible, as feedback from last semester's presentation revolved around restating main ideas and making them more clear. Though I could continue to improve emphasizing my thesis, I felt as if my main ideas were fairly transparent throughout the performance. This was also largely confirmed in the audience survey.

While I was worried about making enough coffee given the spotty-participation via the online RSVP, brewing coffee was fairly seamless and plenty was made for the audience size.

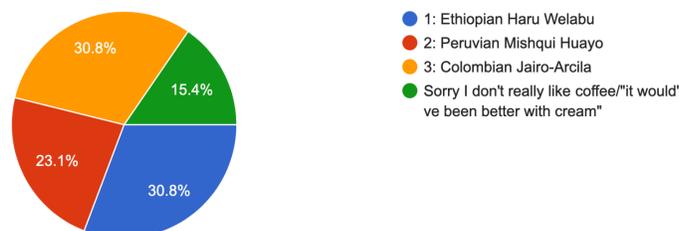
Survey Results

General Conclusions:

Did you feel the presentation was clear/engaging?
15 responses

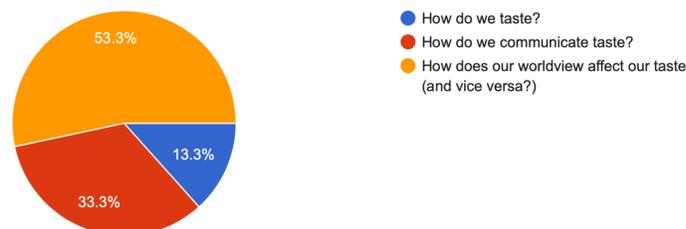


Which coffee sample was your favorite?
13 responses



What section was the most interesting to you?

15 responses



Other Notable Takeaways:

Activity 1:

- After the first coffee sample, when asked “What's 1-2 words you would use to describe this coffee?” thirteen out of seventeen responses used various fruits or the adjective, “fruity” to describe the coffee, despite almost no flavor notes being given ahead of time.
 - This suggests that even without lots of coffee experience, the first sample expresses clear fruit notes.
 - Many of the audience members have also heard me frequently describe coffee in terms of different fruits, prompting them to lean more heavily on fruity descriptions for coffee.
- After the first coffee sample, considerable variance was observed in participants’ perceived sourness, savoriness, and bitterness.
 - This could be due to a lack of experience with common terminology in coffee tasting or varying definitions of what sourness, savoriness, and bitterness mean.
- After the first music sample, over a quarter of the responses noted the use of a baby’s cry in “Isn’t She Lovely,” by Stevie Wonder (from the Album, *Songs in the Key of Life*, 1976).
 - This is really fascinating and something I didn’t think about when preparing the sample.

Activity 2:

- When asked “What does this song remind you of? (Could be another song, mood, place, etc.)” a majority of participants listed things associated with Spanish or Latin connotations.
 - However, the responses describing the second coffee sample were much more diverse

Activity 3:

- When asked “What's one area of your life you would like to develop your taste and why?” Participants listed the following:
 - Wine (4), visual art (2), vegetables (2), sculpture, bread, adult films, fashion, tea, reducing sweets cravings, whisky

Further Research/Areas to Improve

Unfortunately, given the time constraints of the Honor Scholar project, I was unable to dig as deeply into some of the research on coffee, music, and taste. Most notably, I would like to continue research on philosophical foundations of taste, from thinkers such as Aristotle, Kant, Hume, Shaftesbury, and others. Additionally, I would like to look at contemporary philosophy on taste and aesthetics. Outside of philosophy, I hope to dig much deeper into coffee science on a more academic level. While I was able to discover quite a lot about the anatomical and physiological mechanisms for taste, I would like to have better integrated those descriptions into my presentation as well, especially regarding auditory taste. The connection between gustatory and auditory taste, though overall successful, felt slightly loose and uneven both in research and presentation.

Some of the takeaways from the survey question, “What was one thing that could be improved?” suggested being able to see the results from the activities in real time, going into more detail on the coffee samples and chemicals specific to coffee taste, and elaborating more on the research.

I could mitigate some of these suggestions by using Miro or another web-based, real-time note board instead of Google Forms, as well as having printed cool “tasting cards” to give out after each coffee sample. Though I intentionally wanted audience members to go in somewhat “blind” with their tastings, having some foundation to build off of in terms of flavor description and coffee knowledge would be very cool. Additionally, though time restraints forced me to really prioritize taste as the focus of the presentation, more information specifically about specialty coffee would have added a fun element to the performance aspect of the project.

Works Referenced

- Aarons, Haydn. "Moral Distinction: Religion, Musical Taste and the Moral Cultural Consumer." *Journal of Consumer Culture*, vol. 21, no. 2, 2018, pp. 296–316., <https://doi.org/10.1177/1469540518787584>.
- Adhikari, J., et al. "Impact of Consumption Temperature on Sensory Properties of Hot Brewed Coffee." *Food Research International*, vol. 115, 2019, pp. 95–104., <https://doi.org/10.1016/j.foodres.2018.08.014>.
- Barton, Matt. "Hearing - Anatomy & Physiology of the Auditory System." *YouTube*, 5 Feb. 2018, <https://youtu.be/A2Ee9VrDHh4>.
- Bhumiratana, Natnicha, et al. "Coffee Drinking and Emotions: Are There Key Sensory Drivers for Emotions?" *Beverages*, vol. 5, no. 2, 2019, p. 27., <https://doi.org/10.3390/beverages5020027>.
- Binder, Jeffrey R. "The Wernicke Area." *Neurology*, vol. 85, no. 24, 2015, pp. 2170–2175., <https://doi.org/10.1212/wnl.0000000000002219>.
- Boers, Frank, et al. "Translating the Senses: Teaching the Metaphors in Winespeak." *Cognitive Linguistic Approaches to Teaching Vocabulary and Phraseology*, Mouton De Gruyter, New York, 2008, pp. 241–259.
- Breslin, Paul A.S. "An Evolutionary Perspective on Food and Human Taste." *Current Biology*, vol. 23, no. 9, 2013, <https://doi.org/10.1016/j.cub.2013.04.010>.
- Chambers, Edgar, et al. "Development of a 'Living' Lexicon for Descriptive Sensory Analysis of Brewed Coffee." *Journal of Sensory Studies*, vol. 31, no. 6, 2016, pp. 465–480., <https://doi.org/10.1111/joss.12237>.
- Chrea, C., et al. "Mapping the Semantic Space for the Subjective Experience of Emotional Responses to Odors." *Chemical Senses*, vol. 34, no. 1, 2008, pp. 49–62., <https://doi.org/10.1093/chemse/bjn052>.
- Dobrota, Snježana, et al. "Gender Differences in Musical Taste: The Mediating Role of Functions of Music." *Drustvena Istrazivanja*, vol. 28, no. 4, 2019, pp. 567–586., <https://doi.org/10.5559/di.28.4.01>.
- Elvers, Paul, et al. "Exploring the Musical Taste of Expert Listeners: Musicology Students Reveal Tendency toward Omnivorous Taste." *Frontiers in Psychology*, vol. 6, 2015, <https://doi.org/10.3389/fpsyg.2015.01252>.
- Eskine, Kendall J., et al. "A Bad Taste in the Mouth." *Psychological Science*, vol. 22, no. 3, 2011, pp. 295–299., <https://doi.org/10.1177/0956797611398497>.

- Freeman, Sophie, et al. “‘Don’t Mess with My Algorithm’: Exploring the Relationship between Listeners and Automated Curation and Recommendation on Music Streaming Services.” *First Monday*, 2022, <https://doi.org/10.5210/fm.v27i1.11783>.
- Gasser, Nolan. *Why You like It: The Science and Culture of Musical Taste*. Flatiron Books, 2020.
- Gray, Lincoln. “Auditory System: Structure and Function.” *Neuroscience Online: An Electronic Textbook for the Neurosciences*, The University of Texas Medical School at Houston, 7 Oct. 2020, <https://nba.uth.tmc.edu/neuroscience/s2/chapter12.html>.
- Hardach, Sophie. “How Your Language Reflects the Senses You Use.” *BBC Future*, BBC, 26 Feb. 2019, <https://www.bbc.com/future/article/20190226-how-your-language-reflects-the-senses-you-use>.
- Haynor, Barbara et al. “How Do We Hear, Speak, and Make Music?”
- Hird, Emily, and Adrian North. “The Relationship between Uses of Music, Musical Taste, Age, and Life Goals.” *Psychology of Music*, vol. 49, no. 4, 2020, pp. 872–889., <https://doi.org/10.1177/0305735620915247>.
- Ibarretxe-Antuñano, Iraide. “Metaphorical Mappings in the Sense of Smell.” *Metaphor in Cognitive Linguistics*, 1999, p. 29., <https://doi.org/10.1075/cilt.175.03iba>.
- Illy, Ernesto. “The Complexity of Coffee.” *Scientific American*, vol. 286, no. 6, 2002, pp. 86–91. *JSTOR*, <http://www.jstor.org/stable/26059726>. Accessed 27 Mar. 2022.
- Lakoff, George, and Mark Johnson. *Metaphors We Live By*. University of Chicago Press, 2017.
- Majid, Asifa, and Stephen C. Levinson. “The Senses in Language and Culture.” *The Senses and Society*, vol. 6, no. 1, 2011, pp. 5–18., <https://doi.org/10.2752/174589311x12893982233> 551.
- Núñez-Jaramillo, Luis, et al. “Taste Memory Formation: Latest Advances and Challenges.” *Behavioural Brain Research*, vol. 207, no. 2, 2010, pp. 232–248., <https://doi.org/10.1016/j.bbr.2009.10.040>.
- Oxenham, Andrew. “Hearing.” *Noba*, Noba, <https://nobaproject.com/modules/hearing>.
- Peterson, Richard A., and Roger M. Kern. “Changing Highbrow Taste: From Snob to Omnivore.” *American Sociological Review*, vol. 61, no. 5, 1996, p. 900., <https://doi.org/10.2307/2096460>.
- Riddler, M. “Topic: Coffee Market Worldwide.” *Statista*, 7 Mar. 2022, https://www.statista.com/topics/5945/coffee-market-worldwide/#topicHeader__wrapper.
- Seninde, Denis Richard, and Edgar Chambers. “Coffee Flavor: A Review.” *Beverages*, vol. 6, no. 3, 2020, p. 44., <https://doi.org/10.3390/beverages6030044>.
- Senn, Olivier, et al. “Taste and Familiarity Affect the Experience of Groove in Popular Music.” *Musicae Scientiae*, vol. 25, no. 1, 2019, pp. 45–66., <https://doi.org/10.1177/1029864919839172>.

- Skipper, Jeremy I., et al. "Speech-Associated Gestures, Broca's Area, and the Human Mirror System." *Brain and Language*, vol. 101, no. 3, 2007, pp. 260–277., <https://doi.org/10.1016/j.bandl.2007.02.008>.
- Spence, Charles, et al. "Does Food Color Influence Taste and Flavor Perception in Humans?" *Chemosensory Perception*, vol. 3, no. 1, 2010, pp. 68–84., <https://doi.org/10.1007/s12078-010-9067-z>.
- Standage, Tom. *A History of the World in 6 Glasses*. Walker & Co., 2006.
- "The History of Coffee." *NCA*, <https://www.ncausa.org/About-Coffee/History-of-Coffee>.
- Trivedi, Bijal P. "Gustatory System: The Finer Points of Taste." *Nature*, vol. 486, no. 7403, 2012, <https://doi.org/10.1038/486s2a>.
- Webster, Jack. "Taste in the Platform Age: Music Streaming Services and New Forms of Class Distinction." *Information, Communication & Society*, vol. 23, no. 13, 2019, pp. 1909–1924., <https://doi.org/10.1080/1369118x.2019.1622763>.