Toward a theory of gender communication design

Joel Nathanael Hughes

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Toward a theory of gender communication design

Joel Nathanael

(Joel Nathanael Hughes)

A thesis submitted to the graduate faculty
in partial fulfillment of the requirements for the degree of

MASTER OF FINE ARTS

Major: Graphic Design

Program of Study Committee:
Andrea Quam, Major Professor
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The student author, whose presentation of the scholarship herein was approved by the program of study committee, is solely responsible for the content of this thesis. The Graduate College will ensure this thesis is globally accessible and will not permit alterations after a degree is conferred.

Iowa State University
Ames, Iowa
2020

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ABSTRACT

Communication Design (CD) has historically been normed as male through education, practice, and observation. This includes seminal thinkers, readily available cultural examples, and even the design school studio model. The result is a gender binary that prizes male—and increasingly white, hetero, cis—thought, practice, and work above all others. This is problematic for a myriad of reasons; the perpetuation of patriarchal dominance, reinforcing white supremacy, and the fundamental limiting of the discipline. Lastly, upholding these ideals comes at the cost of expanding the knowledge of the discipline.

I will focus on the gendered ramifications of the gender binary. This study aims to; One offer a historical and contemporary context in which CD adjacent disciplines have made new initial commitments regarding gender and undergone paradigm changes as a result; Two examine three critical case studies examining gender and CD; Three identify channels of communication by which gender is expressed, for purposes of establishing a Theory of Gender Communication Design (GCD). Through a close examination of the literature the following research question has been formed.

RQ1: What elements of Communication Design need investigation to understand the discipline’s relationship with gender?
RQ2: How might form, color, linguistic cues, material, sound, and motion be understood to express gender through Communication Design?

Ideally, this research will lead to an increased understanding of the role of gender in CD. This understanding has implications for initial commitments, disciplinary matrix, and ultimately
the paradigm of CD, and can also offer a solution to the drawn-out paradigm shift of CD.

Through these investigations, strategies for the implementation of GCD can be developed that directly affect design education, design practice, and design scholarship.
CHAPTER 1. PROBLEM SPACE

There are few studies of gender in design, and fewer in graphic design. Gender has been examined in the fields of semiotics (Berger, 1972; Barthes, Howard, & Lavers, 2013; Rose, 2016; Howells & Negreiros, 2012), biology (Dawkins, 2006; Fausto-Sterling, 2012; Fausto-Sterling, Coll, & Lamarre, 2012; Fausto-Sterling et al., 2012; Juschka, 2009) and communication studies (Wood, 2010). However, in graphic design adjacent disciplines, there are only studies focusing on products, packaging design, and perceptions of products in relation to gender communication (Ehrnberger, Räsänen, & Ilstedt, 2012; Lieven, Grohmann, Herrmann, Landwehr, & van Tilburg, 2015; Ritnamkam & Sahachaisaeree, 2012; Shrum, 2012).

Of the extant research on gender in design, the goal of said research is overwhelmingly for the purposes of marketing, product sales, general consumer behavior and how best to design products to meet market needs. While addressing market needs, and offering insights into how to teach gendered design, this does little to address the fundamental problem of initial gender commitments. The purpose of my research is to go beyond the mechanics of crafting a message for a specific gendered demographic; my goal is to dive deeper into the foundational values of CD. The literature has shown several channels of communication to be directly related to the communication of gender: form, color, material, linguistic cues, motion, and sound (Ehrnberger et al., 2012; Lieven, et al., 2015; Ritnamkam & Sahachaisaeree, 2012; Shrum, 2012). Of those channels, form and color, and linguistic cues are the most readily taught in design school programs (Armstrong, 2009; Davis, 2012, 2017; McCarthy, 2013; Samara & Safari, 2014). Examining these primary channels of communication will garner a more robust understanding of gender and gender design communication (Armstrong, 2009; Boradkar, 2010; Cross, 1999, 2000).
Relevant Definitions

- Color: The range of properties, relative temperature, value, hue, and saturation, as applied to a form, geometric or organic (Samara & Safari, 2014; Wong, 1993).

- Communication Channel: "a medium for communication or the passage of information. In mechanical terms, the channel is a circuit used as the path for a signal. Under broader definition, it is the means for delivering messages: print digital networks, and projection for visual communication" (Davis, 2012).

- Communication Design: According to the American Institute of Graphic Artists (AIGA), Communication Design "encompasses print media, packaging, broadcast media, and interactive media" (Wong, 1993).

- Disciplinary Matrix: The key theories, values and metaphysical assumptions, [ontological commitments] that a paradigm operates by. This also includes how knowledge about the discipline is constructed and epistemologically transmitted to subsequent generations (Bird, 2018).

- Form: The conceptual elements, point, line, and plane that work in conjunction to define a specific space of visual communication (Samara & Safari, 2014) Wong, 1993). Form is further broken down into geometric and organic.

- Gender Communication Design: The encoding and decoding of gender by means of communication channels expressed through the range of mediums available to communication design framework. These channels serve to build, reinforce, and change an individual's performance of gender (Wood, 2011)
• Gender: A continual, dynamically negotiated performance by an individual within the confines of a cultural framework (Butler, 1988; Fausto-Sterling, 2000, 2012a; Juschka, 2009).

• Geometric Form: A visual communication space that is mathematically constructed and typically consists of hard and angular edges (Samara & Safari, 2014; Wong, 1993).

• Intersectionality: A critical framework that considers the multiple and overlapping ways in which marginalized identities, such as those informed by race and gender, affect the dimensions of an individual's experience. Specifically, this framework allows for a greater understanding of individuals at increasing levels of marginalization (Crenshaw, 1991).

• Linguistic Cues: Language offers clues into the intent of particular communication design message. For example, linguistic cues within the description of a product or service offer sites of gendering and gender communication.

• Male Gaze: a configuration of gaze where a male takes action and a female is seen and shown (Sassatelli, 2011).

• Material: A medium that is manipulated to produce a communication design message; this medium can be physical or digital.

• Motion: The application of movement to a physical or digital medium, to produce a communication design message. This

• Ontological Commitment: these are the conditions that must exist and to which a theoretical framework must adhere for the theory to be true (Bricker, 2016).
• Organic Form: A visual communication space that is primarily characterized by complex, irregular, and free-flowing lines or edges that tend to mimic naturally occurring elements (Samara & Safari, 2014; (Wucious Wong, 1993).

• Paradigm: The key theories, laws, methods, methodology, language, goals, values, and disciplinary matrix that all constitute a discipline (Bird, 2018).

• Sound: A channel by which signals are encoded and decoded within the auditory frequency range for purposes of crafting a communication design message. This includes speech, music, environmental auditory signals i.e. the clicking of a turning signal or the beeping of a crosswalk timer.
CHAPTER 2. LITERATURE REVIEW

Given the paradigm shift of Design, beginning in the late 90's, the scope of this literature review has been limited to research conducted from 2000 onwards. This constraint of the literature review is only applied to literature that specifically pertains to Design and Gender; some of the other literature is seminal in nature and must be addressed within the context of the larger argument.

The primary implication for CD and a paradigm shift toward a gender focused ontology is stated by Ehrnberger et. al. as a "...search[es] for solutions beyond gender-dichotomous thinking" (2012). Gender-dichotomous thinking, or the gender binary, is a particularly wicked problem, and functions on two initial commitments. One, it presents an inherent need for the cis-hetero-male to be the default and optimal intersection. Two, any other intersection is not the default, and is therefore inferior to the default intersection of cis-hetero-male.

This in fact, creates a false binary as the two halves are not equal nor does gender, socially and biologically, function as a binary construct (Bird, 2018). The binary presented in this initial commitment is deeply rooted in patriarchal ideology and is inherently antagonistic to feminist thought and practice. Further inequalities arise from a gender binary as it serves to erase transgendered, nonbinary, gender-fluid, and any other non cis-male identifying persons. This also has implications for sexual orientation as the default as a hetero-cis-male diminishes the very lives of all non-male identifying persons. Lastly, the gender binary has implications for race as well as the hetero-cis-male is historically situated in patriarchal whiteness which is antithetical and antagonistic to any other racial intersection.

Paradigm shifts or as Thomas Kuhn refers to them, revolutions are necessary and integral to the health and normal state of a discipline (Kuhn, 2012, pp 5, 92). As discussed above, CD is
in the throes of a long drawn out paradigm shift. It is important to note that although the Kuhnian paradigmatic model is specifically applied to science, for purposes of this argument, is applied to CD. While Communication Design is not a science as defined by the Kuhnian criteria, it is approaching a science, or as Kuhn states on the "route to normal science (Kuhn, 2012, pp 17). Though not a full science, CD is rooted in Gestalt Theory, Semiotics, Linguistics, and the Emmert/Donaghy Model of Communication (Davis, 2012).

To understand what this means for CD, an examination of fundamental elements of the paradigm needs to occur. Ontology, or initial commitments, for example the physicist’s Standard Model, the biologist's Evolutionary Genetics, linguist’s Conceptual Metaphor, serve as foundations by which entire disciplines operate. Further, a disciplinary matrix's ontological commitments establish the boundaries and principals by which a discipline is characterized (Kuhn, 2012 pp 43). A disciplinary matrix includes the epistemological construction, assembly and transmission of knowledge of a discipline through the cycle of being taught, conducting research, and teaching that research to a new generation of researchers, or in the case of CD, practitioners. This transmission of disciplinary knowledge ensures the success and furtherment of a discipline. Therefore, if a discipline is rooted in, upholds, and perpetuates gender binary thinking, all research conducted in that discipline is limited by those boundaries. These limitations are additionally perpetuated in the transmission of disciplinary knowledge. Lastly, Kuhn's framing of disciplinary matrix is informed by exemplars. Essentially, one specific paper or book is so profound that it is itself a paradigm. Kuhn offers the example of Ptolemy’s calculations of planetary movement as an exemplar (Bird, 2018).
A literature review is necessary to establish and understand how adjacent disciplines have negotiated paradigm shifts based on existing gender ontological commitments. Each of the following examples are exemplars of their respective disciplines.

**Feminist Philosophy of Science**

The historical approach to science has been to minimize subjectivity in favor of objectivity and to consider objectivity bereft of personal and social influence as far as possible so as to minimize bias. Noted feminist philosopher of science Helen Longino argues, in her critique of Kuhn's Structure of Scientific Revolutions, that science is entirely a social endeavor and as a social endeavor, science too is subject to 'objectivity by degrees' (Longino, 2013, pp. 155–157). Longino offers four criteria that must be satisfied in "achieving the transformative dimension of critical discourse" for a discipline to be considered objective: (1) recognized avenues of criticism; (2) shared standards; (3) community response; (4) equality of intellectual authority. The latter two are, for purposes of this argument, the most important. On community response, Longino argues that the community must change over time in response to the internal critical discourse. Further this responsiveness must be reflected in "the content of textbooks, distribution of grants and awards, and the flexibility of dominant world views"; if not, this is indicative of a discipline failing to achieve critical discourse.

On equality of intellectual authority Longino discusses how the twentieth century bureaucratization of science in the United States has led to an adherence to political leanings which foster alogical practices and a breakdown of critical discourse (Longino, 2013, pp. 156). These adherences tend to privilege certain points of view while excluding not only dissenting voices but voices of women and similarly underrepresented racial and gender minorities. This is
a violation of criteria since it does not allow for comprehensive criticism and prioritizes maintaining the status-quo.

Longino rejects Kuhn's idea of objectivity as it is inherently individualist and attempts to decontextualize science from social frameworks. This marks a shift in the initial commitments of the philosophy of science and meets the criteria for a Kuhnian revolution. The great irony here is the revolution is a response to what Kuhn himself first argued in his Structure of Scientific Revolutions.

**Biology in a Social World**

Regarding sex and gender, the historical position in biology has long been that there are only two sexes/genders, male and female, and that sex and gender are interchangeable. Although gender is more readily understood as constructed sex, however, it is framed as 'natural’ and or ‘real’. Preeminent scholar of Biology and Gender Studies, Anne Fausto-Sterling unequivocally states that the aforementioned position is one of 'false dichotomies' (Fausto-Sterling, 2000, pp. 27). Fausto-Sterling goes on to further argue that sex too is a construct since the human body is biologically constructed. For instance, if a baby is born without the appropriate body parts, surgeons will remove or reconstruct parts as is consistent with 'normal' biological presentation. Fausto-Sterling outlines her approach to the changes in sex and gender commitments in three steps (1) Brains can Change Within a Single Generation; (2) Changes in Cultural Responses Infant Gender Can Take Several Generations; (3) Changes in the Social and Legal Structures of Gender Can Happen in One Generation, or They Can Take Longer (Fausto-Sterling, 2012a). Through this she outlines a multifaced approach to the way her discipline responds to changes in the understanding of sex and gender, as well as how biological, sociocultural, and legal understanding of sex and gender can change.
Semiotics of Gender

In the monograph "Political Bodies / Body Politic: The Semiotics Gender", Darlene Juschka frames her argument for gender/sex signing systems by rejecting that sex is ‘natural’ and that gender is social. Rather, she argues that both sex and gender are interrelated social categories and work in conjunction to produce a gender/sex signing system. Therefore, her initial commitment of a gender/sex signing system informs the myth, ritual, and symbol results in a semiotics of gender (Juschka, 2009, pp 19). Later, Juschka posits that, "myth, ritual, and sign-symbol are three significant categories that function to shape and define paradigm and/or social formation" (2009, pp. 191). Of all the paradigm shifts noted thus far, Juschka's is the most self-aware of ontological commitments that lead toward a paradigm change. This is especially important as semiotics is the most evolved discipline informing the field of visual communication. Therefore, the new commitments by Juschka offer new insights into gender/sex commitments in the field of communication design.

Art, Visual Culture, and Intersectionality

In the BBC miniseries "Ways of Seeing", and book of the same name, art critic and visual culture essayist John Berger challenged the longstanding traditions of art and criticism. Most notably Berger brought attention to the notions of (1) the surveyor and the surveyed; (2) acting and the appearing; (3) the naked and the nude (Berger, 1990, pp 46–49). In the art canon, women have primarily been relegated to the role of being both the surveyor and the surveyed. Women have historically been responsible for surveying their appearance and general presentation for the gaze of others, especially men, while simultaneously being surveyed by those same men. Essentially, women have been characterized and defined by their adherence to male normed rules and expectations. Berger further explains that men simply act, and women
simply appear—most often appearing at the behest and service of men. Men act by watching women and women appear by being watched. This, as Berger argues, "determines not only most relationships between men and women but also the relationship of women to themselves" (Berger, 1990, pp. 47). This builds upon the Berger's initial classification of the surveyed and the surveyor; in this case the woman is in the dual state of surveyor/surveyed, while the man is only the surveyor of the woman, resulting in the deep-seated objectification of the woman. Lastly, Berger addresses the ideas of naked and nude. To be naked is a personal choice and is generally regarded as removed from the eyes of a surveyor. Whereas nude is to be in an objectified state at the whims and pleasure of the surveyor. With these assertions Berger establishes new analytical tools and initial commitments to art and visual culture criticism. This assessment was an especially cogent criticism of our culture given that the BBC miniseries originally aired in 1972 in the middle of Second-Wave Feminism.

Moving beyond the world of art and visual culture criticism into the realm of cinema, feminist film theorist Laura Mulvey asserts that cinema essentially picks up where classical art left off. By building on the work of Berger in her article "Visual Pleasure in Narrative Cinema", Mulvey offers a critique of cinema in what she refers to as "the paradox of phallocentrism" in which she offers an explanation that women appear in cinema in terms of their absence, specifically that the symbol of woman is that of a castrated man (Mulvey, 2003, pp. 57). Mulvey further asserts that cinema serves to code and emphasize 'visual pleasure' into mainstream culture, thereby upholding patriarchal values. These values reinforce that women are 'images' and men are 'bearers of the look' (2003, pp. 60). The appearance of women in cinema reinforces their objectification and men's fixation on them, and is best understood in as scopophilia, pleasure in looking, and what Mulvey coined as the 'male gaze' (2003, pp. 59, 64). Through the
understanding and application of scopophilia in conjunction with the male gaze, Mulvey offers new analytic tools for decoding existing cinema and encoding cinema beyond that of appealing to the visual pleasure of an audience rooted in patriarchal commitments.

Furthering Berger and Mulvey's work, feminist theorist bell hooks offers a deeper critique of gender by including race into idea of male gaze in her article "The Oppositional Gaze: Black Female Spectators" (hooks, 2003, pp. 108). hooks argues that gaze is not only gendered but racialized. She recounts how Emmet Till was falsely accused of rape because he looked at a white woman, therefore equating his gaze with a violation of his accuser. Till was lynched and murdered four days later on August 28th, 1955. The horrible events surrounding Till's murder are a testament to the power of gaze and the racialization of gaze. hooks dives deeper into the gendered implications through the portrayal of black women in cinema. She argues that the white patriarchal system propelling cinema is aware of the portrayal of women and especially black women in cinema as objects. hooks further argues that black women in cinema are not only objects but "serve to—to enhance and maintain white womanhood as an object of the phallocentric gaze" (hooks, 2003, pp. 109). By offering a new and comprehensive framework for understanding gaze and its relationship to gender and race, hooks' work serves as a touchstone for analyzing gender and race in cinema. hooks' work rooted in feminism, race, and cinema criticism, builds upon Mulvey's male gaze and Berger's naked and nude, while foreshadowing intersectionality.

Intersectionality, a framework coined by Kimberlé Crenshaw, lawyer, civil rights activist, and theorist, offers a method to understand that social problems are composed of overlapping social intersections (as demonstrated earlier by hooks); and that these overlapping intersections increase levels of marginalization (Crenshaw, 1991). For example, there is a significant
difference in the marginalization of a white trans woman and a black trans woman. Both are subject to the social stigmas and active political campaigns to dehumanize and further oppress them. However, the difficulties of being a black woman and a black trans woman are compounded as she will face all of the same extant systems of oppression levied against black women and those levied against transgendered women too. Crenshaw's initial commitment to overlapping intersections is a major revolution in race and gender discourse and represents a new paradigmatic model for addressing these issues.

Each of the previous are exemplars of their respective discipline and significantly further the understanding, framing, and communication of gender. To further examine how gender is understood, framed, and communicated, an examination of case studies in the field of Communication Design is needed.
CHAPTER 3. CASE STUDIES

Case Studies

While compiling literature for this research project three case studies were found to have comprehensive and rigorous engagement with CD, gender, and communication channels. They therefore warranted more specific examination than offered in the literature review. The case studies are as follows:

Case Study 1

A study conducted by Ehrnberger et al. researchers examined two products that were reworked such that their tacit or culturally accepted gendered use was reversed (2012). A typical electric hand mixer was re-envisioned as the "Mega Hurricane Mixer", a bulky hand tool with the intended audience of men; and "Dolphia", a hand drill that was re-envisioned as a sleek hand drill to be used by women. The hand mixer was rehoused in a rugged body that looked more akin to construction grade tools than kitchen appliances. The colors were changed to a matt black and forest green and the controls were given a digital display and a large trigger for the operation controls. The hand drill was rehoused in a sleek, light blue, white, and glossy body that took direct form inspiration from that of a dolphin.

The researchers found that the language targeting men was performance centered in that it described how the product was to enhance the user’s performance or that the user themselves would be enhanced by the product. In Contrast, the language targeting women focused on language derived from the form of the dolphin. The researchers noted that the language of the drill, the Dolphia, was especially divisive as seemed to lose its identity as a tool and be reclassified as a "women's tool" (Ehrnberger et al., 2012). This offers insight that the identity and gendering of an artefact not only relies on form, color and linguistic cues but its socially
accepted gender role as well. Specifically, the viewers experienced a certain level of dissonance as they encountered an object that by appearance and description was for a woman but by cultural expectations was largely considered a man's tool. The study identified form and color, material, and linguistic cues as channels of communication that carried messages about gender.

The researchers employed less formal means of sampling through interactions at exhibitions and lecture series resulting in over 100,000 people seeing the prototypes at exhibitions and 500 people engaging with the lectures (Ehrnberger et al., 2012). The prototypes for the Mega Hurricane Mixer and the Dolphia Drill were displayed at all of the exhibitions which allowed for direct researcher to customer engagement. Rather than collect data in a laboratory environment, this allowed researchers to directly communicate with participants in an exhibition environment. This also allowed for much higher levels of person-to-person interaction regarding the products in question.

**Case Study 2**

Ritnamkam and Sahachaisaeree's (2012) research investigates the "distinctive graphical and formal differences" between male and female students and their product preference. The researchers focused on gender perceptual differences on packaging design for purposes of better appealing to a targeted market, in this case males and females. Specifically, the researchers discovered that male product users had grown to a market size nearly equal to that of female buyers, and the resulting study is an examination of how best to appeal to those specific demographics. Using Gestalt visualization and perceptual theory the researchers set out to identify and define characteristics of design that offer a set of guidelines for female and male audiences (2012).
The researchers sampled 200 participants ages 19-23; undergraduate and graduate students; (of equal proportion of gender) from the departments of Industrial Design and Education at the King Mongkut's Institute of Technology in Bangkok, Thailand. Using the DELPHI methods, the researcher employed two sets of surveys with pictorial stimulus, where the information from the first sampling groups was applied to the second group. The data from both surveys were collected at different times. To analyze the data SPSS statistical package was used to correlate different types of design features and apparent genders so that recommendations regarding specific design outcomes could be achieved.

The study resulted in a set of design guidelines to best appeal to either male or female purchasers. The design guidelines were in five categories "...packaging—form, color, shape, element and principal..." (Ritnamkam & Sahachaisaeree, 2012b).

For *shape* the research suggested male purchasers prefer products which are; "long concave, square, short round cone, roller with short round cover. ..."; The suggestions for *color* of male purchasers’ products are; black (tone), cool tone (blue), contrast tones, and harmony tones. The suggestions for *elements and principals* are; diagonal squares, straight and intersecting lines.

The suggestions for *shape* of female purchasers' products are; free, curved with rounded top, long round cone, free shape with long concave flip bottle. The suggestions for *color* of female purchasers' products are; warm colors, white. The suggestions for *elements and principals* of female purchasers' products are; symmetry, curve shape, asymmetry and curve line.

**Study 3**

Lieven et al conducted a research study examining the design elements logo shape, brand name, type font and color, and their impact on brand femininity and masculinity, consumer
preferences and brand equity. The researchers used Evolutionary Psychology (EP), as a framework to examine the apparent femininity and masculinity of a product. EP suggests that "the psychological processes that influence preference and behavior are a result of evolution by selection" (Buss, 1995). Essentially, the researchers used EP to examine how the aforementioned design elements work together to communicate a brand message. The brand message in question is the apparent femininity and masculinity of a given product with the ultimate goal of giving brand managers more effective tools for branding design.

In study 1, the researchers sent an online survey to a European consumer panel, with over 65,000 members with 548 respondents as the sample group. In study 2, the researchers sent an online survey to a European consumer panel with 657 respondents as the sample group. In study 3, the researchers sent out an online survey to a European consumer panel with 1103 respondents as the sample size. In study 4, the researchers sent out an online survey to a European consumer panel with 413 respondents as the sample size.

Through four studies Liven et al found that;

Study 1 demonstrated that "angular bold logo shapes improve brand masculinity whereas round slender logo shapes improve brand femininity".

Study 2 demonstrated that "type fonts and brand names affect brand masculinity and femininity". This study also revealed an increased perception of femininity and masculinity when the products were in categories typically associated with feminine and masculine products.
Study 3 finds limited support for the effect of color on brand masculinity and femininity; however, it still offers a congruence between existing literature on color and perceived femininity and masculinity. Additionally, the studies' findings demonstrate that color reinforces the femininity and masculinity of a product category.

Study 4 demonstrates that through embedding design elements into brand communications the perceived masculinity and femininity change perceptions of an existing brand.

Case Study Summary

Though all three case studies sampled different global populations, the results of the three case studies were remarkably similar. All three demonstrate what previous literature has argued; One, gender is perceived differently based on the gender of the observer and the apparent gender of the CD message being observed; Two, there is enough corroborated research supporting specific channels of communication by which gender is expressed. Those channels, as evidences in the case studies are form, color, linguistic cues, and material. While not a comprehensive list of communication channels, this list does offer significant insight into an increased role of gender in CD.
CHAPTER 4. COMMUNICATION CHANNELS

Channels

The six channels, form, color, linguistic cues, material, sound, and motion are primary channels by which Communication Design encodes and decodes messages. Though not entirely in a hierarchical order, most channels must work in conjunction with at least one other channel to carry a message. For example, form and color work in conjunction as a dual channel, as there cannot be form without color. Additionally, linguistic cues, material, and motion all rely on form and color to transmit a message. Sound does not require another channel to encode/decode messages however, when words are introduced to sound, linguistic cues are then communicated. While form and color are dual channels, all other channels, except for sound, rely on form and color to transmit a communication message. These channels, working in conjunction, form part of what Ellen Lupton refers to as "sensory design" an approach to design that embraces and prioritizes the range of sensory differences among people to achieve a "full-bodied design vocabulary" (Lupton & Lipps, 2018).

The following is an explication of various channels of communication that are identified to have a direct correlation to the communication of gender.

Form

Form has several implications for communicating about gender. Geometric form and organic form are consistently and respectively correlated with male and female perception, communication, and preference (Ehrnberger et al., 2012; Lieven et al., 2015; Ritnamkam & Sahachaisaeree, 2012). Geometric forms are considered to be masculine and communicate masculinity while organic forms are routinely perceived to be feminine and communicate femininity by both males and females (Ehrnberger et al., 2012; Lieven et al, 2012 ;Ritnamkam &
Sahachaisaeree, 2012). Further, there is a gendered preference correlation between the perceiver's gender and the perceived gender of an artifact. The apparent weight of a form also has implications for communicating gender. Research has shown the same perception, communication, preference schema that applies for geometric and organic forms apply to their weights. Heavy, thick, and angular forms are perceived as masculine while thin, finely curved, organic forms are perceived as feminine (Ehrnberger et al., 2012; Lieven et al., 2015). This has additional implications for type faces as the same principals apply. For example, hairline and curvilinear fonts are coded feminine, while bold or black, geometric fonts are coded masculine. While texture could have gendered implications, the limits of this research did not find any literature to support that assertion.

Form, organic and geometric, and apparent weight are therefore variables that encode and decode gender within the context of a CD message. This is especially important as form is a primary channel by which CD messages are encoded and decoded.

Color

Color, as a communication channel, has implications for communicating gender. For example, lighter hue colors are routinely perceived to be feminine, while darker hue colors are perceived to be masculine. In addition to hue, tint and shade have an impact on the perception of a color's femininity and masculinity. Tint, the addition of white to a hue, is coded as feminine, and shade, the addition of black to a hue, is coded as masculine. (Wong, 1997; Ritnamkam & Sahachaisaeree, 2012). Color (hue, tint, shade) are variables that encode and decode gender within the context of a Communication Design message.

Form and color are primary channels of communication that work in conjunction with one another to deliver a CD message. This relationship is such that form cannot be free of color
and color cannot be free of form. However, the degree of variability of form and color is such
that they cannot be considered single or mutually separate channels, but rather they should be
considered dual channels of communication.

**Linguistic Cues**

Language or linguistic cues offer insight into the gendering of particular communication
design message through the principles of intended use and metaphor. In the literature
(Ehrnberger et al., 2012), the intended use of a product employs gender binaries to target either
'male' or 'female' audiences. When targeting 'male' audiences, the language is focused on
performance of either the product, or how the user will perform when engaging with the product.
This is accompanied by such adjectives as “professional,” “exclusive” or “intelligent,”. By
contrast, when targeting ‘female’ audiences, product language uses descriptors that focus on
"softness”, “intimacy”, “emotions”, and “childishness” (Ehrnberger et al., 2012).

Further, linguistic cues then situate an artifact spatially and contextually within an
environment, and most importantly, they provide information regarding the intended use of the
artifact. In effect, the product language communicates information about how to engage with and
use the product, and to whom the product is gendered for.

Linguistic cues additionally offer information through the use of metaphor about the
apparent gender of a CD message. Linguistic relativity, or the Sapir–Whorf hypothesis, posits
that language effects thinking and the construction of human experience, (Wolff & Holmes,
2011). Lakoff and Johnson, notable researchers in the field of linguistics, further argue that
metaphor is central to how we as humans not only express thought and action but experience the
world (George Lakoff & Johnson, 2003). Metaphor informs the language of intended use of a
product and therefore is a robust channel of communication by which gender is expressed through a CD message.

**Material**

There is historical precedence for materials being classified as feminine and masculine; this classification is typically associated with gendered work (*Brooklyn Museum: Women’s Work*, n.d.). For example, textiles, embroidery, and quilting have long been considered feminine material and are more likely to communicate ‘feminine’ messages than masculine materials, wood, metal, stone, as they are likely to communicate ‘masculine’ messages (Chadwick, 2012). Furthermore, material expresses the characteristics of texture, encompassing visual texture and physical texture (Leborg, 2006).

**Framing Sound and Motion**

Communication Design has traditionally been a discipline dealing in the creation of fixed artifacts. However, as technology and the needs of the discipline have changed, CD is increasingly functioning as multi-channel practice focusing on interaction with artefacts over time. This change is rather substantive and represents what Ellen Lupton refers to as "sensory design" which is design beyond the constraints of vision (Lupton & Lipps, 2018). Bruce Mau states that "we 'look' at design, we don't 'feel' design. In fact, most design is non-sense design—cold, technical, formal, and inhuman—engineered to serve business or technical functions rather than to surprise, inspire, and delight" (Mau, 2018 pp. 20). Mau argues that the future of design, hinges upon designing for the senses. This reframing of CD to a sensory design allows for a more inclusive design framework therefore allowing a greater range of design and designers and allowing for more individuals to engage with CD messages. While sound and motion were not
represented in the above case studies, they are increasingly important in the education and practice of CD.

**Sound**

Sound plays a pivotal role in cinema, television, game design, sound design, and sonic branding, all of which are in the domain of CD. However, to situate sound within the context of CD, the relationship between sound, typography and language must be demonstrated. Robert Bringhurst, notable poet, translator, typographer, and linguist draws comparison between typography and music in his seminal text, *The Elements of Typography*. "The typographer must analyze and reveal the inner order of the text, as a musician must reveal the inner order of the music he performs" (Bringhurst, 2015). This is an especially poignant observation given Bringhurst's wide breadth of writing and typographic expertise. Beyond the page, there is a direct relationship between sound, language, and typography. The International Phonetic Association, (IPA) is a phonetic system based on the Latin Alphabet where typographic symbols represent distinct sounds. This system serves as the standard typographic representation of spoken language (Finegan, 2015; *International Phonetic Association* |.ˈɪntəˈneɪfənl Fəˈnetɪk əˈsoʊsiˈɛfɪn, n.d.). Regardless of orthography, there is a direct relationship between language, spoken and written, such that written language is a fixed encoding of sonic characteristics of speech. Further, when speech is typographically encoded, form and color are utilized to craft a CD message.

Ren Zhang, a designer and artist, describes the relationship between type and sound in musical terms: "...type is frozen sound" ("Turns out Graphic Design Should Be Heard as Much as Seen," 2019). Typography, music, sound, and communication design all have a longstanding relationship not only through classical notation systems but also through experimentation.
Notable avant-garde composer and poet John Cage, the Dadaists Marcel Duchamp, Kurt Schwitters, and Tristan Tzara, all experimented with alternate notation systems to represent sound on the page and vocally (Cage & Gann, 2011; Motherwell & Arp, 1989). Further, Constructivist El Lissitzky and Futurist F.T. Marietti, contributed notable works to the foundation of communication design through their manifestos which are as experimental with typography on the page as they are aurally. Much of this work serves to inform the foundations of communication design, specifically the relationship between sound and type. Communication Design is therefore founded partially through the inextricable relationship between sound, typography, and language.

Sound, while historically explored, has somewhat fallen by the wayside in contemporary study and practice of CD. In the Design Census 2019 conducted by AIGA, there is no mention of sound, sound design, sonic branding, or much less in the context of gender. However, sound has been studied in the historical approach to instruments and in the field of AI assistants as they relate to sound and gender. While there is some research that suggests an association with specific instruments and gender, these are largely cultural and historically dependent variables (Doubleday, 2008). However, there are still insights offered in these cultural and historically dependent variables. Though subject to context, the musical instrument seems to be less important when regarding gendered associations than the sound characteristics and frequencies produced by the instrument. For example, flutes, bassoon, oboes, and clarinets are overwhelmingly considered 'feminine' instruments while the trumpet, trombone, tuba, and percussion are all considered 'male' (Marshall & Shibazaki, 2013; Sheldon & Price, 2005). There is a correlation between the frequency range of the instruments and the frequency range of the human voice as typically demarcated by gender. The fundamental frequency range of the human
voice is ~100hz–350hz, with a typical gender split at ~100hz ~200hz and ~ 120hz ~350hz (Titze, 1994).

There are exceptions to this, namely the bassoon as gendered female; it is traditionally played on the bass clef. But this gendered association may result from the supporting role of the instrument. This is also true of the violin as its primary position and role tends to dictate its male association (Sheldon & Price, 2005).

In the area of AI assistants, the default setting for Siri, Alexa, and Cortana are all female voices and were in fact the only options when all three assistants were first made available to the public (all three AI platforms were developed by teams of only men). Although in later software iterations all three were made available with 'male' voices, their names and initial coding were all 'female'. This gender encoding of AI assistants reinforces gender binaries and underscores patriarchal dominance.

While rooted in the relationship between type, language, and sound, Sound Design and Sensory Design have numerous applications throughout CD. Given those relationships, sound is an especially rich channel by which gender can be expressed and understood through CD.

**Motion**

There is little consensus on an operational definition of motion graphics and much less the characteristics of the form (João Paulo Amaral Schlitter – Motion Graphics and Animation – Animation Studies, n.d.). The salient definition is offered as graphic design plus animation; this is far too nebulous of a definition as it offers no characteristics of the form, nor does is encompass the wide range of animations available to the contemporary designer. The AIGA defines motion graphics "...add[s] sound and movement to the visual toolkit of designers and are viewed on television and computer screens, in film, or in environmental installations ..."
Motion design is further characterized as a subdiscipline of graphic design and by designing with time and space, meaning that some element variables change over a given time duration and are situated in a specific space (Krasner, 2008). This a significant departure from the traditional approach of communication design crafting messages that are fixed in a time and location.

Regarding the potential of motion graphics, Michael Betancourt states "Animated typography creates a profusion of new meanings linked to its semiosis, which the ‘reading-image’ identifies as a dramatization of the recognition process being visualized on-screen" (Kean, 2020).

By providing new methods for creating, reading, and otherwise engaging with texts, motion graphics allows for the configuration of meaning otherwise unachievable in fixed media. Motion graphics build upon the fundamentals of communication design such that it is a well-developed subdiscipline. While extensively studied in cinema, cinema arts, and animation, scholarship from the perspective of communication design on motion graphics is sparse.

Motion and gender, while not adequately researched in the context of CD, is an increasingly important channel of communication; motion design is even burgeoning on a subdiscipline of CD. While sparsely studied within CD, other disciplinary research has demonstrated a clear gendering of motion characteristics in point light walkers (Brooks et al., 2008; McDonnell et al., 2009; Pollick et al., 2005; Schouten et al., 2010; Troje et al., 2006).

Literature focusing on gender and motion primarily uses point light walkers, which are bilateral pairs of lights, points, attached to individuals to mark major points of articulation of the human body. For example, point lights are attached the head, shoulders, elbows, hands, hips, waist, knees, ankles, and feet (Schouten et al., 2010). These points are typically represented as
white dots on black backgrounds. By using Gestalt principals, an observer closes the gaps between lights and is able to perceive a *figure* from the point lights. Given little data, observers are 67% accurate in determining the apparent gender of a figure while it moves (Pollick et al., 2005).

Findings in the literature confirm that motion is indeed a channel by which gender is communicated. It is especially telling that gender is communicated by point light walkers; especially given how little visual information is portrayed by the walkers. This has great implications for the field of CD, specifically within motion design, as motion design is typically rich with information relying on multiple channels of communication to effectively deliver a message. Further, motion graphics allows for new configurations of gender to be expressed and communicated within the context of CD.
CHAPTER 5. SOLUTION SPACE

Summary

Kuhn offers an understanding of disciplinary foundations through the ontological commitments and how they build a disciplinary matrix and ultimately a paradigm. Longino critiques Kuhn's argument by stating that he fails to account for how science is a social construct and how women and non-male identifying individuals have been continually excluded from the paradigmatic model of science. Longino asserts that for the paradigmatic model in general—much less a discipline’s specific paradigm—to be true, a gender ontological commitment that equally includes women and non-male identifying individuals must be established. Longino's argument offers a further example of gender based ontological commitments, informing a new disciplinary matrix, and establishing a new paradigmatic approach.

As I have discussed above, the proceeding theorists—Fausto-Sterling, Juschka, Berger, Mulvey, hooks, Crenshaw, and their respective disciplines have all, similar to Longino, made gender based ontological commitments, informing new disciplinary matrixes, and establishing new paradigms paving the way for other disciplines to follow.

The case studies examined in the paper by Ehrnberger et. al., Ritnamkam and Sahachaisaeree's, and Lieven et. al. conducted comprehensive multi-study experiments on gender in relation to product design and product communication. They all confirmed findings in extant literature and reaffirmed the potential of form, color, linguistic cues, and materials as communication channels to express gender. A further examination of the literature has shown that in addition to form, color, linguistic cues, and materials, motion and sound are also communication channels that express gender.
One of Communication Design's initial commitments is a gender binary. Evidence of this is found in contemporary design education as it is built upon the Bauhaus and Modernism models with little fundamental change to in the structure of the studio model (Davis, 2017). However, there are differences between studio design education and design practice.

**State of Communication Design Practice**

While there has been a shift to "design as good will" as noted by Paul Rand in his article of the same name, this is more reflective of design practice post design education than how designers should operate as students, much less how design teachers should educate (Armstrong, 2009). In his seminal text *Designer As*, Steven McCarthy posits that design as a matter of authorship and authorship is now in the hands and is the responsibility of the 'self-initiated' designer (2013). Both Rand and McCarthy offer new initial commitments to communication design. However, their ideas are still built upon the aforementioned design studio educational model. Even if they have arrived at their respective new ideas post-education, these ideas are not disabused from the context in which they were trained and educated as designers. (Although not expressly, Rand and McCarthy, offer the space for a GCD ’s initial commitment to be made.) These ideas are also largely limited to designers in their post-educational practice, not students or instructors. Even if the post-educational practice has begun a paradigm shift towards becoming culturally responsive, empowered, and potentially free of the gender binary, design education has not similarly shifted and is operating on conflicting initial commitments. This discontinuity does not provide a stable relationship between how design education is conducted and how design is practiced. By continuing to use models that draw from, as Davis states, "the lineage of early craft guilds and drawing schools" design education upholds and perpetuates the gender binary and thus, as a discipline, is limited by those constraints.
State of Social Design

The state of communication design practice has evolved from the mid 90's, intellectual movements such as Designer As, and Good Design is Goodwill, Social Design or Design for Good, have arisen as an answer to community-based design problems and solutions that are stakeholder centered. This is a departure from the historically client-driven, and commercial approach to design. Dawn Hancock, of Firebelly Studios founded in 1999, operates on the principle of "Good Design for Good Reason" (“MAS Context Dialogues | Dawn Hancock,” 2016). By putting stake holders in the center of the design process Firebelly Studios is able to address design problems of a given community and its complex social intersections in ways that historical design approaches simply cannot. By leveraging their resources and privilege to address these problems, Firebelly Studios is setting the stage for effective social design that adequately values all individuals affected by the resulting design solution.

John Bielenberg, the author of Think Wrong and founder of the design firm Project M, interrogates the fundamental assumptions and behaviors inherent in design so that radical design solutions to wicked problems can be crafted (Think Wrong Book — Top Seller, n.d.). Through his studio practice and design writing, Bielenberg provides numerous examples of how social design is a superior approach to problem solving than traditional methods.

Mathew Manos of Verynice, founded in 2008, operates a design firm focused on primarily providing design solutions to nonprofit organizations. Coupled with a unique financial stipulation employed by Manos in his free eBook, How to Give Away Half of Your Work for Free, that Verynice does half of their work as pro-bono. The pro-bono work is prioritized for start-ups that are under a certain financial limit and whose mission is socially oriented (Give
Half, n.d.; Verynice, n.d.). This rather novel approach serves to reduce financial barriers for those clients and remove undue financial motivation on the part of Verynice.

World Studio founded in 1995 by Mark Randal, Matthew Goodrich, and Tom Koken, is a high-profile design firm focused on Social Design practice. Not only does the studio offer design solutions, but they also fund scholarship initiatives addressing the lack of diversity and representation in design education (WorldStudio Inc, n.d.). World Studio is highly active in design education, criticism, and practice and in some ways sets the standard for design for social change.

These studios, by no means an exhaustive list, are exemplars of Social Design and all fundamentally engage in social based initial commitments. While these studios are exemplars, they only represent a small population of designers and design studios operating with social design as their initial commitment. They also represent successful examples for fledgling studios to look up to as they have cut a trail for others to follow, build upon, and even critique. This further represents an active disciplinary matrix, although it is partial as these approaches are not reflected in design education.

Social Design has arisen as a disciplinary and cultural response to the paradigm shift in communication design. Through its initial commitment of inclusivity, Social Design functions as a standard bearer of inclusivity while pushing the discipline forward. However, the practice of Social Design is largely post-design-education and does not alone complete Kuhn's disciplinary matrix. Designers that found these design studios or research initiatives are all products of a system that does not prioritize the same level of social responsibility. The second generation of designers to join these spaces will have received roughly the same education as the founders but will have the benefit of retraining under new ideological standards.
State of Communication Design Education

While Communication Design practice is changing, design education is not changing as quickly or uniformly across the discipline. The predominant model of studio design courses does little to prepare students for workforce demands which as Davis states are; "interactions among technological, social, cultural, and economic systems and the ever-changing relationship between people and settings" (Davis lecture, 2012). The extant design education model decontextualizes projects from social issues and emphasizes abstract thought as the primary means of problem solving. Moreover, these classes and projects are generally focused on specific elements of the industry, for example, product and packaging design, icon sets, endless typography projects that inherently devalue the actual content the typography is supposed to address. Meredith Davis, prolific design education researcher, former chair of NCSU's Design Department, and founder of NCSU's Ph.D. in Design program is a driving force in reshaping design education.

Stanford's Gender in Design, founded by Londa Schiebinger, Ann Grimes and Hannah Jones, is a core class in Stanford's d.school curriculum, which is a unique and truly contemporary approach to design education that is experiential and community focused in its education and learning outcomes (Stanford d.School, n.d.). The current core Gender in Design course, as of fall 2019, "Beyond Pink and Blue: Gender in Tech" is a core design studio that examines "key components of sex, gender and intersectionality, and design thinking" (Gender in Design, n.d.).

Dori Tunstall, dean of OCAD Universities’ design faculty, has undertaken the wicked problem of decolonizing design. As the first Black dean of a design faculty, she works to decolonize design education, a process that includes "helping the design field understand what that means in terms of my relationship with the design curriculum as a colonizing force in my community, as well as other communities around the world" (Respectful Design, 2018). Her
work extends not only to the classroom but to faculty appointments as well, so that an all-encompassing approach is not only idealized but actualized.

By holding sex, gender, intersection, and decolonization as initial commitments, Davis's scholarship, Stanford's Gender in Design, Tunstall's and OCAD's decolonization of design education are all exemplars and represent complete disciplinary matrixes. Furthermore, these examples are models by which new design education commitments can be made in existing universities.

**State of Gender and Communication Design**

Although there are numerous high-profile women and non-male identifying designers, few expressly deal with gender issues and fewer still produce scholarly research on the subject.

Sheila Levrant de Bretteville, is a prolific feminist postmodernist designer and the first woman appointed a tenure track in the Yale School of Art as director of graduate studies. Her appointment resulted in controversy and the "principled" resignation of Paul Rand in 1993, (Eye Magazine | Feature | Reputations: Sheila Levrant de Br, n.d.). This was a result of her feminist approach to redesigning the Yale School of Arts graduate curriculum and her overall stance as a feminist activist. In part, this was due to her philosophical challenge of Modernism that Rand and others had so widely propagated at Yale. This also is indicative of Paul Rand a torchbearer of Modernism incompatibility with Postmodernism and feminism.

Cipe Pineles formerly of Seventeen, Charm, Vanity Fair, and Vogue, among others, is one of the most influential magazine designers of the twentieth century. Her work on Charm, which she has called "the first feminist magazine" (Scotford & Pineles, 1999) brought fine art to the public and helped shape and redefine the role and portrayal of women in media. Pineles'
representations of women were some of the first examples of female autonomy in twentieth
century media.

Guerilla Girls, an anonymous activist collective founded in 1985, is a response to severe
lack of representation of women in art museums, art galleries, and similar art spaces. Using
conventions of social interaction and guerilla protests, the Guerilla girls have been actively
highlighting the lack of women in art spaces.

While the CD industry has grown in the past twenty years, there are some
feminist/gender and socially focused designers, with research in these disciplines comprising an
even smaller segment of the population.

In the areas of technology and internet-based gender issues there are several notable
researchers and organizations. Margaret Burnett and Anita Sarma, Co-directors of The
GenderMag Project, work to address the gender gap in technology rich fields. They have
developed a method that "enables software practitioners (e.g., developers, managers, UX
professionals) to find gender-inclusivity "bugs" in their software, and then “fix the bugs they
find" (GenderMag, n.d.). The GenderMag is a freely available, via their website, toolkit
complete with customizable personas to help investigate and remove gender biases that are
literally coded into software platforms. In addition to the tool kits and personas, they have over a
dozen open access research papers.

Charlotte Webb, co-founder of Feminist Internet dot com, works to address the
significant gender gap online such as female coded chat bots, underrepresentation on Wikipedia,
and biased data collection (Feminist Internet, n.d.). There is also the Feminist Internet dot
org, which is more of a collective based approach with expressed "Feminist Principals of the
Internet" (Feminist Principles of the Internet |, n.d.). Both organizations seek to address the gender gaps caused by the internet and within the internet itself.

AI is often touted at the ultimate solution for a slew of the world's problems and has been integrated into our surrounding infrastructure at alarming rates. The prevalence of AI is now rather ubiquitous as it is embedded in search engines, predictive text, voice assistants, even the designer's tools. While very little of AI has any oversight or consistent state, federal, or global regulations, there are initiatives to ensure that AI be developed and employed with highly regulated social standards. Sarah Myers West, Meredith Whitaker, and Kate Crawford of the AI Now Institute represent the forefront of the social battle of AI.

The above list of designers, researchers, studios, and organizations represent some of the most progressive social, racial, and gender-based work throughout communication design. In the larger context of CD however, this list is a small minority of practice, research, and scholarship in an otherwise patriarchal discipline. According to the Design Census 2019, 36% of respondents identified as male, however with the exception of social impact design and communication/graphic design all of the other 18 disciplines surveyed are male dominated. This trend increases as the discipline's respective technology increases. As stated in the census "women designers are more likely to work in social impact and illustration, while men are more likely to work in tech-based design disciplines like AR/VR, AI, game design, motion graphics, and interaction design" (Design Census 2019, n.d.). Regarding discipline and non-male and non-female identifying persons, it is important to note that the census did not receive enough responses to be statistically significant. The gender gap extends further into salaries and positions within CD. "Men are more likely to make more than $150,000 a year than any other gender" which is fundamentally at odds with the fact that the discipline has been, numerically, more non-male than male since the 1980's (Design Census 2019, n.d.). This disparity is further increased by racial and sexual orientation; this means persons at increasing intersections are likely
to make significantly less than their straight male counterparts and hold less powerful positions. All of this serves to uphold, reinforce, and perpetuate patriarchal supremacy throughout CD.

These racial and gender-based disparities in CD fundamentally limit its ability to transition into a paradigm, produce new exemplars, establish new disciplinary matrixes, and solve new and novel communication design puzzles. This is not only detrimental to the discipline but more importantly it is detrimental to the design practitioners, researchers, scholars, and all other populations that interact with CD messages.
CHAPTER 6. DISCUSSION

Gender Communication Design is established utilizing existing ontological commitments and applying them to Communication Design.

The first gender based initial commitment in GCD is that the communication channels of form, color, linguistic cues, material, motion, and sound all express gender through a given GCD message.

Second, that GCD uphold the criteria Longino sets forth in her argument of ‘objectivity by degrees’ as the criteria for “transformative dimension of critical discourse”. This criteria as applied to GCD is (1) recognized avenues of criticism, which primarily encompasses disciplinary specific journals, both academic and non-academic; (2) shared standards; organizations such as NASAD, AIGA, and design industry standard bearers such as, Google, Apple, Microsoft, LG, Samsung etc.; (3) community response; this encompasses how GCD as a community engages with itself through means of trade shows, conferences, lectures, and webinars; (4) equality of intellectual authority the equal inclusion of women, and non-male identifying persons, in the GCD source material, grants, awards, leadership, and education (Longino, 2013, pp. 155–157). To adequately uphold these criteria, non-male identifying persons—and especially women of color—must be equally included in all dimensions of the criteria. It cannot be stressed enough that these ontological commitments must equally include women of color, and non-male identifying persons of color in order to truly represent a paradigm shift.

Furthermore, these two ontological commitments inform the disciplinary matrix of GCD, allowing for new methods of research, new epistemologies, new discourse, providing new tools to solve novel and new puzzles, and making space for new exemplars. Lastly, the gender-based
commitments and objectivity by degrees provide the framework for a new paradigm of Communication Design; that of Gender Communication Design.

**Future Research**

The channels discussed in this paper, although not new, warrant examination in the context of GCD. To construct new knowledge, a further investigation of the channels of communication must occur. This proposed investigation seeks to identify variables within each channel of communication that can be used to communicate about gender. Further these channels and respective variables could have unknown correlates across channels that have yet to be adequately explored. The literature has already demonstrated that channels work in conjunction to encode and decode a CD message, however, there is a deficit of research exploring how the encoding and decoding function within the context of GCD. To address this, a series of test participant studies where the test participants create artefacts that serve as data, are conducted examining the channels of communication. These studies could utilize Nigel Cross' knowing though making framework to produce and analyze artifacts in the context of GCD (Cross, 1999; Mäkelä, 2007).

A further exploration of these channels of communication could be through practice-led research. Utilizing the knowing through making framework a series of projects and design studies can be conducted that result in artefacts created while conceptually exploring GCD and the specific channels of GCD.

Lastly, the construction of a course and curriculum rooted in GCD could be created to directly address the paradigm shift, specifically, Kuhn's disciplinary matrix. This would provide for new construction of knowledge and direct application through the design studio classroom.
Limitations

There are three primary limitations of this research. One, the channels of communication have not been examined through conducted and analyzed research and experimentation in the context of GCD. This is vital to test the boundaries of GCD as a theoretical framework. Two, the literature on haptics and olfactory as channels of communication that can be utilized in the context of CD is sparse and underdeveloped; even more so are the implications for communicating gender through these channels. Therefore, these channels were not explored in the context of this research. Three, nearly all data offered in the case studies and literature review were gendered as female/male, feminine/masculine, woman/man, which all represent a significant limitation as these data are all subject to the gender binary and all that it implies.
REFERENCES


Davis, M. (2017). Teaching design: A guide to curriculum and pedagogy for college design faculty and teachers who use design in their classrooms.


Gender Communication Design: Knowing Though Making

ABSTRACT:

This study uses a qualitative approach to examine how gender is represented and interpreted in communication design, focusing on visual, textual, and musical elements. The study aims to improve communication design by understanding how gender is communicated through these elements. The study employs a framework that considers the influence of visual, textual, and musical elements on gender representation. The findings suggest that gender representation in communication design is complex and requires a nuanced approach to improve understanding and representation.

LITERATURE REVIEW:

Communication design is a field that integrates visual, textual, and musical elements to create messages. The study examines how gender is represented in these elements and how they influence communication design. The study considers the role of visual, textual, and musical elements in gender representation and their impact on communication design.

COMMUNICATION CHANNELS:

Gender Communication Design

APPLICATION

Synthesis

Design Taxonomy

The study considers the role of visual, textual, and musical elements in gender representation and their impact on communication design. The study suggests that gender representation in communication design is complex and requires a nuanced approach to improve understanding and representation.

Research Questions:

1. How might the communication channels of text, visual, and musical elements influence gender representation?

2. How might gender communication design be integrated into future design frameworks?
Problem Space

Design is Needed as Male

Communication Design
Channels

Form Color Linguistic Code Materials Symbol

Communication Design + Gender

Gender Communication Design (GCD)

Cross Taxonomy Design Resem
Epistemic

Praxiology (GCD) Phenomenal

A New Pedagogical Model

Modernism ≠ GCD
Design Studio Class ≠ GCD

Epistemology Phenomenology

Critical Response Process

Praxiology Reflection-in-Action

Further Problem Space

Solution Space
**Problem Space**

Communication Design is Normed as Male

- No man daten
- Ontological Commitment
- Disciplinary Modality
  - Form
  - Material
  - Color
  - Sound
  - Motion

**Gender**

- Communication Design
- Intersectionality
- Feminism

**Literature Review**

- Kuhn
- Longino
- Foucault
- Sterling
- Dussack
- Berger
- Milay
- Hooks
- Xrenshaw

**Case Studies**

1. Form
   - Color
   - Material
   - Linguistic Cues
2. Communication Channels
   - Form
   - Color
   - Linguistic Cues
   - Material
   - Sound
   - Motion

**Solution Space**

- Recap
- Case Study
- Recap

**A New Disciplinary Matrix**

- Toward Gender Communication Design
Exposition for three projects

Round a New Day

Discipline as if more
- Communication Design
  - Channels
    - Form
      1. Color
      2. Monochrome
    - Material
      1. Size
      2. Motion

Gender + Communication Design

Solution Space

- Cross Taxonomy
- Pedagogy
- Epistemology

A theory of gender
- Community
design

Crisis State

1. Incomparability
2. Failure to solve novel problems with old tools

Initial tools for novel problems

Begin to resolve the crisis state

Difficulties: Leaving Problem
- Space because of incomparability

As a call for a select Design Nomenclature
TOWARD A THEORY OF GENDER COMMUNICATION DESIGN

Problem Space

Design is Normed as Male

Communication Design (CD)

Channels

- Form
- Color
- Linguistic Cues
- Materials
- Sound
- Motion

Gender

Communication Design (CD)

= Gender Communication Design (GCD)

Solution Space

Cross' Taxonomy of Design Research (TDR)

- Epistemology
- New Studio Model
- Phenomenology
- Critical Response Process
- Praxiology
- Reflection-in-Action

A Theory of Gender Communication Design

Paradigm Shift

Paradigm Resolution
APPENDIX B. THESIS INFOGRAPHIC

CRITICAL FRAMEWORK
Kuhn
Longino

THEORETICAL FRAMEWORK
Intersectionality
Sensitivity of Gender
Biology in a Social World
Art & Visual Culture
Architecture
Feminism

COMMUNICATION CHANNELS
Form
Color
Material
Linguistic cues
Motion
Sound

STATE OF COMMUNICATION DESIGN
Communication Design
Social Design
Design for Senses
Gender in Design

TOWARD A THEORY OF GENDER COMMUNICATION DESIGN
GENDER COMMUNICATION
DESIGN THEORY

COMMUNICATION CHANNELS
- Form
- Color
- Material
- Linguistic cues
- Motion
- Sound

THEORETICAL FRAMEWORK
- Intersectionality
- Semiotics of Gender
- Biology in a Social World
- Art & Visual Culture
- Art Criticism
- Feminism
STATE OF COMMUNICATION DESIGN
Communication Design
Social Design
Design for Senses
Gender in Design

CRITICAL FRAMEWORK
Kuhn
Longino