

8-2018

Beyond Animation: Toward A Rhetoric of Motion Design for Technical and Professional Writing

Daniel Joseph Liddle
Purdue University

Follow this and additional works at: https://docs.lib.purdue.edu/open_access_dissertations

Recommended Citation

Liddle, Daniel Joseph, "Beyond Animation: Toward A Rhetoric of Motion Design for Technical and Professional Writing" (2018). *Open Access Dissertations*. 1996.
https://docs.lib.purdue.edu/open_access_dissertations/1996

This document has been made available through Purdue e-Pubs, a service of the Purdue University Libraries.
Please contact epubs@purdue.edu for additional information.

**BEYOND ANIMATION: TOWARD A RHETORIC OF MOTION DESIGN
FOR TECHNICAL AND PROFESSIONAL WRITING**

by

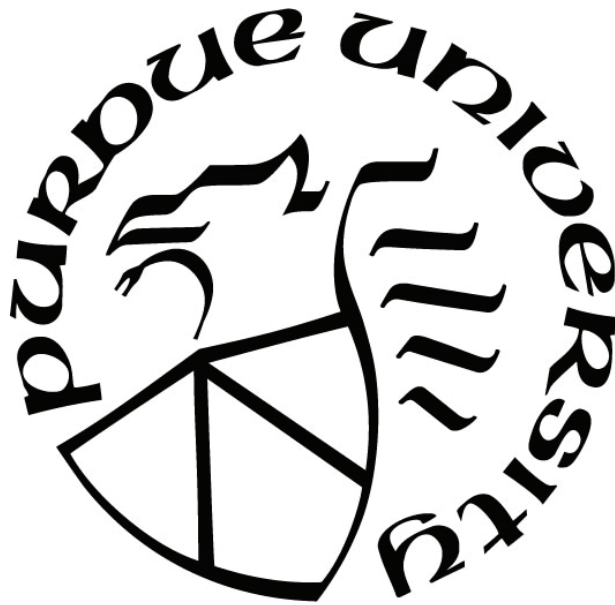
Daniel Joseph Liddle

A Dissertation

Submitted to the Faculty of Purdue University

In Partial Fulfillment of the Requirements for the degree of

Doctor of Philosophy



Department of English

West Lafayette, Indiana

August 2018

**THE PURDUE UNIVERSITY GRADUATE SCHOOL
STATEMENT OF COMMITTEE APPROVAL**

Dr. Patricia Sullivan, Chair

Department of English

Dr. Michael Salvo

Department of English

Dr. Thomas Rickert

Department of English

Dr. Samantha Blackmon

Department of English

Approved by:

Dr. Manushag Powell

Head of the Graduate Program

To my students.

ACKNOWLEDGMENTS

This dissertation has taken many years to complete, and it never would have been possible without the patience and support of my family, friends, and mentors. From the beginning, Patricia Sullivan challenged me to engage with challenging questions, and motivated me to wrestle with the answers. When I struggled to pull together the interdisciplinary threads of this project, her guidance and wisdom allowed me to clarify my direction. When I lost confidence, she encouraged me to press on. I am similarly grateful for the thoughtful direction of the rest of my committee. Thank you to Michael Salvo, who provided me with the intellectual space to first explore this topic in 2014 and provided me with the pedagogical space to explore motion design from an instructional perspective. I am grateful to Thomas Rickert for his reassurance to pursue motion as the central topic of this project, and I am thankful for Samantha Blackmon, whose early input led me to wrestle with the ethical logics of motion.

I also want to thank all of the mentors who have guided me through the winding corridors of academia. From Illinois State University, thanks to Kyle Jensen, Julie Jung, and Amy Robillard. Special thanks to Angela Haas for letting me create my first YouTube video as a final project for her class instead of writing a paper. From Clemson University, thanks to Scot Barnett, Cynthia Haynes, Jan Rune Holmevik, Susan Hilligoss, and Tharon Howard. I would never have had the courage or determination to pursue graduate work without you, and your lessons haunt every word I write and every lesson I teach (in the best way).

Huge thanks to Nicholas “Macchiato” Marino and Elizabeth “Latte” Lane for writing power-hours, kayak reprieves, and endless, endless laughter. Thank you also to all the other members of my graduate cohort: John Sherrill, Patrick Love, Tyler Carter; as well as to Erin Brock Carlson, Beth Towle, Fernando Sanchez, and Tony Bushner. I couldn’t have spent five years of my life with a better group of people, and I am proud to have worked alongside such brilliant, caring folks.

Thank you to my parents, Rod Liddle and Chris Prior, and to Bill and Liz, for listening to me explain this project over and over again these past three years, and for supporting me emotionally and financially.

Finally, a massive thanks to Carrie Grant for talking me through the snags, stumbles, and rough nights. I love you so very much.

TABLE OF CONTENTS

LIST OF TABLES	viii
LIST OF FIGURES	ix
ABSTRACT	x
CHAPTER 1. THE TRANSPARENCY OF ERROR: THE CASE FOR ANIMATION IN PROFESSIONAL COMMUNICATION	1
1.1 Introduction.....	1
1.2 Technological Obstacles, Pedagogical Struggles	9
1.3 From Animation to Motion Design	16
1.4 Visual Rhetoric in Professional and Technical Communication.....	19
1.5 Chapter Outline.....	24
CHAPTER 2. “RESPECT FOR THE GOLDEN ATOM:” TRACING MOTION DESIGN GUIDELINES FROM CARTOONS TO USER INTERFACES	27
2.1 Introduction.....	27
2.2 Interface Studies and Visual Rhetoric	29
2.3 The 12 Principles of Animation.....	31
2.4 Animation Guidelines in Human Computer Interaction.....	36
2.5 The Distinguishing Traits of Mobile Interfaces.....	43
2.6 Current Style Guidelines for Animation	44
2.6.1 iOS Guidelines.....	45
2.6.2 UWP Guidelines	46
2.6.3 Material Design Guidelines	48
2.7 Comparison of General Principles.....	50
2.8 Comparison of Specific Practices	55
2.9 Conclusion	60
CHAPTER 3: THE “REALISTIC” LANGUAGE OF MOTION DESIGN: PERCEPTUAL PRINCIPLES AND RHETORICAL COUNTERPOINTS	63
3.1 Introduction.....	63
3.2 Perceptual Principles of Motion Design	64

3.3 The Limitations of “Realistic” Movement.....	70
3.4 Affect/Personality	78
3.5 Choreography.....	85
3.6 Presence	94
3.7 Accessibility.....	103
3.8 Conclusion	108
CHAPTER 4: PEDAGOGICAL STRATEGIES FOR MOTION DESIGN IN PROFESSIONAL AND TECHNICAL COMMUNICATION	109
4.1 Introduction.....	109
4.2 Pedagogical Context	110
4.3 De-emphasizing Character Animation.....	114
4.4 Connecting Visual Hierarchy to Choreography.....	119
4.5 Approaches to Storyboarding for Motion Design.....	125
4.6 Conclusion	129
REFERENCES	133
APPENDIX A. MULTIMEDIA WRITING SYLLABUS	144
APPENDIX B. RHETORICAL ANALYSIS ASSIGNMENT SHEET.....	147
APPENDIX C. THIS VS THAT EXERCISE.....	150
APPENDIX D. BASICS OF AFTER EFFECTS TYPOGRAPHY EXERCISE	153
APPENDIX E. PROMOTIONAL VIDEO ASSIGNMENT SHEET.....	154
APPENDIX F. PUBLIC HEALTH VIDEO ASSIGNMENT SHEET	158
APPENDIX G. FINAL PROJECT ASSIGNMENT SHEET	162
APPENDIX H. DESIGN RATIONALE GUIDE.....	165

LIST OF TABLES

Table 1: The 12 Principles of Animation.....	33
Table 2: Animation Types and Communicative Functions	41
Table 3: Benefits and Types of Animation Referenced in UWP Guidelines	47
Table 4: Comparison between Academic Principles and Current Guidelines.....	52
Table 5: Comparison of Animation Types in Tumblr Mobile App.....	57
Table 6: Material Design Guidelines for Staggering Motion	87
Table 7: Shifts in Visual Hierarchy in Pew Research Video	122

LIST OF FIGURES

Figure 1: Examples of creative customization in Google’s Material Design principles.	81
Figure 2 Movement pattern to avoid based on Material Design Guidelines	88
Figure 3 Appropriate movement pattern based on Material Design Guidelines	88

ABSTRACT

Author: Liddle, Daniel, J. PhD

Institution: Purdue University

Degree Received: August 2018

Title: Beyond Animation: Toward A Rhetoric of Motion Design for Technical and Professional Writing.

Major Professor: Patricia Sullivan

This dissertation grounds the relationship between visual rhetoric in professional and technical communication and motion design, a sub-discipline of graphic design that focuses on the movement of typography, color, and abstract shapes. Although scholars in professional and technical communication readily discuss the problematic use of animation in web design and presentation graphics (PowerPoint, Prezi, etc), there has been little recognition of the growing use of animated motion in contemporary multimedia design. I argue that these connections are necessary given the increasingly standard role of motion as a design element in common genres in professional communication, including user interfaces, explainer videos, and data visualizations.

In order to build connections between motion design and visual rhetoric, I trace the historical trajectory of design principles in animation and motion design, from the canonical 12 principles developed by Disney animators to the contemporary guidelines for interface animation published by Apple, Microsoft, and Google. Highlighting the relationship between these different principles and the field of visual rhetoric, I argue that an emphasis on guiding principles of “realism” and “distraction” promote an arhetorical understanding of motion design, leading to obstacles for the research and teaching of multimodality in technical and professional communication. In response, this dissertation offers four topics for grounding motion design in visual rhetoric: personality/affect, choreography, presence, and accessibility. The dissertation concludes with strategies for teaching motion design in the context of professional writing drawn from my experience teaching a class in Multimedia Writing that emphasizes motion graphics over the course of two years.

CHAPTER 1. THE TRANSPARENCY OF ERROR: THE CASE FOR ANIMATION IN PROFESSIONAL COMMUNICATION

1.1 Introduction

Three decades ago, in their article “Toward a Rhetoric of Visuals for the Computer Era,” Barton and Barton (1985) identified a disconnect between the reader-centered focus of rhetorically grounded pedagogy in technical communication and the arhetorical pedagogy used to teach visual communication. Analyzing popular textbooks from that time, they found that visual aspects of technical and professional communication were often conveyed through perfunctory lists of “dos” and “don’ts,” as well as through generic injunctions to make visuals “neat, natural, and simple.” (p. 134). In the years since, the scholarly conversation within the field of technical and professional communication has provided a far more robust approach to the practice, research, and teaching of visual materials, including the expansion of “visual materials” to include a range of digital modes and genres.

One of the powerful and recurring themes in the growth of visual rhetoric, in keeping with many traditional rhetorical practices, has been the practice of contextualizing the design conventions and terminologies that are offered as “transparent,” that is, taken for granted as universal, invisible, and a-contextual. For example, Kostelnick (2008) highlights how appeals to “clear” visuals attempt to avoid the “physical, perceptual, and historical context in which the display is read” (p. 284), resulting in a limited understanding of how to design effective data displays. If we expect students to adapt their understanding of visual design to new and unfamiliar situations (as we should), we must encourage students to notice how terms like “clarity” can describe a wider array of stylistic choices than those of a minimalist, black-and-white bar graph.

Moreover, as Wysocki (2004) argues in “The Sticky Embrace of Beauty,” there is an ethical value to contextualizing purportedly universal design guidelines. Through the example of an advertisement featuring a woman’s nude figure, Wysocki demonstrates how conventional terms for describing effective, well-organized advertisements (specifically contrast, repetition, alignment, and proximity) render the entire design of the ad she describes, including the woman’s body, as an abstract set of shapes. In turn, Wysocki shows that while these conventional design principles may be pedagogically and analytically useful, they are also inseparable from the cultural objectifications of women’s bodies, as well as “the violence against women that can follow from it” (p. 170). In this light, challenging the perceived transparencies of visual design offers not only opportunities to adapt to the expectations of intended audiences, but also a space for resistance, or, in Wysocki’s terms, “making strange” (p. 174).

But while Kostelnick and Wysocki center their respective analyses on the rules for what should be *included* in visual design, my inquiry originates from the inverse source, a curiosity in a design feature that has traditionally been more *excluded* from (or at least muted in) professional communication: animation. The use of animation, whether in PowerPoint presentations, data displays, websites, or software applications, is often categorized as a form of mere ornamentation – as style without substance. This characterization surfaces not only in amateur discussions of graphic design, but also in the scholarship on the rhetoric of design¹. For example, Porter (2009) has chided animation as an ineffectual attempt at interactivity characterized by “multimedia extravaganza and fancy features designed to dazzle, impress, or wow users, to persuade them to

¹ For example, in Don McMillan’s (2012) comical stage presentation “Life After Death by PowerPoint 2012,” McMillan mocks the use of animation in PowerPoint presentations by showing a graph titled “Animation Vs. Effectiveness.” Stating that “...with more animations, people have no idea what you’re talking about,” McMillan queues a horde of shapes to animate on screen simultaneously, filling the screen with a chaotic mess of rotating, sliding, and fading animations. McMillan jokingly names these animations as they appear with labels such as the “effective and boring” and the “active and ineffective,” finishing with the punchline “...and everything else I just call pointless motion.”

consume or to collect rote information, but not enabling them to *do* very much” (p. 217). Offering a similar (though less acerbic) critique, Johnson-Sheehan and Baehr (2001) warn that the use animation often functions as an annoying distraction in visual-spatial compositions. Animation should be used only “with great caution” they argue, as “the user’s predatory instincts are going to draw some or all of their attention to the flashy animation and away from the rest of the information on the screen” (p. 25). Though Johnson-Sheehan and Baehr stop short of recommending that animation should be totally eschewed, their position echoes the characterization of animation as more style than substance.

This is not to say that these negative associations for animation are misplaced or inaccurate. Animated design elements, when deployed without careful consideration of their effects, *can* easily lead to distraction, confusion, and frustration. My point, rather, is that the tendency to exclude animation from consideration of visual rhetoric functions through the same impulse for designed transparency as the tendency to praise effective designs as “clear,” “natural,” or “beautiful.” Both moves dislocate visual design from particular audiences and purposes. In turn, contextualizing the excluded elements taps into the same pedagogical benefits and ethical imperatives as those identified by Wysocki and Kostelnick. It opens avenues for both more flexible and more resistant design practices.

The exploratory potential for derided design elements is not limited to animation. Consider, for example, the typeface Comic Sans, which has been regularly designated the world’s most hated font. Since it was first released in 1994, countless think-pieces have been written against it, petitions have been circulated to ban it from Gmail (Combs, 2012), and websites have emerged to shame so called “comic sans criminals” (Dempsey, 2010). The rationales for such an intense set of responses have varied from source to source. Some criticize

the font for sheer overuse, citing instances where the playful, casual typeface has appeared on wedding invitations, termination letters, and scientific posters. Typographically savvy designers, on the other hand, tend to take issue with the typeface itself, arguing that Comic Sans suffers from “poor fundamentals” such as uneven line weight and poor kerning (Kadvy, 2017). In this light, the fatal flaw of Comic Sans is not only that it is ugly – though certainly this is a common refrain – but rather that it illegible (or at least less legible) when read as a large block of text. As these negative associations accumulate through memes, posts, and tweets, they solidify into an increasingly rigid social convention: never use Comic Sans.

This critique (or even antagonism toward) Comic Sans is so well rehearsed – so firmly rooted in the public imagination of visual designers about what counts as ineffective typography – that it may convince writers to avoid Comic Sans in the very situations where it is rhetorically useful, such as in the speech bubble of a graphic novel, or the greeting on a children’s birthday card. Though these less-serious genres are easy to overlook within the purview of professional and technical communication, they nonetheless require rhetorical understanding of typography rooted in audience awareness and graphic conventions. Likewise, while the irregular letterforms of Comic Sans may disrupt legibility for some readers, the typeface remains a popular choice for readers and writers with dyslexia, as the lack of repeated shapes make it easier for them to distinguish one word from another (Hudgins, 2017). But the mantra “Never Comic Sans!” also makes it more difficult to recognize these other(ed) facets of legibility.

It will likely take a long time for negative associations of Comic Sans to erode, given that these associations have become such a familiar touchstone among graphic designers in popular culture. The unconditional dismissal of Comic Sans precisely the kind of situation where professional and technical communicators can come in handy, since, in theory, we are trained to

interrogate the rhetorical affordances of design. This training challenges arhetorical notions of visual design by exposing the semiotic (Barthes, 1977), social (Kostelnick & Hassett, 2003), ideological (Barton & Barton, 1993), and material (Propen, 2012) underpinnings of purportedly universal graphic conventions. These theoretical discussions, in turn, have generated specific treatments of rhetoric and typography, most notably in research on typeface personalities (Brumberger, 2003; Mackiewicz, 2005; Amare & Manning, 2012). This body of work supplies an ample foundation for scholars in visual rhetoric to weigh-in on the case of Comic Sans in both pedagogical and public settings.

My point here is that whenever there is a design element that is considered universally problematic, but is still widely used, we need to remain alert for the potential affordances that may be at play. This is both true and easily defined in the case of Comic Sans. However, it this is just as true, but more complicated to characterize when it comes to approaching design elements associated with animation.

Take for example the animated GIFs from early, hand-coded HTML websites. Years before the template-driven designs of WordPress and Weebly, users worked with arrangement, typography, color, and low-res images to establish the visual identity of their websites. These basic visual features did not lead to designs that were particularly distinctive from one another, nor were these design features unique to the web. Animated GIFs, on the other hand, *were* distinctive. The constantly looping movement, characteristic of neither print nor film, connected the cultural novelty of online spaces with a corresponding tool for visual novelty. And so, from construction signs to animated mailboxes, animated GIFs became a hallmark of the early, user-generated web design. Just as Comic Sans was readily adopted by users who were new to

document design, GIFs were adopted by the countless newcomers looking to create distinctive, attractive websites.

Of course, this is not the way that this initial wave of animated GIFs is typically remembered. Rather, they are often referenced as a ridded nuisance – a lesson learned. At best, we consider these early GIFs nostalgically, as a form of visual culture that needed to grow up and move out of the internet’s attic to take their current form in memes and social media (Williams 2013). Today, GIFs are used quite differently, as individual reactions and responses to posted content rather than as a functioning part of the interface. Though the file format may be the same, the rhetorical purpose has shifted dramatically.

The primary complaint with early uses of GIFs is that they were distracting. An animated dancing banana may be distinctive, but it also continually draws the user’s visual attention, even when the user *wants* to read a paragraph or scan the page for a menu option. As these micro-interactions accumulate within a period of seconds, the animated icon functioned less as an aesthetic appeal, and more as an obstacle to the user’s visual path through the website as a whole. It is this disjunction between creativity and usability, more so than any problem with lo-fi aesthetics, that continues to mark interface animation as a juvenile, thoughtless practice even today.

As Nielsen (1996) documents in his earliest list of “top mistakes” in web design, the common solution from a usability perspective was simply to stop using animations altogether:

Never include page elements that move incessantly. Moving images have an overpowering effect on the human peripheral vision. A web page should not emulate Times Square in New York City in its constant attack on the human senses: give your

user some peace and quiet to actually read the text! Of course, <BLINK> is simply evil.

Enough said. (para 4)

Over the next fifteen years, Nielsen continually returned to animation as a prime mistake of web design, in part because designers began to explore new programs for building animation directly into user interfaces (primarily Macromedia Flash). And as we can see from the 2005 version of Nielsen's "top mistakes" list, the solution to the problem remained the same:

Flash is a programming environment and should be used to offer users additional power and features that are unavailable from a static page. Flash should not be used to jazz up a page. If your content is boring, rewrite text to make it more compelling and hire a professional photographer to shoot better photos. Don't make your pages move. It doesn't increase users' attention, it drives them away; **most people equate animated content with useless content.** (Nielsen, 2005, para. 9, author's emphasis)

Even though the designers of 2005 had been experimenting with interface animations for nearly a decade, the design philosophy had not changed: avoid animation. Though this directive may seem like a minor one, in practice it eliminates a wide swath of design possibilities.

Whereas calls to "ban comic sans" are limited to a single typeface, general injunctions against animation work to restrict any type of animation, including movement, blinking, flashing, fades, and others. Such a wide net of criticism also tends to capture dissimilar genres and purposes, leading to a general distrust of animated design elements regardless of whether they appear in a website interface or in a PowerPoint presentation. Muddying the situation even further, there is relatively little disciplinary grounding in animation to help us describe the difference between one animation and another. This stands in stark contrast to the well-worn debates of typography, which automatically invoke terminological cues like serifs, kerning, and x-height. Without this

kind of descriptive vocabulary, it becomes easier to critique animation through general terms like “flashy” or “showy” and more difficult to dig for the rhetorical considerations that may be at play.

Despite these entrenched critiques of animated design elements, the role of animation has only grown in relation to multimodal genres of technical and professional communication. One such genre is the “explainer video,” the one-to-two minute videos that explain a new product or welcome users to a company’s website. Sparked by the craft-paper simplicity² of *Google Docs in Plain English* (2007) and *Intro to Dropbox*, (2009), these short videos have since solidified into staple components of digital marketing and branding, and the almost always depend on animation, rather than live action, to present information. Explainer videos also play a key role in the content strategies of large news organizations such as *The New York Times*, *The Atlantic*, and *Vox Media*, as these companies struggle to push content through Facebook’s video-boosting algorithms (Liu, 2017). Meanwhile, animation has also experienced a resurgence in web design, as developers have worked to tailor their interfaces to a variable array of devices with different screens and processors. In some cases, these animations are unique to particular programs or interactions, and in other cases the animations are standardized across companies or even across entire platforms. Today the style guides for companies such as Salesforce (2015) and IBM (2015) reference not only appropriate colors, typefaces, and layouts, but also appropriate animations for maintaining their desired visual tone.

These developments indicate that the role of animation has moved past the “multimedia extravaganza and fancy featured” belittled by Porter (2009, p. 217), no longer a mere distraction or automatically seen as “useless content” (Nielsen, 2005). Thus, in this project I address

² These early videos used a site called Common Craft to create paper cut-outs of all visual materials. The author would then move these paper objects around the frame manually to create the sense of animation.

important, under addressed issues related to rhetoric and animation as they present themselves in professional and technical communication classes in order to help students recognize and act on the opportunities (and limitations) of animated design elements.

1.2 Technological Obstacles, Pedagogical Struggles

The irony of discussing the relationship between animation and technical/professional communication is that animation is pervasively included under the broad umbrella of multimodality, but few studies have traced a connection between animation and rhetorical outcomes. Lauer's (2009) analysis of the terms "multimedia" and "multimodal," for example, consistently references animation as one of the many potential "modes" available to students. Providing an overview new and emerging media of the 21st century, Lauer lists: "mp3s, digital images, and video, 3-D virtual realities, and web sites that support Flash animation, wikis, and blogs" (p. 226). While most of these modalities have received in-depth examinations from a rhetorical perspective, discussions of animation vary from cautious warnings (Johnson-Sheehan & Baehr 2001) to outright ridicule (Porter 2009). Though recent discussions of information design and data visualization have taken a less guarded stance (Kostelnick 2016), animation continues to be listed as a potential component of multimedia design without establishing its pedagogical or practical value for professional and technical communicators.

This gap not only undercuts the range of multimedia analyses, but also short-circuits pedagogical attempts to incorporate animation into our classes. Folk (2014) for example, recounts the logistical and technological difficulties of working with animated video in the composition classroom. In the course, students chose to work with animation as an alternative to the dominant style of advocacy video, which they described as "the talking head of a semi-

famous person, interrupted by pathos-heavy images of people obviously in need of danger” (“Animate to Advocate for Non-profits,” para. 4). To work with animated video, the students claimed, would allow them to make compositions that would be far more participatory than the traditional documentary style. Tapping into his students’ motivations, Folk developed an assignment that focused on animated video, using the same pedagogical infrastructure for multimodality as he had used in the past.

However, Folk’s reflection on the class demonstrates how the technical aspects of animation can obscure its affordances for design. Guiding students toward appropriate animation programs proved to be a major hurdle, as many open source programs are easy to use, but provide few opportunities for multimedia design outside of a few pre-fabricated choices. Other programs offer limitless possibilities for designing motion graphics, but are hampered by a precarious learning curve tailored to animation professionals. Accordingly, Folk describes how “many students just felt overwhelmed by the animation aspect and ended up embracing ‘regular’ video because they found it much easier. Other students were frustrated that they could not produce what was in their heads, and they indicated that they would have selected more lo-fi options if they could have started over” (“Animate to Advocate for Non-profits,” para. 7). Folk suggests that a potential solution to these problems is to simply give students more time to work on animation projects and frames the primary challenge of these projects as “developing enough expertise to craft a style that has enough rhetorical oomph for the audience” (para. 7). With a few extra weeks to familiarize themselves with the technology, the logic goes, students would be able to move beyond the limitations of any one particular program, spending more time tailoring their animations toward a particular audience.

Folk is far from the only teacher to struggle with animation. Mogull's (2014) experience report of teaching video production in technical communication echoes Folk's frustrations with animation software, but his account also challenges the idea that additional time would automatically lead to better outcomes. Studying the "logistics, considerations, and problems" of creating informative videos, Mogull describes an eight-week project – repeated in four different semesters – in which students worked on their video assignments, allowing ample time for research, storyboarding, filming, and editing (p. 340). In the first few semesters, Mogull allowed students to choose any style of informative videos, and some students chose to focus on animation. However, he quickly found that these animated projects lacked the rigor and critical thought of other video projects. Reflecting on these projects, Mogull notes:

“...simple “do-it-yourself” animation software (e.g., GoAnimate) was also a problem because the software provided limited, predefined visual content that restricted the students' ability to communicate visually. Students would resort to [this] genre to produce last-minute projects that circumvented the planning and development stages. Therefore, for more recent classes, students were encouraged to use a documentary style as a primary style, although they were allowed to use interviews, animation, or dramatization to emphasize specific points if appropriate.” (p. 351)

For Mogull, the issue is not that the animation software is technologically more difficult than working with live action video. Indeed, based on his account of the class, it appears that many students chose to work with animation because it seemed to be the *easier* option. Rather, Mogull's frustration suggests that the problem of communicating with animation is tied to the template-driven foundation of entry level programs. If this is the case – if the available programs prove resistant to our pedagogical approaches – then we must either find a different program, or

shift our pedagogical approach away from the programs toward the affordances and limitations of animation in general.

Offering a more hopeful account of how animation may function within the disciplinary space of composition, Sorapure's "Moving Writing" (2009) offers a distinctly different approach than Mogull or Folk. Instead of approaching animation as an alternative to live-action video projects, Sorapure stresses the specific affordances of animated typography. Working with animated text, she argues, encourages students to make explicit connections between writing for print and writing for the screen. Additionally, Sorapure argues for the value of working with professional-grade software (Macromedia Flash), but offsets the learning curve by assigning short, 10-15 second projects instead of two-minute informational videos. Students begin by animating only a single word, and then advance to animating a short poem after a few weeks. Sorapure also offers a deep analysis of the specific metaphors of the Flash interface, comparing the position of "writer" to the positions of "designer" and "developer" that are designated by the Flash interface (p. 173). Through these comparisons, Sorapure encourages her students to think critically about factors like juxtaposition and timing, factors that gesture toward the intersection of animation and design.

By Sorapure's account, this approach to animation led to less frustrating encounter with designing animation, and successfully avoided the largely logistical limitations described by Folk and Mogull. But despite these explicit moves toward a reasonable workload and appropriate scaffolding, Sorapure details how students still struggled to articulate why they chose to use certain animations over others. She reflects: "even in their final projects, students tend to apply animation techniques for purely aesthetic reasons ('it looks good when the words fade out') or to reflect the meaning of a word (as when dance dances or blast blasts across the stage)" (p. 183).

Even in the face of Sorapure's strong approach, these comments suggest that while students are learning how to play with conventions, it may not be because they understand the connections between animation, rhetoric, and visual design.

My goal in referencing these three pedagogical accounts is to illustrate how the choice between professional and consumer tools for animation often distracts from the larger question: what does animation *do*, and how do we make that rhetorical work visible both to students and to each other? While these questions may seem simple, the pedagogical struggles above illustrate the potential obstacles of assuming that the analytical vocabulary and pedagogical strategies that we rely on for document design or video production can seamlessly transfer to the analysis and design of animation. At best, this approach may inform students' understanding of multimodality, but leave them wondering why they had to go through all the trouble of learning animation. If the goal is to encourage visual literacy, why not simply focus a unit on document design? If the goal is to work broadly with multimodal genres, why not develop a unit focused on video production? Without a clearer argument for the "rhetoricity" of animation (i.e. deciding to use animation in *this* way instead of *that* way or even leaving animation out entirely), the technological burden is not worth the pedagogical payoff.

To be sure, the call for rhetorically grounded discussions of multimodal decision making is not new, and extends far beyond specific problems associated with animation. As Brooks (2009) displays in "More 'Seriously Visible' Reading," scholars in rhetoric and composition have underscored disconnections between the broad celebration of multimodality and the necessary skills for analyzing/designing multimodal artifacts. In their collaborative web text "Reading Multimodal Texts," Ball and Rice (2006) argue that both students and teachers need to learn how to clearly articulate the logics of visual design. Rice asks, "Can you discuss (well,

should you discuss) individual elements of a media text as you do a traditional composition? I'd say sure, of course. Otherwise, you're not providing your students specific commentary. It's like saying, "Ah, heck, good job writing this paper, B+" ("Rich's Commentary, para. 2). As Ball demonstrates in a separate section of the same web text, this "discussion of individual elements" involves both the student's media composition as well as some form of reflective document in which the student articulates why they made the design choices they did.

In professional writing pedagogy, these kinds of discussions are often grounded in a descriptive vocabulary adopted from document design practitioners. For example, the categories of Gestalt psychology are particularly popular (proximity, similarity, closure, etc.) as are the C.R.A.P. principles (contrast, repetition, alignment, proximity) from Williams' *The Non-Designer's Design Book*. For typography, many instructors will give an introductory lesson on the difference between serif and sans-serif typefaces. For color there is a discussion of color theory along with the terminology of contrast, brightness, and hue. These vocabularies serve as the "what" of visual design; they allow us to describe how a composition is constructed. It is only once these components can be described that we can begin to connect these visual elements to potential contexts, purposes, and audience shifting from description to rhetorical analysis.

This is not to say these design vocabularies are neutral or apolitical. As Wysocki (2004) makes clear these vocabularies are often used in service of visual efficiency and standardization, disassociating visual design from particular cultural, ideological, and embodied contexts. For example, it is easy to frame Williams' four-part schema (contrast, repetition, alignment, and proximity) as a method for automatically rendering documents more "professional, organized, unified," while eschewing how these qualities change from one audience to another (p. 152).

Ultimately, these ideological underpinnings only raise the stakes of approaching visual design with attention to the descriptive vocabularies involved.

The disjunction between this line of composition scholarship and animation, then, is twofold. The first, as we can see from Folk and Mogull is technological. Borrowing terminology from Daniel Anderson (2003), what is missing are genuinely “prosumer” tools for animation – that is, tools that bridge the gap between professional and consumer-grade design software. Considering video production, for example, prosumer tools like iMovie and Windows Movie Maker make it (relatively) easy to import, cut, and arrange video footage, following a similar compositional workflow as one might employ with professional software. Given the absence of prosumer animation software, it can be hard for instructors to incorporate animated multimedia projects with the same ease as a footage-based video³ or designing print materials.

But the second, more challenging disjunction is the lack of terminology for discussing animation with the same precision and rigor as we discuss other visual elements like typography or color. This requires descriptive language – a way to respond to the question “what do you see?” with respect to animation. It also requires some background in the potential uses of these movements, so that we can not only distinguish between different types of animation, but consider the effectiveness of different approaches for different situations. By clarifying these two

³ It is worth noting that the problem here is not solved with the language of cinematography. True, animated films – by virtue of being films – require attention to shot selection, camera angles, and a litany of other design decisions that lie squarely in the territory of cinematic arts. However, this terminology remains inadequate on two accounts. First, as I show in this chapter, applications for animation expand beyond animated films, requiring an approach to design that is less tied to a particular medium. Second, the tools of cinematography often place a primary emphasis on the placement and angle of the camera rather than the activity of objects and actors within the frame (though there are exceptions). Animation, on the other hand, places primary emphasis on the design of what is within the frame, bearing more similarity to the disciplines of acting, dance, or special effects than that of cinematography. And while there are interesting connections to be made between animation and these other disciplines, these connections lie beyond the scope of this project.

aspects of animation, we can learn how to better analyze the rhetoric of animation, as well as how we can better connect animation to the scholarship in visual rhetoric.

1.3 From Animation to Motion Design

While the lack of ready pedagogical applications may have cooled discussions of animation in visual or digital rhetoric, the professional use of animation has grown more subtle, more sophisticated, and more common. Part of this growth stems from an escalating emphasis on video generally on social media, particularly on Facebook, where video content is algorithmically promoted over plain text (Ingram, 2016). Responding to this elevated platform, marketing firms, news sites, and amateur content creators race to not only produce more content, but to produce videos that can cut through the growing glut of available video streams.

Animation, it turns out, attends to both problems. In an animated video, factors like lighting, casting, and scenery take time to initially develop, requiring designers to either manipulate stock visuals or individually design these features from scratch. But once these foundational graphics are developed, animated visuals can be revised with more speed and precision than their filmed equivalents. A problem with a speaker's outfit, for example, is quite difficult to change late in the production process of a live-action video, but is incredibly easy to change when working with animation. These quick revisions also make it easier to adapt video content for different platforms and different audiences.

The growth of animated media, however, is both more pervasive and less visible than the expansion of animated video alone. Today, fueled by the exponential increase in the power of computer processors, nearly all screen-based media makes use of animation. Phones, to take one example, incorporate dozens of subtle animations to provide spatial cues, direct attention, and to

clarify the user's actions. Some of these are more direct, such as the circular, spinning icons that indicate the phone is processing a request. Other animations, like the subtle springiness of an application window expanding to full screen, are meant to work invisibly in the background of interface. These animations rarely take the form of a full-fledged animated character cheekily walking the user through a set of tasks. Rather, they are built into the visual components of the interfaces themselves, integrating the shifts, jiggles, and bounces into the windows, buttons, text-boxes, and other on-screen objects.

Even interview based “talking head” videos, traditionally lacking in graphic design elements, have assimilated animated graphics to establish consistent branding and maintain an appropriate visual tone. Whereas five years ago an organization might develop a static logo image to be shown at the start or the end of a video, many organizations develop an animated logo sting that promotes their individual ethos. Whether it is a title, or a lower third⁴, or a transition from one sequence to the next, it is increasingly rare to find videos *without* some form of animation.

To distinguish their work from character animators at Disney and Pixar, professionals working on these types of subtle, near-invisible animations commonly refer to their roles as motion designers rather than as animators. In part, this separate label signals a specialty within the larger discipline of animation. Just as a poet is a kind of writer, or a painter is a kind of artist, a motion designer is in many respects a *kind of* animator that works across a range of genres and platforms. As one motion designer explains:

“Just as the cardiac electrophysiologist is absolutely a kind of doctor, a motion designer is a kind of animator. We each work to bring life to our subjects, but whereas an animator

⁴ A lower third is a graphic commonly used in conjunction with interview footage that appears in the lower third of the screen and features the speaker's name along with other identifying information.

relies on character and narrative to communicate ideas, a motion designer (following in the traditions of Modernist design) seeks to reduce that communication to more primitive formal elements: color, space, and typography.” (Flynn, 2015, para. 8)

But as we can see from this designer’s description, the invocation of “design” in motion design signals a deeper shift than simply the emergence of a new genre. Rehearsing the distinction between art and graphic design, motion designers often define their work in functional terms, rather than expressive or aesthetic ones. This is because in character-driven animation the function is a given; it is buried in the notion that the animator’s role is to “bring characters to life.” In turn, the decisions of an animator often mimic the decisions of an actor. How do I make this movement believable? How do the body movement and facial features mimic (or as is often the case, exaggerate) the way someone might express their emotions in the real world? Since motion designers often work with geometric shapes, typography, and interfaces, the goal of bringing visual elements “to life” does not provide the same kind of automatic justification that it does for traditional animators. Instead, the burden of justification falls on motion designers themselves. Why should the icons bounce on screen rather than simply appear with the rest of the elements in the interface? Why should a logo fade slowly in and out instead of blinking on and off the screen? Indeed, why use animation at all? While the average character animator may find these questions to be overly myopic, they are necessary for the average motion designer.

This is not to say that motion designers shun discussions of “liveliness” in their designs, nor that character animators struggle to explain their design decisions. My point here is that the expansion of animation beyond the movement of animated characters forces motion designers to develop new vocabularies for describing animation and to revisit the question of why animation

is valuable to begin with. The product of these discussions, solidified into design principles, guidelines, and best practices, not only nudges motion design ever closer to graphic design, but also establishes more stable set of connections between animation and professional communication. If we are to guide students through the analysis and/or production of multimedia artifacts – many featuring animated movement of one form or another – then we must work to make these connections visible to our students. I argue that motion design, rather than animation writ large, offers a better terminology for this kind of work.

1.4 Visual Rhetoric in Professional and Technical Communication

As a greater number of students in technical and professional communication take jobs in social media and content development, it is increasingly likely that they will be asked to design, discuss, and evaluate motion graphics. Whether in the form of an explainer video, an infographic, or even a simple Prezi, the presence of motion-rich communications pressures technical and professional communication programs to better prepare graduates in this area. I build approaches to this emerging need that work through some tensions in visual rhetoric as a means of building a rhetorically based response.

Visual rhetoric figures prominently in the literature of technical and professional communication, in large part because traditional genres in technical and professional communication — such as manuals, presentations, data displays, and instructions — depend on visual cues to convey information. Where the design of these visuals may have once been the responsibility of graphic designers or artists, surveys of job advertisements (Lanier, 2009), managers (Rainey, Turner, & Dayton, 2005) as well as technical and professional communicators themselves (Zimmerman, 2003; Dayton & Bernhard, 2004; Blythe, Lauer, &

Curran, 2014) suggest that visual communication now plays an increasingly central role in the day-to-day work of technical and professional communicators. More specifically, Blythe, Lauer, and Curran's 2014 study of recent graduates from technical and professional communication programs shows that technical and professional communicators not only compose a number of visual genres (including infographics, websites, and videos), but that they depend on a wide array of visual tools to create these genres, from basic word processing software to specialized image editing tools such as Adobe Photoshop (p. 275).

However, while many practitioners and scholars have discussed visual rhetoric as a core issue in multimedia production (Amare & Manning, 2012; Johnson-Sheehan & Baehr, 2001; Sullivan, 2001; Jones, 2015; Eiola & Selber, 2012; Kostelnick & Hassett, 2003), there remain major disagreements in the field about how the visual should be studied and taught in technical and professional communication. One such issue stems from the cognitive theories of perception to frame visual rhetoric as a set of automatic responses to semiotic stimuli. Popularized in theories of gestalt psychology and in the works of Edward Tufte, the cognitive approach strives establish universal guidelines for visual design based on the notion that the brain naturally assigns meaning to visual patterns such as contrast, proximity, and alignment. A reader may struggle to navigate a large block of center-aligned text, for example, because the jagged edge of the text forces the reader to rediscover the starting point for each new line of text.

But while this model provides an increasingly rational, systematic approach to visual design, researchers in technical and professional communication have critiqued the perceptual approach, arguing that it obscures the individual, ideological, and contextual factors that shape visual rhetoric. In effect, it reduces the purpose of visual rhetoric to the creation of efficient, predictable reading patterns, and reduces the audience to a disembodied human brain (Moore &

Fitz, 1993, p. 407) that perceives rather than interprets visual phenomena (Salinas, 2002, p. 168). In turn, scholars in technical and professional communication have often countered the perceptual approach by exposing the ideology of seemingly natural or intuitive designs and by offering alternative, critical approaches to teaching visual rhetoric (Barton & Barton, 1993; Selfe & Selfe, 1994; Salinas, 2002; Brasseur, 2003; Wysocki, 2004; Brumberger, 2007). However, the central goals of these critical studies is not to supplant our cognitive perceptions of the visual — to somehow replace our intuitive reactions with critical, metacognitive awareness. There will always be some form of nearly-automatic reaction to visual stimuli, no matter how much training we receive. Rather, the goal of critical visual rhetoric is to situate perception *within* social, cultural, and personal experiences, and, in so doing, establish design practices that can recognize and adapt to those experiences (Jones, 2015, p. 286).

I outline this division between perceptual and critical approaches to visual rhetoric because both play a key role in this project. As I outline in chapters 2, many of the available guidelines for motion design draw on the same themes of disembodied perception that have long been critiqued by scholars in visual rhetoric. Hence, in Chapter 3, I outline the limitations of a perceptual/cognitive approach to motion design, countering with four concepts in visual and digital rhetoric for reframing motion design as a rhetorical art.

Another major issue in the research and teaching of visual rhetoric in technical and professional communication centers on the question of technology. Specifically, given that students are asked not only to analyze visual materials, but to produce visuals themselves, should teachers devote class time to learning specific programs for visual design? Some have argued against the practice of teaching specific tools on the grounds that any technical communicator can “learn the key features of a new tool, usually without much formal training, in no more than

a few days” (Hart, 2007, p. 22). Others worry that teaching specific tools contributes to negative perception of technical and professional communication as a job skills program rather than an area of academic inquiry (Brumberger, Lauer, & Northcut, 2013, p. 172).

Despite these reservations, recent studies have defended the practice of using class time to train students on specific programs, citing the strong ties between visual and technological literacy. Brumberger, Lauer, and Northcut’s “Technological Literacy in the Visual Communication Classroom” makes a strong case in this regard, as the authors illustrate that students rarely possess the technological literacies to work with image manipulation tools or produce visual materials when they enter technical and professional communication courses (p. 180 - 185). The authors admit that this is not an easy task, as many instructors may have never taken coursework, or may feel overwhelmed by the shifting trends in “necessary” programs and design skills. In response to these disciplinary anxieties, Brumberger, Lauer, and Northcut suggest dividing the technological aspects of visual design into three types of knowledge: fundamental concepts, contemporary skills, and intellectual capabilities (p. 185). Taken together, these three aspects of technological literacy allow students to gain the software proficiencies necessary for adjusting their designs to different situations while ensuring that designs are driven less by the capabilities of the software than by students understanding of design concepts and visual rhetoric (p. 191).

Based on the accounts of other instructors, as well as my own teaching experience, it is clear that the difficulties grounding animation in visual rhetoric in technical and professional communication are connected to this tension between approaches to technological literacy. Framing this tension in Brumberger, Lauer, and Northcut’s tripartite schema, my research here demonstrates that animation requires a more diverse set of fundamental concepts and

contemporary skills than image manipulation alone. Though I describe my pedagogical approach in chapter 4, it is important to note early on that animated projects only increase the tension between software proficiency and visual rhetoric. My aim for this project is not to eliminate these tensions, but to outline a method of easing them. I would not suggest that animation can be seamlessly assimilated into existing approaches to visual rhetoric in technical and professional communication, or that the fundamental concepts of animation should take precedent over other design factors. However, given the shifting role of animation from visual novelty to a standard factor of multimedia design, I believe it is necessary to develop a clearer picture of both the opportunities and limitations of animation within technical and professional communication.

The final point I want to make about the relationship between my project here and the fields of technical and professional communication is that while I define animation through the lens of visual rhetoric, I do not believe this is the only useful lens for understanding the rhetorical functions of animation. For example, some will likely recognize the historical connection between the grammatical systems of movement discussed in chapter 2 and the taxonomic approaches to gesture and bodily movement proposed during the British elocutionary movement (Spoel, 1998). Others may find more contemporary connections between animation and the embodied, place-based effects of visual rhetoric, such as we might find by framing visual motion in terms of what Pflugfelder terms “kinesthetic rhetoric” (2016). Though I occasionally call attention to these connections (especially in the framework developed in chapter 3), I still frame animation as an aspect of visual design, largely because this is the way it is most often framed by motion designers themselves.

Through this work with key tensions, I work to build a rhetorically-based approach to motion graphics that has offers an opportunity to address some of the theoretical and practical disconnections between animation and technical/professional communication.

1.5 Chapter Outline

This dissertation establishes a framework for grounding the growing discipline of motion design in the theories of visual rhetoric in professional and technical communication. I argue that these connections are necessary given the increasing purview of professional and technical communication to genres such as user interfaces, videos, and data visualizations — as all three genres use motion to create and/or accentuate their visual style. My goal for drawing these connections is not to position animation at the center of visual rhetoric, or to argue that all instructors should build animated projects into their syllabi. Rather, my goal is to frame animation (via motion graphics) as a something more than the confluence of video frames and drawn images and help instructors and scholars to recognize moments where animation plays a role in the visual rhetoric of modern media.

To this end, in the second chapter I trace how the use of animation in user interfaces has grown from experimental and avant-garde roots to a standard feature in modern user interfaces. By comparing the early, theoretical design principles to the current style guidelines for three mobile development platforms (iOS, UWP, and Material Design), I attempt to answer two basic questions: First, how can we describe differences in movement/animation in a way that avoids a restrictive taxonomy of animation types? And second, how do these guidelines articulate the positive effects of motion beyond its usual characterization as the bells and whistles of design? In the process, I illustrate how professional web designers are encouraged to use animation in

ways that extend beyond sheer novelty, but which remain obscured by generic appeals to realism. In turn, while the current design guidelines provide key insights into the terminology and goals of motion design, I see value in reframing these threads in less positivistic terms.

Building on the themes discussed in current professional guidelines, I begin chapter 3 by critiquing the persistent justification of animation as a search for “natural” or “authentic” movement. Though the meaning of animated movement is heavily associated with our material, embodied interactions with the world, I argue that the language of natural movement flattens these associations into a universalizing grammar of movement. In response, I discuss four topics for framing animation rhetorically, which is to say, responsive to the constraints of a rhetorical situation: personality, choreography, and presence. I establish each of these topics by drawing from a mixture of the practitioner terminology established in chapter 2 and current studies in technical and professional communication. In contrast to the universalizing function of natural motion, I show how these properties locate animation as rhetorical practice for responding to specific design problems. Toward the end of the chapter, I show how this re-framed understanding of animation is especially vital considering current discussions of accessible design in computers and writing.

In the fourth and final chapter I discuss the pedagogical practices that have been useful for working on motion design projects in my own classroom. Drawing from repeated attempts to teach motion design projects, I describe the pedagogical hurdles for incorporating animation as a facet of multimedia production, including those that extend beyond our vocabularies for visual description and analysis. To counter these issues, I offer three pedagogical practices for connecting motion design to the types of multimodal projects that are assigned in technical and

professional communication. I close this chapter by reiterating the importance of motion design as a component of visual literacy in the 21st century, and point to areas for further research.

The undergirding argument at the core of this dissertation is the fact that animation is no different than other design elements that have received extensive attention under the banner of visual rhetoric. Used arhetorically, animation is bound to distract, confuse and annoy. But when used rhetorically, as many companies and media organizations are currently doing, animation opens powerful new avenues for making meaning. This is not to say all organizations and content creators can or should include animated design elements, but that technical and professional communicators should be able to recognize and act in situations where animation reinforces the objectives of the design.

CHAPTER 2. “RESPECT FOR THE GOLDEN ATOM:” TRACING MOTION DESIGN GUIDELINES FROM CARTOONS TO USER INTERFACES

You must learn to respect that golden atom, that single frame of action, that 1/24th of a second, because the difference between lightning and a lightening bug may hinge on that single frame.

-Chuck Jones in *The Life and Times of an Animated Cartoonist*

Just as there are good and bad uses of color, so there are good and bad uses of animation.

-Thomas and Calder, “Applying Cartoon Animation Techniques to Graphical User Interfaces”

2.1 Introduction

As I establish in the previous chapter, two key obstacles to working with animation in technical and professional communication are 1) the lack of a design vocabulary for differentiating between one animation and another and 2) the inability to argue for or against animation beyond one’s individual preferences. Without a clearer articulation of these two aspects of motion design, it would be impossible (or at least extremely challenging) to discuss animation in the same way we discuss other visual elements like arrangement or typography. Luckily, these challenges are directly addressed by the design guidelines for animation, particularly those that articulate purposes for animation beyond the activity of bringing characters to life (i.e. motion design). Indeed, even the design guidelines that *are* developed

by/for cartoon animators establish systems of describing and evaluating motion. While these practitioner guidelines may not be precise or flexible enough to be integrated into our disciplinary understanding of visual design, they do offer a useful starting point for framing animation as an aspect of visual rhetoric.

In this chapter, I trace the development of design guidelines for animation through three stages. First, I describe the intensely popular 12 principles of animation defined by two Disney animators in the 1930s and continue to be used today. Then I describe the scholarly attempts to refigure these guidelines in the field of human computer interaction, as it became clear that animation could reduce the cognitive load for user interfaces. Finally, I compare how the academic principles compare to current guidelines for mobile interfaces provided to software developers by Microsoft, Apple, and Google. By comparing these different sets of design guidelines, I foreground terms and concepts that are useful for articulating the rhetorical outcomes of motion design. Along the way, I highlight conceptual gaps that can be addressed by connecting these guidelines with the scholarship in technical and professional communication, especially the turn to visual rhetoric within interface design. However, while I do gesture toward these gaps and connections in this chapter, I do not fully unpack (and critique) these relationships until chapter 3, where I address the tensions between perception and interpretation that are exposed across the two chapters. As a result, this chapter functions mainly to document and clarify the shifting articulation of animation guidelines that have been used to establish a perceptual/cognitive scheme for animation/motion design.

2.2 Interface Studies and Visual Rhetoric

To this point I've primarily framed animation as an aspect of visual rhetoric, but in this chapter I pivot from principles specifically intended for cartoon animators to principles intended for web designers, as these principles offer a more flexible concept of animated motion in-tune with the function of motion design. To some, however, this may seem like a random choice. Why not include design advice from data visualization or broadcast graphics, or any of the other design disciplines that discuss animation? Therefore, before I compare these sets of design principles, I offer a brief discussion of how the study of interface design connects with the study of visual rhetoric, and subsequently, how interface design informs a broader discussion of animation.

User interfaces have served as a recurring subject of inquiry in computers and writing since the rise of word-processing software in the 1980s, as scholars discussed how writing software reflected pedagogical theories of writing instruction (Burns, 1981; Baker, 1986) and advocated for stronger connections between writing scholars and researchers in human-computer interaction (Sullivan, 1989). Spurred by a changing landscape of digital writing tools and practices, composition researchers have continually returned to the questions of how interfaces shape our writing practices, and how we may in turn compose alternate interfaces with alternate practices.

Within computers and writing, "interfaces" are broadly defined as the points of contact that "facilitate and define interaction" in "both concrete and abstract form" (Carnegie, 2009, p. 165). This definition includes the interactions between humans and computers and the way these interactions are defined by physical objects (such as the keyboard, mouse, screen and touchpad), virtual objects (such the graphic display of a particular program), and the underlying code of the

software itself. However, this definition of interfaces also extends beyond the digital. For example, the layout, typeface, and physical pages of a book functions as an interface, as it signals how we are meant to interact with it.

As Wysocki and Jasken (2004) establish in “What should be an unforgettable face...” there remains a strong but troubled relationship between interface studies and visual rhetoric. Many interfaces depend on visual elements to facilitate interactions, such as the virtual windows, menus, and folders used in many operating systems to structure the way we navigate and organize digital information. But as Wysocki and Jasken point out, the visibility of computer interfaces often leads to the same assumptions of transparency and neutrality that are traditionally applied to print-based texts (p. 43), leading to the same sort of prescriptive, rhetorical practices that worry scholars of visual rhetoric. Therefore, it is common for rhetorical studies of interfaces to unpack the social, cultural, and ideological baggage maintained by the visual (Selfe & Selfe, 1994; Zdenek, 2007) and to support design techniques for resisting the assumed neutrality of interfaces (Arola, 2010; Squire & Rosinski, 2011; Boyle, 2015).

Though the following outline of motion design principles focuses on the design of user interfaces rather than specific genres of visual materials, this emphasis draws on the same broad understanding of the interface that is discussed in computers and writing. This is not to somehow argue that all animations are connected by a single interface, or to say that a movie theatre’s presentation of an animated film amounts to the same interface as the animated design elements of a mobile software application. Rather, by understanding both of these experiences as structured by particular interfaces, we can better connect the supposedly universal design conventions to material, social, and cultural circumstances.

2.3 The 12 Principles of Animation

During the 1920s and early 1930s, the pressure for longer and more detailed animated materials led to the formation of animation studios, refocusing the craft of animation from the work of individual artists to increasingly large, specialized teams. Though this turn allowed for the obvious advantage of producing more visual content in a short amount of time, it also required studios to standardize⁵ the design process in order to ensure a consistent look and feel to animated material from beginning to end. Animation studios quickly adopted the scientific management strategies, dividing the production processes into tightly managed, narrow production units (Boje, 1995, p. 1012). Given the way these changes revolutionized the animation industry, it should come as little surprise that these institutional shifts trickled down to the standardization of design language, as animators learned to articulate their design decisions to one another (as well as to their supervisors).

For many years these ad-hoc design guidelines churned unsystematically in the everyday discussions of animators. In the words of John Hench, one of the early animators at Disney Animation Studios, “We don’t really know how much we learned here about using images to communicate – to develop a kind of visual literacy” (Thomas & Johnson, 1981, p. 23). However, while the terms and concepts were not officially published in studio guidelines at the time, the development of new terminology fundamentally shifted animators’ understanding of animation from artistic expression to a mode of communication. Reflecting on the shift, Hench states “I think [animation] is a little hard for people to understand...the fact that you are developing a kind

⁵ As Boje illustrates in “Stories of the Storytelling Organization,” these shifts emerged as a function of the wholesale “taylorization” of the animation industry, which suppressed “all individuality via predetermined schedules, formulas, and interchangeable tasks” (p. 1012). Though I frame the emergence of animation design terminology mainly through the need for a common professional language and artistic similarity, it’s important to recognize that this vocabulary also emerged out of the undeniably capitalist pressure to produce as much material as possible in the shortest amount of time.

of language, and a very precise one. They figure that graphics are not precise at all — they’re just sort of decorative, they’re pleasant to look at, they’re aesthetic” (Thomas & Johnson, 1981, p. 24). But while these suggestions of the growth of visual literacy and the development of a precise, visual language suggest a rational, systematic approach to animation, there was no need to verbalize these principles beyond the everyday discussions between the animators themselves.

This ad-hoc characterization of design practices came to a close in 1981 with the publication of *The Illusion of Life: Disney Animation*. Written by prolific Disney animators Thomas and Johnson, *The Illusion of Life* offers a historical account of the rise of Disney animation, describing the technological, institutional, and cultural aspects of working as Disney animators. More importantly, in the third chapter of the book Thomas and Johnson introduce 12 Principles of Animation, with the hope of opening up the art of animation to a new generation of artists. By the description of Thomas and Johnson, these principles simply codify the terminology that they had been using to describe and evaluate animation since the 1940’s. Though these principles were originally framed as the casual expression of anecdotal experience than as a generalizable, formal system (p. 47), the principles were quickly adopted as *the* core skills of animation no matter the style or medium. Today, it is odd to open a textbook or take a class on animation without encountering these twelve principles.

For the sake of clarifying my discussion here, I’ve included a list of these principles – including definitions and representative examples, in Table 1⁶.

⁶ For a visualized example of each principle, see the video “12 Principles of Animation (Official Full Series)” created by AlanBeckerTutorials.

Table 1: The 12 Principles of Animation

Principle	Definition (paraphrased from <i>The Illusion of Life: Disney Animation</i>)	Representative Example
Squash & Stretch	The amount of contortion exhibited by objects through the speed of movement or in contact with other objects.	Consider a bouncing rubber ball and imagine the moment of contact between the ball and the ground. As the ball makes contact it “squashes” down, becoming visually wider. As the ball begins to lift back off the ground it “stretches” slightly upward, becoming visually taller.
Anticipation	The amount of movement that precedes the main movement or action.	Consider the tightened grip and slight backswing of a baseball player about to swing at a pitch.
Follow Through	The movement of the sub-sections of an object after the central mass of the object has stopped moving.	Consider the forward movement of your head when applying the brake in your car.
Slow in and Slow Out	The rate at which an object gains speed at the start of a particular movement as well as the rate at which the object loses speed at the end of a particular movement.	Consider the movement of walking across a room. You pick up speed with the first few steps, maintain that speed for a few steps, and then slow down when you’re a few steps from the other side of the room.
Arcs	The idea that all motions, except for those of some mechanical devices, follow a curved path.	Consider arc created by your hand when you wave to someone you know.
Secondary Action	The movements of other objects that supplement and/or reinforce the movement of the initial object.	Consider the movement of walking and focus on the movements other than your feet. Notice the movement of your hips, the bob of your head, and the swing of your arms.

Table 1 Continued

Principle	Definition (paraphrased from <i>The Illusion of Life: Disney Animation</i>)	Representative Example
Appeal	Techniques that allow characters to gain personality traits such as good, evil, charming, etc.	Cartoon faces with large eyes and simple facial features are considered to be more “appealing” than complex, asymmetrical features.
Exaggeration	The notion that an animation should not mimic reality, but instead emphasize the “essence” of a particular emotion or action.	A fast-moving object in reality might look blurrier than an object at rest, but an animator may draw the object as a more extreme blur in order to communicate the extent of the movement.
Straight Ahead/Pose to Pose	A choice between two production techniques.	An animator can either draw a series of poses and then fill in the gaps (“pose to pose”) or animate each frame consecutively from start to finish (“straight ahead”).
Staging	Techniques for enabling the viewer to focus on the most important actor or object in a particular moment.	Animated characters may hold a pose for additional frames so that the audience has more time to recognize and understand the action.
Solid Drawing	The notion that all animation should account for the volume, weight, and balance of drawn objects.	When drawing a ball falling toward the ground, an animator will not only focus on the acceleration of the ball, but the shadow cast by the ball on the ground. This shadow adds another visual reference that the ball is a “real” object.
Timing	The amount of time it takes for an object to move from one location to another.	Imagine throwing a baseball versus a whiffle ball. The baseball should require less time to move the same distance as the whiffle ball because the baseball has more mass.

Definitions paraphrased from Thomas and Johnson (1981).

Although these twelve principles are often presented as unified set, they vary wildly from one another in both scope and purpose, likely due to their informal origins in animation practice. Some principles, such as “follow through” or “arcs,” focus expressly on breaking down movement into specific, nameable parts, similar to the way terms such as “x-height” or

“descender” function in typography. Others, such as “appeal” or “solid drawing” are tied to specific communicative goals rather than the anatomy of movement(s) that may achieve those goals. And perhaps the least generalizable of the group, “straight ahead or pose to pose” is not actually a principle at all, but rather a choice between two different design techniques – a choice rendered largely obsolete⁷ when considering any medium other than hand-drawn animation. In short, while these principles emerged out of the institutional pressure to standardize the design of animation, the principles themselves maintain the ad-hoc quality of informal conversation rather than the formal precision we might expect.

The irregularity of the 12 principles has affected their circulation. On the one hand, the uneven definition of these principles seems to contribute to their explanatory power. It is quite easy to emphasize certain principles over others while still professing the importance of the collection as a whole. And, given that there are *twelve* principles, there is a good chance that at least four or five of the principles will be useful for the situation at hand. On the other hand, this lack of conceptual uniformity also leads some principles to become less transferable to non-cartoon situations than others. For example, designing motion in “arcs” is an easy rule to define and repeat in other situations. If there is horizontal motion, it should follow at least a slight curve, since few sources of organic motion move in precise, straight lines. On the other hand, the principle of “appeal” is so broadly defined that it may hard to apply consistently. There is little guidance over what makes a design more appealing or less appealing, or even how this definition of appeal may change from one audience to another.

⁷ Today, many modes of animation depend on algorithmically powered keyframes in which the designer chooses the “poses” and the program automatically fills in the space between the start pose and the end pose. Though the frame-by-frame technique is still useful in some circumstances, I would argue that it matters far less in an era of digitally designed movement.

Additionally, because the 12 principles were originally developed for describing and evaluating cartoon animation, they often define effective animation as a reflection of the “real” movements of the objects or characters being animated. For example, describing the importance of arcs, Thomas and Johnson reason that “very few living organisms are capable of moves that have a mechanical in and out or up and down precision...perhaps this has to do with weight or maybe with the inner structure of the higher forms of life, but, whatever the reason, most movements will describe an arc of some kind” (p. 62). Several of the other 12 principles stem from a similar representational logics⁸ to what we see here⁹, and, in the process, these principles center the goals of animation on the movement of “living organisms.” This is useful for animating a set of believable characters, but is less pertinent in circumstances for animation, such as a PowerPoint presentation or a data visualization.

2.4 Animation Guidelines in Human Computer Interaction

In the early 1990s, spurred by exponential increases in the processing power of personal computers, scholars began to explore the benefits of including animation in the visual design of user interfaces. Much like the early period of cartoon animation, these researchers quickly realized the need for a shared language for defining and evaluating interface animations. Before long, they began developing new sets of design guidelines, often by revisiting the twelve principles described in *The Illusion of Life*. Though these principles do not have the same

⁸ Unpacking what I mean here by “representationalist logics:” while animators were expressly told to avoid imitating real movements to the point of verisimilitude, the guidelines do continually refer to the movement of “living organisms” as a grounding rationale for design decisions. Thus, an animator might argue that an animation of a running dog is ineffective because it does not adequately represent the way dogs actually run.

⁹ I would characterize slow-in-and-out, arcs, follow through, anticipation, and squash and stretch in this category.

institutional or historical ethos as the canonical 12 principles, they do offer a stronger sense of consistency and purpose, striking a closer resemblance with other principles for visual design.

Chang and Ungar (1995) were one of the first groups of researchers to turn to *The Illusion of Life* to provide the foundation for their animation principles. Though they draw from the principles, however, they choose to reorganize the majority of the original 12 principles into three groups: solidity, exaggeration, and reinforcement. This reorganization allows Chang and Ungar to differentiate between the anatomical differences between animation types (such as anticipation or follow through), and the communicative purpose for those differences (such as exaggeration) (p. 52). Much like the use of contrast or alignment in document design, these principles are intentionally fluid, working as a kind of meta-language for describing particular design decisions.

Their principles are defined as follows:

- **Solidity** elevates an element from a mere picture on the screen to a tangible entity that is real enough to possess its own behavior.
- **Exaggeration** increases the prominence of features deemed significant by the animator, whether these features are physical characteristics, qualities of action, or extremities of situation.
- **Reinforcement** uses subtle animations to establish the illusion of a “real” environment in the interface.

By eliminating the principles of appeal and staging (among others), Chang and Ungar’s three principles attempt to refocus the central goals of animation on developing seamless interface elements instead of conveying the personalities of characters or the world created by the scenery. “Cartoons are purely for enjoyment and diversion” they argue, “user interfaces are

usually for getting work done” (p. 53). Following this distinction, Chang and Ungar’s design principles shift animation closer to the cognitive/perceptual approaches to visual design. The central benefit of animation is the reduction of the user’s cognitive load, with the subtle affective benefit of less confusion and frustration.

While Chang and Ungar carve out distinct territory for interface animation in relation to cartoon animation, they form their principles with a similar attention to the “realism” of animated motion. Follow through is useful because “objects in the real world do not come to sudden stops” (p. 51), and motion blur is framed as an attempt to “mimic the physical effect in reality” (p. 48). Like cartoon animation, Chang and Ungar argue that the goal is not to adhere exactly to our everyday reality, but to exaggerate it, calling attention to specific visual properties such as the weight of icons or the materiality of a window (p. 50). The discussion is necessarily more abstract when discussing interface animations — transforming “this is how a person walks” to “this is how an object moves” — but the goal of mimicking/exaggerating “real” movements remains the same.

Thomas and Calder (2001) offer a similar set of general principles for interface animation, but shift their focus to visual feedback for the user’s direct manipulation of the interface, whether via the manipulation of a mouse or touching the screen itself. The potential for interactivity, they argue, presents a different set of design challenges than objects that are pre-programmed to move on a particular path. In their words:

...the need for immediate and accurate response to user actions is at odds with the need for objects to have realistic-seeming behavior. If a user tries to drag an object across the screen, for example, how should the interface represent the inertia of the object resisting

its movement? Or if a user tries to move an object that is fixed in position, how should the interface suggest restraint? (Thomas & Calder, 2001, p. 202 - 203)

Responding to these challenges, Thomas and Calder offer four additional animation design principles as a supplement to Chang and Ungar. They describe these principles as follows:

- The principle of **attachment** states that the objects being manipulated should at all times remain attached to the pointer, which maintains the impression that the user is always in control of the action.
- The principle of **reluctance** states that objects should, in general, seem reluctant to change, which reinforces the illusion of substance by suggesting that changing an object requires effort on the part of the user.
- The principle of **smoothness** states that objects must change in a continuous fashion, which reduces cognitive load by removing large and unexpected changes in visual information presented to the user.
- The principle of **anticipation** states that the result of a user's action must be obvious at all times, which reduces cognitive load by supplying additional visual information and minimizing the use of short-term memory.

To demonstrate how these principles work in practice, Thomas and Calder provide illustrated examples of how these principles would work in common instances of direct manipulation. For example, if a user attempts to move an object that is fixed in place or "pinned," the interface might stretch part of the object to connect to the user's point of contact (attachment). During the interaction, the majority of the object would remain locked in place (reluctance). When the object is released, the interface would display the object springing back

into its natural state so that the user can fully anticipate the results of their actions (anticipation). Thus, through animation the interface provides feedback that 1) the system knows the user is trying to grab the object and 2) that the object is currently locked in place (p. 209).

Similar to the principles developed by Chang and Ungar, these principles depend on the same terminology that originated in Thomas and Johnson's twelve principles. Attachment, reluctance, and smoothness would all fall under the category of "solid drawing" in the original twelve principles, and anticipation is copied directly. Likewise, Thomas and Calder maintain the same uneasy bias toward "realism" that appears in other design guidelines. Animation is meant to "reinforce the illusion of reality" (p. 202) while simultaneously ascribing this reality to objects that have no direct physical referents: browser windows, radio buttons, drop down menus, etc. (p. 201). In this light, the animations are effective to the extent that they are able to go unnoticed, contributing to the ostensibly transparent material metaphors of the interface.

In contrast to both of these sets of general principles, Chatty (1992) has argued that it can be difficult to use these principles to decide precisely what kinds of animation one should use for a specific situation. If I need an object to appear, should I animate its size, shape, place, or all three variables at once? At what point is it wise to fade-out an object, even if it breaks with the "reality" of the interface? Moreover, while the general principles provide many tips for developing an interface that feels "real," this focus on reality offers a limited perspective of the communicative possibilities of animation. Take for instance, the animation of a loading bar. The gradual movement of a loading bar does not require exaggeration or solidity to communicate the status of the loading process, thus, there is less need to make the bar appear to be "real." Still, loading bars (and more generally loading images and icons) are often animated, signaling a

different function than the illusion of reality. In order to understand this relationship between general principles and specific practices, another model is necessary.

Novick, Rhodes, & Wert (2011) construct an alternative model of animation in user interfaces. The model points to specific practices for effectively applying animation by connecting types of animation (such as change in color) with different communicative functions (such as signaling a new context). As shown in Table 2, the model includes a total of 7 animation types and 7 communicative functions.

Table 2: Animation Types and Communicative Functions

Animation Types	<ul style="list-style-type: none"> • A change of place • A change of size • A change of shape • Gesture • Rotation • A change of color • Blur
Communicative Functions	<ul style="list-style-type: none"> • Signaling context • Signaling value • Signaling status • Signaling importance or urgency • Signaling change • Signaling referent • Signaling Salience

Categories reflected in Novick, Rhodes, & Wert (2011).

By assessing the appropriateness of each animation type in relation to each communicative function, Novick, Rhodes, & Wert argued that some animation types are more adaptable than others, as some types of animation can be used for many purposes, while others were only useful in specific situations (p. 4). They found that animating the shape of an object, for example, was an appropriate method of showing a change in context, a change in status, and

a change in function. The use of blur, on the other hand, was only found to be appropriate for communicating salience (p. 4). Accordingly, by removing the relationship to realism from the discussion, the authors argue that this model, rather than a set of general principles, is useful for exploring the value of novel uses of animation that may not be linked to metaphors of reality (p. 8). Still, this model is not without its flaws. Several of the categories for communicative functions and animation types (such as gesture) are not clearly defined, making it difficult to understand how the authors connect animation to communication. Likewise, the active turn away from general principles would seem to offer an easier conversion into a prescriptive set of rules for motion design, eliding how the “communicative functions” emerge from the needs and desires of the user just as much as the visual structure of the interface itself.

Ultimately, though I include this framework in my comparison between practitioner and scholarly guidelines, I find it less useful for attending to the rhetoric of animation than the progression of general principles. Nevertheless, I do believe it is both necessary and difficult to articulate how a designer should move from principles to specific practices of animation, and I address the same problem from a different perspective in chapter 3.

Other studies have examined the benefits of animation for interface design, but do not articulate guidelines that could be used to understand the function of animation more broadly. Though these studies do not figure directly into my comparisons here, they have played an important role in establishing a range of positive effects for interface animation. Bederson and Boltman (1999) have indicated that animation aids user understanding of spatial positions, possibly through an increased signaling of object permanence. Harrison et al. (2007) studied the nature of animation in progress bars, concluding that different rates of animation affect the user’s perception of time, often enhancing the user experience of the interface. Trapp and Yasmin

(2013) have even developed a systematic vocabulary for describing animated transitions in mobile storyboards, building vital connections between the use of animation and the workflow of interaction design (IxD) and user experience design (UxD). These studies all point to the value of animation in mobile user interfaces, even as they each present only a partial view of the effects of animation within an interface.

2.5 The Distinguishing Traits of Mobile Interfaces

There are many similarities between mobile and desktop interface designs. Many of the usability heuristics that are commonly used to develop and evaluate interfaces can be applied to both mobile and desktop situations (Salazar, 2013). Some design philosophies in UX also blur the relationship between mobile and desktop interfaces through mobile-first or responsive design strategies (Mullens, 2015).

The most obvious distinguishing factor of mobile interfaces is the limited screen space in relation to a traditional desktop. Due to smaller screens, mobile applications and mobile websites often deviate from the WIMP (windows, icons, menus, and pointer) style used to structure desktop applications. Most “windows” in mobile applications fill the entire interface, and menus must remain collapsed as icons when not in use. The “pointer” is also abandoned in favor of physical swipes, taps, and the motion of the device itself (Wasserman, 2010). These changes have a direct impact on the content of mobile-optimized interfaces, as it encourages developers to include less features, less content, and larger interface elements (Nielsen, 2012).

The user experience of a mobile device is also heavily influenced by the processing power of the device and the strength of the user’s wireless network. Mobile users often seek to

quickly complete a simple task (Nielsen, 2012), but speed of completing even a basic task like opening a webpage can change drastically based on the device, the mobile service provider, and the location of the user. As a result, mobile interfaces often require more indications of when the device is processing a particular operation, such as loading a webpage or opening an application. Each mobile platform also encourages strong connections between the design of individual applications and the built-in designs of the platform (Wasserman, 2010). Applications that are “native” to a particular platform may incorporate specific navigation patterns, iconography, and even color palettes in order to ease the transition from one application to another. One would expect that the animation guidelines for mobile user interfaces should reflect these different factors.

2.6 Current Style Guidelines for Animation

Over the past five years major mobile platforms Apple, Google, and Microsoft have published increasingly extensive guidelines for designing animation for user interfaces. In the past, animation guidelines were often limited to implementation techniques – snippets of code and APIs that tell developers how to incorporate animation into their designs. More general design guidelines for the interface discussed animation only through implicit and tangential associations, assuming that developers would only integrate animations in limited contexts (Novick, Rhodes, & Wert, 2011).

Today each of the major mobile platforms provide general guidelines for animation, though they differ in how they frame these guidelines relative to the interface as a whole. In the following section I survey these guidelines in terms of general principles and specific practices. I define general principles as guidelines that can be applied to a variety of design problems, and

are not limited to a specific type of animation or design pattern. I define specific practices as advice about specific animation types and design patterns. The guidelines considered represent those that would be most likely be used to design the mobile phone of a particular operating system, excluding guidelines specifically targeted at desktop interfaces but including guidelines meant to be used across *both* mobile and desktop interfaces.

It is worth noting that the guidelines discussed here were current as of June 2016, and that the terminology, examples, and organization of the guidelines will likely change even prior to the publication of this dissertation. This is partially because operating systems and applications rarely maintain the same visual style for more than a few years at a time, and platforms are constantly tweaking their visual style to ensure distinction and usability. However, it is also because companies are still unsure about how to best frame animation for designers.

2.6.1 iOS Guidelines

Though Apple's iOS Human Interface Guidelines (2016) feature animation under the heading of "UI Design Basics," these guidelines are limited to a small, single webpage featuring three bullet points on the uses of animation and four general principles for incorporating animations in iOS. The lack of detail of this page may be due to significant overlap between the different categories listed under "UI Design Basics." Navigation, modal contexts, interactivity and feedback are all listed under their own sections of the guidelines, despite the fact that these concepts play a significant role in academic discussions of interface animation. The guidelines mention only one specific practice (sliding an object down from the top of the screen), and this practice is only mentioned in order to clarify one of the principles.

Despite the brevity of the page, the guidelines articulate four general principles for designing animation:

1. Add animation cautiously, especially in apps that don't provide an immersive experience.
2. When appropriate, make custom animation consistent with built-in animation.
3. Use animation consistently throughout your app.
4. In general, strive for realism and credibility in custom animation.

Additionally, the guidelines list three potential affordances of animation: communicating status and feedback, enhancing the sense of direct manipulation, and helping the user to visualize the results of their actions. However, despite this encouragement, the iOS represent a relatively wary stance toward animation, advising against experimental or innovative uses of animation except when needed to create an “immersive experience.” Additionally, though the guidelines reiterate the need for consistency, they do not discuss how this consistency can be established and maintained. In this same vein designers may ask: consistent with what? What are the characteristics of the built-in animations in iOS? Without advice about how designers should use animation toward the affordances of feedback and interactivity, the guidelines imply that designers should primarily stick to the default iOS animation style.

2.6.2 UWP Guidelines

Similar to the guidelines for iOS, Microsoft categorizes animation as an essential component of the Universal Windows Platform (UWP) (Jacobs, 2016a). The guidelines divide the topic into two sections: an overview of the benefits of animation and a list of specific animation types. I have reproduced the main headings of these sections in Table 3.

Table 3: Benefits and Types of Animation Referenced in UWP Guidelines

Benefits of Animation	Animation Types
<ul style="list-style-type: none"> • Gives feedback based on user behavior • Adds hints towards interaction • Gives the impression of enhanced performance • Adds personality • Adds consistency • Adds elegance 	<ul style="list-style-type: none"> • Add/Delete • Drag and Drop • Edge • Fade • Pointer • Pop-Up • Reposition

Note: The benefits and types discussed above are taken from Jacob (2016a).

By describing the benefits of animation, the guidelines aim to reassure those who might still be skeptical of animation, especially those who recall the frustration or confusion of working with a poorly conceived animated interfaces developed in Adobe Flash (Nielsen, 2005). This supportive ethos circulates in the brief descriptions of each benefit. For example, explaining how animation can “add personality” the guidelines clarify that animation can “create the impression that an app is concerned with the here and now, and helps counteract the sensation that the user is burrowing into nested hierarchies” (Jacob, 2016a, para. 8). Assuming the opposite stance of Apple’s iOS guidelines, the UWP guidelines offer more encouragement than caution for designing the animation of interface elements.

Unfortunately, the section focusing on animation types does not establish a strong connection to the first section on the benefits of animation. Instead this list acts as a short introduction to a few of the specific animations that are commonly used in UWP. For example, Add/Delete is described as “List animations let you insert or remove single or multiple items from a collection, such as a photo album or a list of search results” (Jacobs, 2016a, para. 11). There is no description of how this functions as an animation, or how it achieves the potential benefits of animation. Instead, each animation type is linked to its own individual webpage for

deeper explanation, consisting largely of prescriptive “Do’s and Don’ts” that are limited to the UWP interface (Jacobs, 2016b). It is ultimately unclear how the benefits section and the style section fit together. Still, the attention to these individual animation styles, as well as the discussion of role of animation in the “personality” of the interface, suggest that designers should adjust and customize animation beyond the default settings in order to design successful applications.

2.6.3 Material Design Guidelines

Released by Google in 2014, material design is intended to serve as a universal design language that “synthesizes classic principles of good design with the innovation and possibility of technology and science” (Material Design Guidelines, 2016a, para. 1). The lofty language of innovation in this definition refers to the attempt to link every visual cue and interaction with the interface to a material metaphor (hence “material” design). “Unlike real paper, our digital material can expand and reform intelligently,” explained Google’s director of user experience, “Material has physical surfaces and edges. Seams and shadows provide meaning about what you can touch” (Brian, 2014, para. 3). In large part due to this focus on material metaphors, Google’s material design paradigm currently offers the most extensive set of guidelines for designing animation for user interfaces.

Unlike the guidelines for iOS and UWP, material design frames animation as one of the central characteristics of the interface – more important than other stylistic qualities such as color or typography. One of the core principles of material design, “motion provides meaning,” underscores the how animation is to be viewed as a mandatory aspect of this design framework (Material Design Guidelines, 2016a). In a similar move as UWP, material design displays more affinity for the terminology of “motion” and “movement” than the term “animation,” though

many of the examples displayed in the material design guidelines are still referenced as animations.

Because animation is built into the foundation of the design philosophy, the material design guidelines for animation feature a range of design principles, animation types, and specific practices. In order to divide this glut of information into a set of general principles, I used the headings from each of the major sub-page of “Animation” listed in the design guidelines (Material Design Guidelines, 2016d). I then used the introductions to each of those pages as a method of explaining the principle. Those headings and their descriptions are listed below:

- **Authentic Motion:** Just as the shape of an object indicates how it might behave, watching an object move demonstrates whether it’s light, heavy, flexible, rigid, small or large.
- **Responsive Interaction:** Interaction encourages deeper exploration of an app by creating timely, logical, and delightful screen reactions to user input. Each interaction is thoughtful, perhaps whimsical, but never distracting.
- **Meaningful Transitions:** Use motion to smoothly transport users between navigational contexts, explain changes in the arrangement of elements on a screen, and reinforce element hierarchy.
- **Delightful Details:** Animation can exist within all components of an app and at all scales, from detailed icons to key transitions and actions.

These design principles are somewhat similar to the benefits of animation section found in the UWP guidelines (Jacobs, 2016a). Both answer the question “what are some general ways that animation can be used to communicate?” However, in the context of the material design guidelines, these principles listed above represent only the top layer in a hierarchy of

increasingly specific design language. Each principle is divided into several sub-principles, which in turn are paired with concrete examples and animated gifs to demonstrate each concept (Material Design Guidelines, 2016d). Thus, while both sets of principles offer general directions for using animation effectively, the material design guidelines make direct connections between general principles and specific practices. Given the complex structure of the animation guidelines for material design, it is not possible to catalogue or account for all of the specific practices through an inventory of animation types or prescriptive guidelines. Still, because the guidelines are so extensive and make such an explicit claim to universality, they are particularly valuable for the present study.

2.7 Comparison of General Principles

The design guidelines for iOS, UWP, and Material Design all present distinct approaches to animation, none of which can represent the totality of emerging principles or specific practices. Just as with particular color or navigation patterns, the guidelines for animation are intrinsically platform-specific, even while they may claim their design is based on “pure” semiotics or universal principles. For this reason, I compare the animation guidelines proposed by researchers in human-computer interaction to all three of the current design guidelines.

In order to compare the approaches, I searched each of the three current design guidelines for discussions related to the seven design principles from Chang and Ungar (1995) and Thomas and Calder (2001). If I found a statement in current guidelines that mirrored one of the seven traditional design principles, I considered it discussed. If I could find no trace of one of the traditional design principles, I considered it not discussed. If I found a statement that partially resembled one of the principles, I considered it to be tangentially discussed.

For example, principle of attachment proposed by Thomas and Calder (2001) states that “the object should remain attached to the pointer, which maintains the impression that the user is always in control of the action” (p. 203). The iOS guidelines do not make any statements about attaching objects to a pointer of any sort, but they do mention the need to “enhance the sense of direct manipulation” (Material Design Guidelines, 2016a, para. 4). I marked this case as “tangentially discussed” because the statement only reflected the idea that the user should be in control, but does not mention the attachment per se.

After I accounted for the presence or absence of the principles in all three sets of contemporary guidelines, I took one final pass to identify key terms and/or principles in the current guidelines that were *not* captured by either set of academically defined design principles for UI animation. The results of this process are documented in Table 4.

One clear connection between the academic principles and new guidelines was reinforcement, a principle which advises the use of subtle animations in order to reinforce an “illusion of reality” for the interface (Chang & Ungar, 1995, p. 50). Thus, as I examined the current guidelines for reinforcement, I searched for the suggestion that designers should strive to create the illusion of reality. All three sets of guidelines mentioned a need for indicating that the interface was “real” in some way, though only the material design guidelines explain what it meant to create that reality.

The principle of solidity, which would appear to go hand-in-hand with the “reality” of reinforcement, was much harder to detect. Chang and Ungar (1995) define solidity in terms of the objects within the visual space of the interface. Design elements should “move about as if they are three-dimensional, real things, they react to external forces as if they have mass and are susceptible to inertia.” (p. 46).

Table 4: Comparison between Academic Principles and Current Guidelines

	iOS Guidelines ^a	UWP Guidelines ^b	Material Design Guidelines ^c
Chang and Ungar (1995)			
Solidity	Tangentially discussed ("In general, strive for realism")	Tangentially discussed ("Animation is a tool for creating a physical ecosystem for the user to live inside and manipulate through touch.")	Discussed ("Motion in material design should embrace the familiarity and real-world behavior of physical objects")
Exaggeration	Not discussed	Not discussed	Not discussed
Reinforcement	Discussed ("In general, strive for realism." and "immersive experience")	Discussed ("Animation is a tool for creating a physical ecosystem for the user to live inside and manipulate through touch.")	Discussed (Motion in material design should embrace the familiarity and real-world behavior of physical objects")
Thomas and Caulder (2001)			
Attachment	Tangentially discussed ("...enhance the sense of direct manipulation")	Tangentially discussed ("The quality of the experience depends on how well the app responds to the user")	Discussed ("...material can lift up when touched, indicating an active state.")
Reluctance	Not discussed	Not discussed	Tangentially discussed ("Not all objects move the same way. Lighter or smaller objects may move faster because they require less force, and larger or heavier objects may need more time to speed up")
Smoothness	Tangentially discussed ("In general, strive for realism")	Discussed ("...the impression of enhanced performance....")	Discussed ("Changes in acceleration or deceleration should be smooth across the duration of an animation.")
Anticipation	Discussed ("...users visualize the results of their actions.")	Discussed ("...drawing analogies with tasks the user is already familiar with.")	Tangentially discussed ("...acknowledge input immediately and animate in ways that look and feel like direct manipulation.")
Topics not covered by traditional design principles			
	consistency; caution;	consistency; personality; elegance; enhanced performance;	mass and weight; exploration; pressure; continuity; timing; choreography; delight

^aApple (2016). ^bJacobs (2016)a ^cMaterial Design Guidelines (2016)

Surprisingly, while current guidelines invariably mentioned the illusion of reality within the interface, only the material design guidelines mentioned how the movement of objects help to produce this illusion. In contrast, the UWP guidelines reference the interface as a “physical ecosystem” that the user “lives inside,” but this is only tangentially related to solidity, as there is little mention of designing the behavior of individual objects.

It was also very difficult to draw connections between the current UI guidelines and the principle of exaggeration. Current guidelines do discuss the process of drawing the user’s attention to certain elements on the screen, but I could not find even one example where attention was drawn through an animation that *exaggerated* an object’s speed, weight, or movement. Rather, current guidelines advised that the animation reflect the “real” movements of objects. Similarly, it was difficult to find even a tangential connection to the principle of reluctance. All three guidelines discuss direct manipulation, but only the guidelines for material design mentioned the value of displaying resistance to external forces. In case of both exaggeration and reluctance, it is possible that the principles, or even the terms themselves, are simply too loaded with the meaning left over from cartoon animation to connect to our understanding of user interfaces. Or these two properties may not represent the same version of “reality” described in the current guidelines.

It is also possible that the design language surrounding interactivity and direction manipulation have shifted significantly over the past 10 years, devaluing certain principles like reluctance and attachment. Perhaps designers no longer need to be reminded that “objects remain attached to the pointer” (Thomas & Calder, p. 209). It may just be too obvious. Even anticipation was not always easy to trace, despite the fact that it was briefly mentioned by the iOS and UWP

guidelines. There were many instances where guidelines discussed the need for logic behind feedback animations, but there were few statements about how the logic allowed the user to expect the outcome of particular actions (i.e. anticipation).

One topic discussed in all three of the current guidelines but which was absent from the seven design principles was the concept of consistency. I found three separate applications of consistency in my analysis of the current guidelines: 1) consistent animations within the application 2) consistent animations between the platform and the specific application and 3) consistent animations between applications. It would seem that a revised discussion of interface animation would need to account for each of these approaches.

The other subject that was poorly captured by the seven traditional design principles is the personal or emotional response users can have to UI animation. The UWP guidelines state that animation “adds personality” and “adds elegance” to a mobile interface, but what do we mean by personality? How can animation influence this personality? There is a similar issue with the terminology of “delightful details” in material design. Exactly what does it mean to be delighted? What other fleeting emotions can be aroused by a fleeting animation? The existing design principles, which focus solely on establishing and maintaining a level of “reality” seem to be ill-equipped in providing guidance on these questions.

In the course of comparing these different sets of general guidelines I also noticed a peculiar difference between material design guidelines and the other sets of principles. For the most part, the purpose of animation across all guidelines is to create a familiar, predictable user experience. Much like the perceptual approach discussed in the previous chapter, much of the advice offered in these guidelines expects that the motions of the interface will gradually fade away into the background of the user experience. The material design guidelines, however,

occasionally encourage animation for surprise and exploration, rather than only meeting the user's expectations. For example, the guidelines recommend that animated transitions add a "sense of wonder" to interaction, and that a loading animation can be used to "entertain the user while the task finishes" (Material Design Guidelines, 2016c, para. 8). These animations are not meant to blend seamlessly into the background of the application; they are designed to call attention to themselves. These momentary gestures appear less connected to either the contemporary or academic guidelines than to the principle of "appeal" in the original twelve principles.

2.8 Comparison of Specific Practices

Probing the current guidelines for shifts in general principles provides a rough picture of the particular concerns of integrating animation into mobile UI, but does not offer much insight into the kinds of animations developers are actually creating as they draw from these guidelines. What types of animation are used? Are developers taking advantage of any new animation types, stimulated by the new platform guidelines, new design patterns, or the specific constraints of mobile UI? In pursuit of these questions, this section compares the model developed by Novick, Rhodes, and Wert (2011) to the animations deployed by the Tumblr application developed for the Android 6.0 platform.

I chose to focus on the Tumblr application because of its recent recognition as one of the best examples of incorporating "delightful animation" (Fulcher, 2015) in material design. I had not used the Tumblr application prior to this study. The focus on a single, android-specific example creates obvious limitations for generalizability, as the animation types and communicative functions may represent the android platform more than others. Still, the

exploratory nature of this inquiry can provide some insight into the changing landscape of animation types, even if that insight is limited and tentative.

In order to compare the animations types used in Tumblr to those developed by Novick, Rhodes, and Wert (2011), I completed a similar procedure to the comparison of general guidelines. I studied the four main pages of the Tumblr interface (home, search, activity, and friends) as well as the transition between pages. I also completed several common tasks using the application, such as posting a picture, liking a post, and following other users. During these processes I looked for three broad categories of animation 1) animated transitions between visual states 2) animated feedback and 3) animations that occur without user action. I did not include animated gifs that were posted to individual Tumblr sites, even though gifs are quite common on the Tumblr platform. This method was not intended to catalogue every possible animation that could occur, as some animations may only occur only special circumstances or in rarely used elements of the interface. Rather, my goal was to compile a sample of animations that users might frequently encounter. Table 5 catalogues the animation types that were found in the Tumblr UI. I also documented animation types that were used in the Tumblr UI, but which were not mentioned by Novick, Rhodes, and Wert (2011).

Several of the animation types indicated by Novick, Rhodes, and Wert (2011) were found in the Tumblr interface. The most common animations were change in place, as all transitions between visual states involved some type of movement. Additionally, other common animation types, such as a change in size or shape, were combined with a change in position. Another animation type that was frequently deployed in the interface was change in size, both in the transition between states and as a micro-indication of interaction.

Table 5: Comparison of Animation Types in Tumblr Mobile App

ANIMATION TYPES IN NOVICK ET AL.	
CHANGE IN PLACE	<ul style="list-style-type: none"> • Icons move out from behind camera icon on post menu screen. • Interface elements rearrange when moving from post menu to select picture to add caption states. • Major panels transition onto the screen by swiping left and right. • Sub-panels move into place when a recommendation is deleted.
CHANGE IN SIZE	<ul style="list-style-type: none"> • Pencil icon button fills entire screen to create background for post menu screen. • Camera Icon scales up on “post” screen and “choose photo” screen. • Photo gallery boxes scale up in unison. • Some icons scale up slightly when pressed (camera icon).
CHANGE IN ROTATION	<ul style="list-style-type: none"> • None
CHANGE IN SHAPE	<ul style="list-style-type: none"> • Spinning loading icon • Pencil becomes an X.
CHANGE IN COLOR	<ul style="list-style-type: none"> • Spinning loading icon • A blue outline is generated when a photo is selected. • White ripple effect when tapping an image or a button on top of a colored background. • Heart icon changes to red to show that it’s been tapped.
GESTURE	<ul style="list-style-type: none"> • None
BLUR	<ul style="list-style-type: none"> • None
ANIMATION TYPES NOT COVERED BY NOVICK ET AL.	
FADE	<ul style="list-style-type: none"> • The photos fade in after the place holders have scaled up. • Photos fade slightly when selected. • Heart icon fades on as it moves upward on “like” of other user’s content.

The change in color animations were largely limited to light grey radial bursts indicating that an icon or design element had been tapped. The only other color changes occurred as a feedback mechanism to indicate a change in status, such as the heart icon turning red when a post is liked. Additionally, spinning loading icon, a stock material design UI animation, was difficult to categorize using this framework. Depending on one’s perspective, the icon could be seen as a rotating line or as a circular line that oscillates between long and short positions. The change in size and a change in shape animations created a similar categorical overlap. If, for example, a

square box expands to fill the entire screen, does it count as a change in size (small to big), a change in shape (square to rectangle), or both? Although this framework was easily applied to simple animations, it was less useful for accounting for the complex accumulation of multiple animation types.

Three of the seven animation types were not found in the Tumblr interface: rotation, blur, and gesture. This may be due to the limitations of analyzing only one mobile application, or of analyzing the application only on an android phone. One of the features of the Universal Windows Platform, in fact, is the systematic use of a proprietary texture called “acrylic” which uses blur and specular noise to add dimension to flat surfaces (Jacobs, 2017). While this texture is not connected to the animation section of the guidelines, it is entirely possible that a Windows device would toggle the blurry texture off and on according to user input.

Rotation and blur may be more common in other mobile user interfaces, but there is reason to question the value of gesture as a type of animation. Though Novick et al. do not offer a definition of gesture, their models of gesture animation largely consist of hand icons holding up different numbers of fingers (Novick, Rhodes, & Wert, 2011, p. 6). Though these hand signals may be used to communicate in animated cartoons, it is hard to imagine of they could fit into contemporary UI. This is especially true for the design of mobile interfaces that depend on direct manipulation, as in the use of a hand-gesture would unnecessarily anthropomorphize the interface itself.

The fade animation was used frequently in the Tumblr interface but was not listed in previously studied animation types. Fade (or dissolve) animations differ from a blur animation in that a fade animation involves decreasing the opacity of the object, whereas a blur effect involves

distorting the resolution of an object. Although these effects are similar, it is worth considering fade as a separate effect, especially its frequent appearance in the Tumblr interface.

Finally, given the relationship between the general guidelines and these animations, it is worth asking: how might we better define the concept of an animation type to account for current design practices? In the model used for this study, animation types largely describe the difference between the starting and ending state of a visual element. For example, the category of a change of place animation type suggests that the most important variable is the starting and ending position of the animation. However, discussions of realism across all three sets of guidelines suggest that it is not only the start/end points that make motion realistic, but also the path and rate of movement between the two points. To this end, we might begin to consider animation types as differences in speed or easing of animation in addition to the start/end states.

Given that Tumblr was recognized by Google for its delightful animation, we might assume that the movement and other animations improve the usability and personality of the application. But are these outcomes related to the fact that the interface incorporated more “change of place” than “rotation”? Like Novick, Rhodes, and Wert (2011), I believe designers and researchers need to be able to articulate how general principles manifest in specific design practices. However, I worry that a taxonomy of decontextualized animation types may be too limiting to fuel this kind of articulation work.

2.9 Conclusion

The design guidelines I have covered in this chapter represent a broad range of advice on the craft and purpose of animation, but by examining these guidelines as a collective set, we can start to characterize the central themes and tensions of motion design. One commonality across the interface design guidelines is animation-as-interactivity, especially in respect to direct manipulation. In the UWP guidelines this dimension is characterized as a type of wayfinding, as the animations orient the user to the virtual depth and width of the interface (Jacobs, 2006a). Thomas and Calder (2001) discuss how animation communicates “the process of the interaction and its outcome,” framing interactivity less in terms of the directions in space (such as the depth of the visual layers) and more in terms of the physics of space (such as the weight or material of an object) (p. 211). Notably, interactivity is also used to mark the division between interface animation and cartoon animation, as Chang and Ungar (1995) claim “the cartoon is a passive medium, while the user interface is an interactive one” (p. 53).

Beyond interactivity, the central theme of these animation guidelines is realism. Cartoon or interface, academic or practitioner, the guidelines advise designers to connect animation to “real” movement defined by our experience with motion in our everyday lives. How do I make sure the motions enhance usability instead of disorientation? According to the iOS guidelines “strive for realism” (Apple, 2016). The emphasis on realism varies between sets of guidelines, for instance the twelve principles of animation and their reformation in Chang and Ungar (1995) advise designers to exaggerate reality. Meanwhile, the Material Design Guidelines claim to “draw inspiration from real-world forces, such as gravity and friction” but do not directly advise designers to either exaggerate or reflect these real-world motions. Regardless of the approach, realism plays a significant role in the logic of motion design, functioning as a persuasive

counterpoint to the characterization of animation as a useless novelty. Still, I worry that this emphasis on realism can easily slip into the logic of the universal user, disconnected from social and cultural factors. In the next chapter I build this case in more detail.

Perhaps the primary tension of these guidelines is the balance between a rational grammar of visual movement and the affective potential of animation. In *The Illusion of Life* Thomas and Johnson (1981) describe animation not only as a tool for holding the user's attention, but entertaining the user with the physical actions and personalities of the characters. The principle of "appeal" makes this point clearly enough. But as these principles were reconfigured by researchers in human-computer interaction, they largely eschew the value of "appeal" and the affective purposes of animation. Chang and Ungar (1995) argue that this division is appropriate in light of the differences between cartoons and interfaces, stating, "Cartoons are purely for enjoyment and diversion; user interfaces are usually for getting work done. Of course, user interfaces should be enjoyable as well, but [their] more serious nature usually precludes the employment of the entertainment value of cartoons" (p. 53). While the current guidelines mimic many of the same suggestions as found in HCI, and certainly embrace the affordances of a rational system for animation, they also suggest a return to emotional appeals through the discussion of interface personalities (Jacobs, 2016a) and need for a "delightful" user experience (Material Design Guidelines, 2016c). In the next chapter I argue that the scholarship in computers and writing and technical/professional communication provides a useful direction for understanding and supporting these affective capacities of animated movement.

Aside from these specific points, this lengthy, multi-layered overview of motion design principles demonstrates how animation has grown from a genre of film to a category of visual

design. As companies work to integrate animation into their existing style guidelines, they are continually engaging with the same difficulties described by scholars in technical and professional communication who have worked to integrate animation into their assignments. How can we articulate the value of animation, and teach students/developers to take advantage of this value? As we encounter a growing variety of interfaces powered by increasingly powerful processors, these questions will continue to undercut our ability to design and critique visual artifacts.

CHAPTER 3: THE “REALISTIC” LANGUAGE OF MOTION DESIGN: PERCEPTUAL PRINCIPLES AND RHETORICAL COUNTERPOINTS

3.1 Introduction

“...it seems indisputable that these master calligraphers, while ostensibly writing, were also drawing what they observed. But it was not the shapes or outlines of things that they sought to render; the aim was rather to reproduce in their gestures the rhythms and movements of the world.”

-Tim Ingold, *Lines: A Brief History*

In the previous chapter I highlighted the key terms and concepts from guidelines for designing motion. Some of the terms lean heavily on perception and cognition. Others emphasize emotional affordances and personality. But while these guidelines offer insight into corporate standards and practices, they often ignore discussing how motion should be adjusted when appealing to different audiences or when designing for different situations. In other words, most guidelines ignore or downplay the rhetorical potential of motion, and if we continue to name animation as one of the available modes in multimodality, we must learn to articulate and accentuate this potential. Thus, in this chapter I outline the approaches to motion design that most often lead to rhetorical guidelines and highlight four methods of articulating the rhetorical capacities of motion.

In order to organize the variety of terms and concepts described in the previous chapter, I begin by focusing on the language that positions motion as an innate quality of human perception. Also known as instrumental (Feenberg, 1991), functional (Salinas, 2002), and representational (Jones, 2015), this approach to motion design often presents motion as a

universal language born out of our everyday experience of physical forces in the world. I argue that while it is necessary for technical and professional communicators to keep these perceptual features in mind, it is also necessary to critique universalizing language by calling attention to the social and ideological forces that define what we mean by real or natural movement. Then, as a counter to an overemphasis on cognition, I suggest four capacities that align the terminology of motion design with existing concepts in visual rhetoric in technical communication: personality, choreography, presence, and accessibility. While these four capacities are not mutually exclusive or exhaustive, I argue that they provide necessary avenues for designing motion in response to specific, material audiences rather than a singular homogenous one.

3.2 Perceptual Principles of Motion Design

As I previewed in Chapter 1, the perception-based approaches to visual design have been heavily contested in technical communication. To refresh, by “perception-based approaches” I am referring to frameworks that focus primarily on intuitive assumptions based on the relative shape, size, and arrangement of visuals in a given space. Popular examples of this approach include Williams’ (1994) principles of contrast, repetition, alignment, and proximity (sometimes referred to as C.R.A.P. principles) and the principles of similarity, continuity, and closure drawn from Gestalt psychology. These principles were developed by fields such as graphic design, human-computer interaction, and psychology, and they continue to play a role in the pedagogy of visual design in technical and professional communication¹⁰. Despite their widespread use, scholars in technical and professional communication have long critiqued perceptual principles

¹⁰ Additionally, these principles are applied to a range of different genres in technical communication, from document design (Bernhardt, 1986; Moore & Fitz, 1993; Kress and Van Leeuwen, 2006; Alton & Manning, 2009), to data visualization (Kostelnick, 2008; Zachary & Thralls, 2008), to interface design (Robinski & Squire, 2009).

for their tendency to ignore the cultural, social, and ideological factors in visual design (Barton & Barton, 1993; Selfe & Selfe, 1994; Brasseur, 2003; Wysocki, 2004; Bumberger, 2007). I frame my discussion of perceptual principles in motion design in line with this disciplinary tension, noting that these principles are both pedagogically useful and necessary to critique.

To be sure, the common perceptual approaches to document design are flexible enough to include motion to a certain extent. For example, if two icons transition onto the screen using the same style of animation, we might argue [using Williams' (1994) design principles] that the designer is employing repetition to indicate that both icons have similar properties. Or, if the two icons transition onto the screen in different ways, we could say that the designer is setting up a contrast between them that aims to indicate their distinct functions. But putting aside the coordination or discoordination of movement (at least for now), the existing perceptual approaches fail to account for the intuitive meanings signaled through the motions themselves. If one icon bounces on the screen while another falls from the top, the user(s)/audience would not only notice that the two icons employ different animations; they would also come up with a tentative rationale for the difference between bouncing and falling. When I discuss “perceptual principles of motion design,” then, I am referring to principles that use the same logic as Williams and Gestalt psychology, but are used to explain different kinds of visual phenomena in types of movement.

The perceptual principles of animation, in turn, attempt to explain the how we intuitively assign meaning(s) to abstract movement regardless of the context or the user/audience at hand. Out of the twelve principles in *The Illusion of Life*, six operate purely on the cognitive perceptions of the visuality of motion: squash and stretch, slow in and out, arcs, anticipation, follow-through, and secondary action. Whereas principles like exaggeration or appeal require a

designer to adapt the design to the personality of the character or the narrative situation, these six principles focused on cognitive perception are intended to emerge directly from the realistic movements we see in our daily contact with visible phenomena. These visible phenomena include the range of moving people and objects that we encounter, from the shifting traffic patterns of cars in busy traffic to the slight nod of a friend to signal their approval. This is not to say that we automatically understand the purpose of these movements. After all, a nod of approval in one circumstance could just as easily be read as disapproval or in another situation or another culture¹¹. Still, whether or not our interpretations match the designer's intent, motion remains one of several sensory factors that we use to make sense of the world.

However, the perceptual principles of motion design assume to take a more elementary approach to movement than any one gesture or moving object, primarily by focusing on the visual effects of Newtonian physics such as momentum, inertia, and gravity. No matter what is moving or why it is moving, so the logic goes, all bodies and objects are subject to physical forces. Since we all experience these forces from our everyday activities in the world, designers assume that visual depictions of these forces will be universally understood. For example, if I knock a ceramic mug off my desk, I would (in likely embarrassment/horror) immediately attempt to gauge the motion of the mug and to try to catch it before it the smashes against the tile floor of my office. This snap-analysis would require me to intuit and react to an array of factors, including the downward acceleration of the mug, the angle of the fall, and the distance of my hands from the emerging situation. For my poor mug to stand a chance of survival, I would need

¹¹ Interestingly, head movement, and nods in particular, are a common source of misunderstanding in intercultural communication. Gestures that signal affirmation or agreement in the United States are often mistook for disagreement in countries like Turkey, Bulgaria, and Albania (Bochner, 1982, p. 94).

to make an assessment and react instantaneously, and my success would depend my ability to coordinate my own bodily movements in response to my visual perceptions.

Now, if I were to represent this same situation through animation, I would need to convey not only the look of dread on my face and the fumbling motions of my body, but also the movement of the mug, including how the mug's movement was affected by gravity and momentum. This is where the perceptual principles of motion design come into play. Following the principle of arcs, for example, I might make sure that the mug follows a curved trajectory since movement rarely follows a straight path from one location to another. Considering how few objects move at a constant speed (the principle of slow in/out), I might represent the mug accelerating toward the ground due to gravity while decelerating horizontally due to air resistance. And if the animation were to last all the way through the mug crashing into the ground (as it inevitably would), I use the same curved trajectories and nonlinear accelerations to the scattering shards of mug as they bounce and skitter across the floor of my office. The better I can adjust these subtle trajectories and accelerations, the more realistic the design would seem to become.

In theory, these adjustments would make it easier for *any* viewer to process. Even if there is no evidence for why the mug was knocked off the desk — even if the viewer has never seen a ceramic mug before — they will still intuit the trajectory and acceleration of movement and the brittle material of the mug as it crashes into the ground. The implicit universality of these principles assumes that, even though we may not realize it, we are constantly assessing and responding to the movements around us, and that through these constant adjustments to the material world, we develop a mental schema for what motions mean. As long as viewers live on earth, they will have witnessed the effects of gravity and the inertia of an object transitioning

from rest to motion (or motion to rest). They will have seen objects shatter or crack or slide or bounce or crumple as they come into contact with one another. The perceptual principles thus appear to be universally understood because they draw meaning directly from the visual effects of Newtonian physics, reducing the world to force, mass, and material.

- - -

Before I transition to a critique of this universality, there are two factors to keep in mind. The first is that professional animators and motion designers carefully insist that goal of animation is not to merely mimic the motions of physical reality. Rather, they claim to exaggerate reality (Thomas & Johnson, 1981; Chang & Ungar, 1995) or to be inspired by reality (Material Design Guidelines, 2016a). From this perspective, some motion designers may take issue with my example of the falling mug, arguing that I characterize animation as an act of mimicry and do not adequately address its exaggeration dimensions. But even when motion designers distance their work from an act of direct imitation, they often rely on the idea that these movements reduce cognitive load or convey the same meaning *no matter the audience*. For instance, take this passage from Chang and Ungar:

Paradoxically, only by exaggeration do cartoons achieve more realism. The dwarves in Disney's *Snow White*, for example, are highly stylized — their faces and bodies are drawn with oversize, weighty features, their movements are large and exaggerated. In contrast, Snow White is drawn with realistic proportions (her nose, to mention just one feature, many times smaller than any dwarf's), and her movements just those a real person would have, much smaller and more measured than that of the dwarves'. Yet Snow White, as realistically as she is rendered, seems bland and wooden in comparison

to the expressive and engaging dwarves. The dwarves simply seem more realistic. (1995, p. 49)

True, the “realism” of the dwarves’ movement does not reproduce the movements of the physical world. Yet, even the motions of these dwarves, unlinked from its correspondence to a real analogue person, are still discussed as if all viewers will perceive the motions of the dwarves in the same way. There is no mention here of exactly *who* might find the dwarves to be more realistic, or how some audiences may interpret the “expressive and engaging” motion in other ways. Instead, the designers imply that realistic motion draws on our basic human experience with processing motion. Realistic motion, whether it is an imitation, approximation, or exaggeration of physical reality, remains tied to the decontextualized understanding of human perception that renders movement through cognitive-perceptual principles.

My second point is that while my tone may belie a critical attitude toward these perceptual principles, my overall goal is not to suggest that they are without pedagogical and analytical value, or that our instantaneous perceptions should be excluded from the research and teaching of visual rhetoric in technical and professional communication. As I argue in the fourth chapter of this project, the perceptual principles are incredibly valuable when deployed as what Sullivan (2001) defines as a “safe” approach to visual design (p. 104). Working as a set of veritable “design training wheels,” these principles can help students and practitioners to overcome an initial anxiety of working with unfamiliar design concepts and unfamiliar software to work in an unfamiliar medium.

The perceptual principles also are useful when employed in a descriptive capacity — as a shared vocabulary for the concrete aspects of motion that are generally available for revision. As interface animation specialist Head explains in her book *Designing Interface Animation* (2016),

“It’s much easier to implement feedback like ‘That animation needs more oomph, so let’s give it more follow-through’ than just ‘That animation needs more oomph’” (p. 18). Here we can see how the perceptual principles strengthen the connection between the rhetorical rationale(s) for animation and executing that rationale in practice, even if we might hope for a less vague rationale than simply increasing the “oomph.”

3.3 The Limitations of “Realistic” Movement

The problem with perceptual principles for motion design (as well as for visual rhetoric generally) is that they encourage designers to conceive of users/viewers as a static, homogenous group, forgetting the potential for the same motion to be read in multiple ways. One of the core arguments for framing animation in terms of raw perception is the idea that, by connecting motion to the user’s lived experiences, animation can reduce the cognitive burden of the interface as a whole. When the guidelines advocate for “smooth” or “realistic” movements (see especially Thomas & Calder, 2001), they implicitly hope for an interface that gradually recedes into the background of the user’s experience, obscuring the idea that the interface has been carefully designed and redesigned.

The more designers fade from users’ memories, however, the more that responsibility for problematic interfaces shifts from the designer(s) to the user(s). Selfe and Selfe (1994) illustrate how this blame-shift functions in their analysis of Macintosh interface. Dominated by metaphors of capitalism, including folders, filing cabinets, and desktop cabinets, the Macintosh interface can be transparent for users who are familiar with the tokens of white-collar corporate culture, but would be less intuitive for users with other experiences. To work within a virtual reality structured by these metaphors requires users to submit, even if only temporarily, to a space

defined by “the lives and values of white, male, middle- and upper-class professionals” (p. 487). And, because these metaphors are clothed in the logic of a neutral, rational system of identification, they are difficult to challenge without articulating the identities excluded by the system.

The guidelines for motion design are constructed with the same limitations as the corporate metaphors identified by Selfe and Selfe during their discussion of computer interfaces. Yet, because of the seemingly essential connection between these principles and material reality, it can be difficult to imagine their social and cultural leanings. It is easier to comprehend how visual metaphors can privilege a particular workplace (given the focus on memos, manila folders, and corporate culture), than a particular relationship to physical forces like gravity, force, and momentum. And yet, this privileging still exists, albeit usually in a less straightforward way than the presence of corporate workplace metaphors.

In order to tease out these differences in physical experience, I find it helpful to draw on Ingold’s (2011) discussion on materiality and movement in *Being Alive*, as it helps me to describe how both the movements we see and the movements we perform are constructed through heterogeneous, dynamic relationships with materiality. Early in the book, Ingold critiques the notion that there are true or objective properties of materials (i.e. stone, wood, cloth, etc.) that can be measured scientifically and subsequently either expressed or repressed in their use (such as building a house). Within this purview, an engineer working with stone might “express” the properties of the stone by focusing on the measurable density, elasticity, and strength of the stone, imagining these properties as a kind of inherent “stoniness” that exists beyond interpretation (p. 30). Countering this idea of fixed or essential material attributes, Ingold points out that “stoniness” is also “endlessly variable in relation to light or shade, wetness or

dryness, and the position, posture or movement of the observer” (p. 30). While there is a material to stones, there is also a materiality of stones defined by the ways that stones are interpreted within a social and historical context. For example, we might interpret stones as building material, or weapons, or as art supplies, or as artifacts, depending on a tangled web of situational factors. For Ingold, it is not useful to consider the perspectives of material (objective, fixed) and materiality (subjective, fluid) as a binary opposition to one another, as he claims that the two perspectives constitute “overlapping regions of the *same world*” and that “stones, too, have histories, forged in ongoing relations with surroundings that may or may not include human beings and much else besides” (p. 31). In other words, both material and materiality are less like two sides of the same coin than two chemicals in the same beaker: it impossible to extract one from the other. Stones, or any other material for that matter, are therefore constantly resituated in both material and socio-cultural ways.

With this dynamic perspective of material/materiality in mind, we can return my example of the falling ceramic mug from earlier in the chapter with the question: how might we interpret, rather than simply perceive, the movement of the falling mug? Where are social and cultural experiences woven into the scene? From my earlier description, it would seem that we are meant to view the fall as an exciting action, perhaps as the climax of a scene or the interruption of a previously calm environment. But it is impossible to assign this meaning or any other beyond the changing position of the mug without answering contextual questions about the type of mug, my relationship with the mug and the ongoing actions in the environment, not to mention the viewer’s experiences with mugs (including drinking, buying, dropping, etc.). As soon as we transpose the mug into an animated interface (whether that interface be the movie screen, television screen, or the computer screen) these factors necessarily privilege particular kinds of

identities and experiences as the primary audience, even as movement is designed to tap into our supposedly innate perceptual capacities.

Still, some might argue that my mug example unfairly focuses on the object of the mug rather than the essential properties of the movement itself. After all, most of the objects animated by motion designers amount to little more than abstract shapes, lines, and blocks of text. If, instead of a falling cup, we imagine a two-dimensional circle dropping from the top-edge of the screen to the bottom-edge of the screen, we could argue that while the object itself remains defined by an abstract array of socio-cultural relationships, the *movement itself* remains tied to a universal visual language of classical Newtonian physics. Indeed, this approach works implicitly in motion design guidelines through the frequent assertions that “objects move” in this way or that way with little to no mention of how the qualities of the movement should be influenced by the type of object being moved. This separation of movement and objects can be particularly tempting for animators because it corresponds to the division of labor in animation studios: one group draws the characters or defines the layout of an interface, and the animators or motion designers are given the task of applying movement to these already constructed visual materials. Imagining motion as a universal language for visual perception dignifies the work of animation with more authority than regurgitating a set of predefined means set by the visual objects themselves.

The primary problem with this idea of movement itself is that it imagines that movement can be separated from material — that movement is merely an abstract force *imposed upon* material objects regardless of what those objects might be. This is incorrect on two counts. The first is that motion is always dependent on material interactions, whether we experience those interactions or not. It is easy to forget that falling objects don’t travel through empty space, but

through the air, a substance with local, material capacities such as pressure, temperature and humidity. This point is particularly important for Ingold, who argues that the world is not an empty space filled with objects, but an ongoing system of materials-in-motion that include the (usually) hard surfaces of the earth, the porous medium of the air, and the interchange between air and earth that is exhibited by wind, weather, and chemical processes (p. 121).

In turn, this articulation of reality challenges not only the notion of movement independent of objects, but also the material independence of objects themselves. After all, if we think of an object falling through the air toward the earth— for the sake of clarity let us say a football — the football interacts with the air just as the air interacts with the football. Thus football players must learn to read the patterns of the air, including the temperature and the direction of the wind, in order to play the game successfully. Of course, part of this reading of the wind steps beyond visual rhetoric into the sensory field of touch, as players would feel temperature and wind direction more than see it. As such, this understanding of reality as material in motion begins to push beyond the scope of this project, given that animation limited to visual signs. Nevertheless, in we can see how difficult it can be to separate the material of the football from the material of the environment.

The second problem with movement itself is that, just like with objects¹², movement is experienced through social, cultural, and ideological frames of reference — even the movement of simple shapes such as lines, circles, and squares. This point was made clear by a 1944 study by experimental psychologists Heider and Simmel (commonly discussed as the Heider and Simmel experiment), in which undergraduate students were asked to watch a short, animated

¹² My phrasing here of “*just like* objects” may feel counter-productive to the discussion in the previous paragraph, as it positions movement and objects as two separate things. My point is that even if we could experience movements devoid of objects (which we cannot), we would still interpret those movements through a social lens.

video featuring two triangles, a circle, and an empty rectangle. When participants were asked to write down what happened in the video, most described the video as a story of two men (the triangles) who are romantically interested in the same woman (the circle). Other than the lines of romantic interest, however, the stories diverge. In some cases, the story takes the shape of an affair, with the circle bringing home “another man” in the smaller of the two triangles. Another explanation takes a more ominous tone, with one triangle forcing the other triangle out of the house in order to be alone in the room (signified by a rectangle) with the circle (p. 248). From this experiment, Heider and Simmel suggest that humans are naturally inclined to read causation into motion, even if the shapes and motions are relatively simple.

Even from the few examples I have outlined here, we can see how the reading of causation is not a neutral enterprise, but rather is embedded in cultural assignments of particular movements to particular identities. The most obvious example is how gender is assigned to the shapes: the triangles labeled as male while the circle was labeled as female. However, the experiment also reveals more subtle judgements as well. One triangle was consistently labeled as “aggressive, warlike, troublesome” while the other triangle was labeled as “cocky” and “defiant” (p. 248 - 249). The circle, meanwhile, is described as “weak, helpless, dependent” (p. 250). These identities are clearly inscribed with the prescriptive gender roles that we might expect from a study from the 1940s. Additionally, the differences between descriptions is just as important as the similarities, as individual readings of the sequence of events (affair vs. burglary vs. bullying) surfaces a more localized set of assumptions. To imagine that there is a movement itself is to imagine that movement as a singular, homogenous agent— as a disinterested, universal Rube Goldberg machine, putting objects in motion for motion’s sake. From the Heider and Simmel experiment we can see that this is clearly not the case.

Just as in Selfe and Selfe’s example of the Macintosh interface, the cultural and material entanglements of animated materials — including videos, interfaces, visualizations, and others — inevitably will authorize some realities and restrict others. To claim perceptual principles as neutral, natural, or universal papers over these differences to the advantage of the powerful and to the detriment of the marginalized. We do not need to look far in order to find a precinct example of these power dynamics, given Disney’s firmly established history of trading in racial stereotypes and stock characters. From the infamous jive-talking crows of *Dumbo*, to the Siamese cats in *Lady and the Tramp*, to the depictions of Native Americans in *Peter Pan*, the examples of racist caricatures in Disney animation are truly too numerous to fully capture here. Indeed, as Lehman (2007) argues in *The Colored Cartoon: Black Representation in Animated Short Films, 1907 - 1954*, racist animated caricatures are as old as the art of animated film itself. Drawing inspiration from minstrel shows, some of the earliest animations functioned solely through dehumanizing stereotypes of slaves, piccaninnies, mammies, and sambos¹³. In recent years, Disney has attempted to distance itself from this problematic past, by producing films featuring non-white princesses and including visual and aural references to the cultures depicted in their films. But even in more contemporary films, Disney has still struggled with depictions of race (see specifically Breaux, 2010; Boudlin, 2004; Allison, 2015).

Perceptual principles did not force Disney animators to produce these racist and sexist visuals. It is not as if squash and stretch or anticipation are exclusively applied to certain bodily representations. Nonetheless, the perceptual principles are complicit in these racist and sexist themes because they assume that motion can be divorced from particular cultural and social

¹³ These roots even reach back to Stuart Blackton, often referred to as the father of American animation. Blackton’s second film *Lightning Sketches* (1907), is not presented as a narrative, but as a sequence of racist visual puns wherein a racial slur (such as “coon”) would transform into a caricature of that group (a blackface minstrel).

circumstances, imagining a reality devoid of politics and ideology. But to mimic reality, even partially¹⁴, animators must decide: What will be mimicked, and what will be left out? Which characters will have their movements exaggerated? Whose bodies will be squashed and stretched in order to fit into this reality? As we can see from the short list of problematic representations in Disney films, the answers to these questions are not as neutral as the principles make them out to be. As useful as the perceptual principles may be, they are still undercut by an explanatory logic that assumes a stable, univocal understanding of material reality.

To some designers, motion design may seem to avoid this critique because of the artistic focus on lines and squares rather than animated characters. But as we can see from the Heider and Simmel experiment, even simple shapes can be interpreted as embodied agents with social characteristics. This is not to say that every moving button and menu within an interface is read or designed as an autonomous being¹⁵ living within the screen, but rather that motion remains laden with historical and cultural values, even in circumstances where designers claim universality. Calling attention and responding to these value systems requires a more rhetorically grounded approach to motion design than the perceptual principles can offer. I outline four aspects of such an approach in the following sections.

¹⁴ Though animators often describe their craft with some distance from physical reality through the language of exaggeration or inspiration, some studios do draw motion directly from performers through motion capture technology. These films often argue that this approach to animation engages in fully realistic motion beyond what can be achieved by a team of animators designing the motions themselves. However, as Allison (2015) demonstrates in “Blackface, Happy Feet,” motion capture tends to engage with the same issues of race and representation as traditional animation.

¹⁵ Voice assistants such as Siri, Cortana, Alexa, and Google Assistant do present a limited exception to this rule. Though in some circumstances these assistants function with no visual interface, many instances (including phone and desktop applications) depend on small animations to communicate that the assistant is listening, thinking/processing, and speaking.

3.4 Affect/Personality

As I note at the end of the previous chapter, current motion design guidelines have encouraged designers to consider the affective potential of motion. Google's design guidelines describe using animation as an "opportunity to delight" and "add a sense of playfulness to the user experience" (Material Design Guidelines, 2016c, para. 4). The guidelines for the Universal Windows Platform (Jacobs, 2016a) offer similar advice, claiming that motion adds "elegance" and "communicates your app's personality as a user moves through an experience" (para. 3). These guidelines tend to be brief, and are rarely accompanied with an explanation of how motions might contribute to a user's affective response.

Nevertheless, the signs of affective potential provide a valuable avenue for framing motion design in a rhetorical light. As Jones (2015) argues in "Information Graphics and Intuition," readers often evaluate visual designs as a set of intuitive positive and negative associations, often as if responding to the question "Is this visually appealing?" (p. 300). These associations are not the product of careful, explicit analysis, but emerge as a product of the reader's prior experiences and expectations. For example, in the case of a simple bar graph, some readers may believe that graphs should generally present a minimalist style, consisting of no design elements beyond the axis, their labels, and the bars themselves. Such an audience, in line with functionalist design scholars like Tufte, would likely scoff at a bar graph with color, shading, or images, intuitively recognizing that the graph does not match their cultural associations for credible representations of data. By the same token, other readers might intuitively skip over a bar graph created in the "minimalist" style, viewing the lack of color and typography as merely a scientific safeguard with little value to the average reader. In both of these cases, the effectiveness of the graph depends on whether the visual style corresponds with

the audience's expectations. In this light, Jones positions affect as a key heuristic for the intersection of technical/professional communication and visual design, emphasizing the importance of the audience's expectations and the context where they will encounter the design (p. 302).

I see the value of Jones' affective heuristic for motion design on two accounts. First, it allows us to describe the affective potential of designed motion that meets the audience's expectations without reifying the connection between effective motion and "real" motion. For example, consider an icon moving laterally across the screen of a mobile device that decelerates as it approaches its position. On the one hand, we can define this movement through the perceptual principles, claiming that the movement is effective because it mimics reality, communicating the weight and momentum of the icon "realistically." However, using Jones' affect heuristic, we can connect the effectiveness of the movement to a larger range of rhetorical factors. Is the user expecting the use of small, subtle animations, attention-grabbing large animations, or a static, motionless screen? What is the user's prior experience with this icon or with this interface? How will the audience respond to the adherence to (or deviation from) their expectations? Turning to these questions relocates the definition of "effective" motion from the design itself (motion is effective because it moves naturally) to the audience (motion is effective because it achieves a particular affect).

Evaluating and designing motion in terms of affect also allows us to clarify some of the concepts that seem to be taking root in the contemporary interface design guidelines. Google's Material Design Guidelines, for example, invite designers to create "a sense of playfulness" in the user experience by finding "opportunities for delight," but give no explanation of how playfulness or delight relate to the use of motion. Instead, Google illustrates this advice through

examples. One example shows an illustration of an animated T - Rex struggling to reach down for an ice cream cone, accompanied by the text “Oh no! Something went wrong...” Another example shows a loading screen that flips through the phrases “Adding sessions...” and “Checking your schedule” while a yellow racing bike shifts back and forth impatiently (Figure 3.1).

The potential value of these animations depends on an affective response to unexpected movement. True, the dinosaur image makes use of squash-and-stretch and anticipation in order to signal the inelastic force of the dinosaur reaching down for the ice cream, and the bicycle uses slow-in and slow-out in order to signal that the forces of friction, momentum, and inertia that affect the movement of the bicycle. However, the factor that makes these movements *playful* is the way they disrupt the user’s expectations. In the dinosaur error page example, the user expects to open a particular page, but is instead re-routed to this silly message. Though the user may initially be frustrated at the snag in the system, the unexpected movement briefly draws their attention to the cute dinosaur. The dinosaur’s struggle to reach the ice cream acknowledges the user’s potential frustration for receiving the error in the first place and simultaneously frames that frustration as a cute, silly mishap. Thus, while the effect does depend on the cuteness of the dinosaur, the “playful” and “delightful” aspect of the animation is the (hopefully) pleasant surprise of the dinosaur in an unlikely location in the interface.

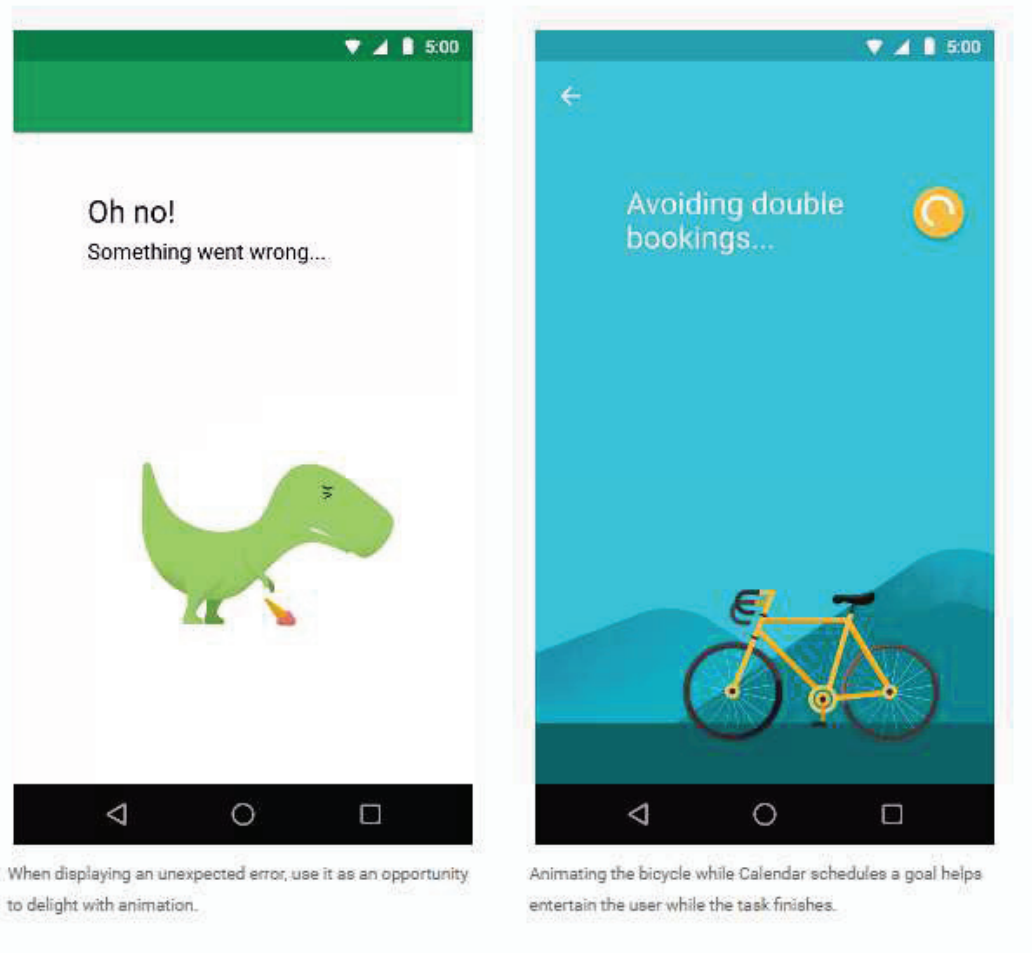


Figure 1 - Examples of creative customization in Google's Material Design principles.

The same notion also applies to the bicycle loading screen. Much like the circumstances of an error message, users are typically not thrilled to wait through a loading screen in the process of opening a program or application. Loading screens interrupt the user's train of thought, and potentially signal a slow network or processor. Accordingly, most visual indications of loading involve little more than a default system animation, such as Apple's colorful spinning pinwheel or the spinning circular loading icon in Google's Material Design paradigm. The

bicycle example plays on these expectations not because the bicycle is animated¹⁶, but because the scene is custom-built for the application instead of relying on the default animation style¹⁷. The user may be familiar with the repetitive, looping movement of most loading screens, but transposing this movement to the back and forth motion of the bicycle breaks the user's expectations for this function. These appeals to "delight" and "play" are less related to any specific movement than to the relationship between the user's experiences with the design conventions.

One area where the affective threads of the user's experience tend to tangle and knot is through the concept of personality. Contemporary guidelines for motion design often claim that motion "adds personality" to an interface (Jacob 2016), but then discuss personality in a largely univocal capacity. The guidelines do not discuss the types of personalities that one might develop, nor the animations that could be useful for articulating these personalities. Instead, the majority of guidelines simply reference personality as a binary proposition. Either a design has personality or it does not. In this reductive form, these perfunctory nods to personality act as little more than a weak echo of the principles of character animation. The writers of these guidelines seem to implicitly understand that there is a relationship between movement and personification, but lack the ability to connect the idea of a personality with the design of an interface.

¹⁶ Indeed, loading is often displayed using animated visuals in order to signal that the device is still processing the information and not frozen or stalled.

¹⁷ Custom-built loading animations do not always portend such positive effects. When loading animations draw attention to the program or application, users are more likely to blame that program for long load times, rather than attribute the delay to the speed of their network or the processing power of their device (Mitchell, 2004).

That is, except for Head. Unlike the decontextualized maxims found in the UWP guidelines or the Material Design guidelines, Head (2016) locates personalities of motion as a mechanism for establishing (or reiterating) brand identity. In the process, Head describes the potential for a multitude of different motion-based personalities: “Is your brand energetic? Friendly? Strong? Playful? Stable? All this descriptive language can be translated into motion just like it can for other design tools like typography and color. Animation speaks in similar ways” (p. 145). Most importantly, Head goes on to explain how certain styles of motion relate to specific personalities. She argues that the use of bouncy, elastic movement establishes a sense of friendliness, while drastic speed changes and sharp movements signal impatience and urgency (p. 146). Head even discusses how the *lack* of movement can indicate a form of personality. Slowly fading visual elements on and off the screen can make the interface appear calm, while steady, slow movements may signal stability (p. 148). Though Head does not go so far as to explain how or why these specific types of motion correspond with certain personality traits, this breakdown provides a rhetorically grounded lens for choosing one style of movement over another.

Furthermore, Head’s breakdown of these personalities strongly resembles the research in professional and technical writing, particularly in relation to the studies of typeface personalities from the early 2000s. As noted by Brumberger (2002), technical and professional communicators often intuitively choose typefaces based on their affective characteristics. Like personalities of motion, typefaces are read as direct, friendly, elegant, formal, and even masculine or feminine based on their visible characteristics. However, unlike discussions of personalities within motion design, researchers in technical communication have found support for these intuitive responses through empirical studies. Mackiewicz (2005), for example, offers a thorough analysis of the

anatomical differences between “friendly” and “professional” typefaces (p. 301), and uses her understanding of these features to highlight the merger of friendly and professional traits within typefaces (p. 311). Other studies examine how typeface personalities are expressed and interpreted across cultures (Amare & Manning, 2012; Caldwell, 2013) and different media (Mackiewicz, 2007). Consequently, the concept of personalities not only resonates between motion design and technical communication, but provides further avenues that can be used for studying and clarifying the affective threads of motion.

Still, despite the explanatory power and disciplinary resonance of the concept of personalities within motion design, we should take care to maintain a critical eye when teaching or researching through this schema. Dividing motion into sets of personalities can easily slide back into a perceptual/cognitive design framework, wherein movements are understood to be inherently cute or naturally jarring, instead of the socially constructed results of our repeated interactions with people and objects in the world¹⁸. Though researchers examining typeface personalities repeatedly make this point, it is both more challenging and more essential when personalities are attributed to motion in order to avoid pernicious forms of movement-based essentialism (i.e. lazy people rely on X movements, normal people rely on Z movements, etc.). This is why I see personalities as only one bundle of the many affective threads involved in motion design.

Even while it may occasionally drift into a perceptualist mode, discussing motion design decisions in terms of affect/personality provides a strong, rhetorically grounded alternative to the purely cognitive principles of motion design. On a broad level, it allows us to understand how

¹⁸ By “in the world” I am also including our interactions with virtual objects and virtual worlds, including animated films, interfaces, and game environments.

motion functions in relation to the user's experiences and the conventions of the genre at hand. It also allows us to challenge the notion that motions have a singular, identifiable meaning established by the "reality" of the interface.

3.5 Choreography

As I discussed in Chapter 1, one of the repeated critiques of motion as a professional design element is that it can be distracting, drawing the user's attention away from the information they are trying to find. Johnson-Sheehan provides an excellent rehearsal of this critique in his discussion of web design in 2001:

...users will instinctively fixate on an animated train that meanders randomly around on the screen. An animated person who reads to the user with various changing expressions would certainly capture more attention than the written words on the top of the screen. The question is whether the designer really wants to sacrifice the users' limited attention to these animations. (p. 25)

Motion far from the only design element that has been labeled as a distraction. Indeed, between typography, color, sound, and arrangement, nearly any category that we categorize as a design choice can be labeled as a distraction from experience of reading and thinking. As Lanham argues in *The Economics of Attention* (2006), these broad claims about distracting design elements reflect the transparent logic of print, which "economizes on most of the things we use to orient ourselves in the world we've evolved in—three-dimensional spatial signals, sounds, colors, movement—in order to spend all our attention on abstract thinking" (p. 46). The contemporary use of color, typography, and other design elements, then, reframe their seemingly

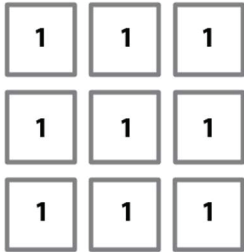
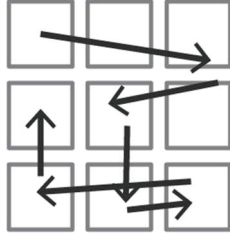
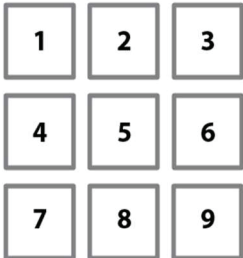
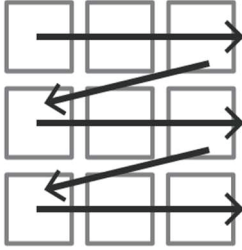
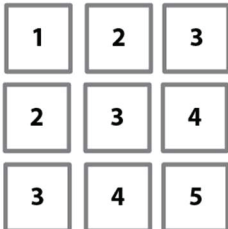
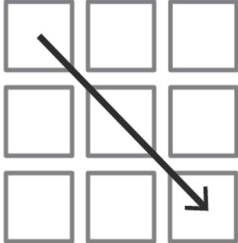
distracting tendencies in a productive way, for instance, using color and contrast to attract the user's gaze to an important button or menu within an interface. To situate design rhetorically, we should also recognize how the relationship between productive and distracting can be aligned with a range of intentionalities based on the designer, audience, and purpose. A brightly colored banner advertisement may be said to distract a user from reading the text of a blog post, but an advertiser may see the user as distracted away from the advertisement by the text! Design elements can still be distracting — we all can imagine and cringe at the websites that auto-play commercial videos, or at the use of an overly-decorative typeface on a resume — but these instances are distracting due to their relation to a specific context, not because of the design element itself.

So how can we make use of motion in the design work of professional and technical communication without falling prey to animation-as-distraction? Most design guidelines respond with warnings to “use animation judiciously” (Apple, 2017, para. 6) or generic advice to “maintain the user context” when transitioning from one area of an application to another (Jacobs, 2016). However, neither of these guidelines is particularly instructive about how one might connect this advice to actual design practices. They might as well state “Avoid distracting animation” without ever explaining what constitutes a distracting animation in the first place.

One set of guidelines that does go beyond the most generic advice is Google's Material Design Guidelines, which includes a design principle that they call “choreography.” Google's definition of this principle is quite brief: “Material in motion guides the user's focus through interactions by sharing elements across transitions” (Material Design Guidelines, 2016b, para. 1). However, unlike other sets of guidelines, Google provides practical examples to show how movement can be choreographed to respond to the user's attentional needs. The guidelines

suggest, for example, that the appearance of multiple new visuals should be staggered, allowing the user to subconsciously note each element individually as they appear (Table 6). The guidelines also offer examples for maintaining the user's attention when multiple visual elements must change position at the same time, suggesting that designers should avoid patterns of movement where the paths of elements cross paths (Figure 2; Figure 3).

Table 6: Material Design Guidelines for Staggering Motion

	Sequence of Appearance	Reading Pattern
<p>Example Practice to Avoid If all objects appear simultaneously, the user won't know where to focus.</p>		
<p>Example Practice to Avoid By using this sequence, the user is led to direct focus back and forth across the screen.</p>		
<p>Example Best Practice This sequence allows users to note different objects quickly by using the simplest focal path.</p>		

The visuals from the Material Design Guidelines visualizes these practices in .gif format to show the objects appearing in real time. The images above represent the same patterns, but with static images.

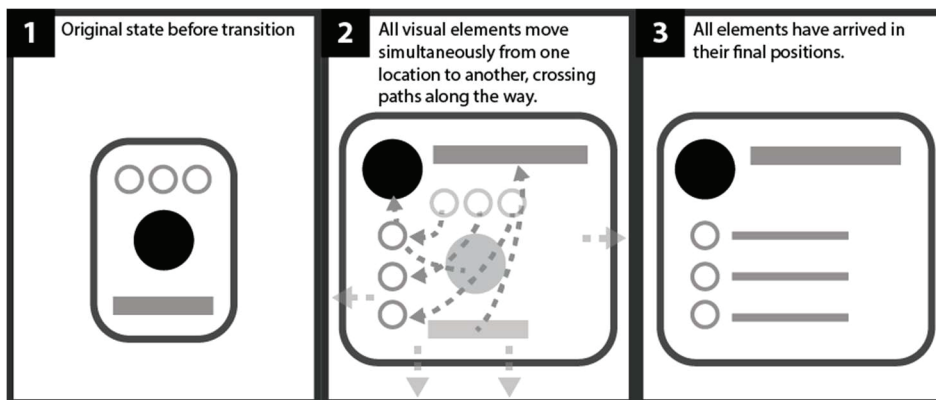


Figure 2 - Movement pattern to avoid based on Material Design Guidelines

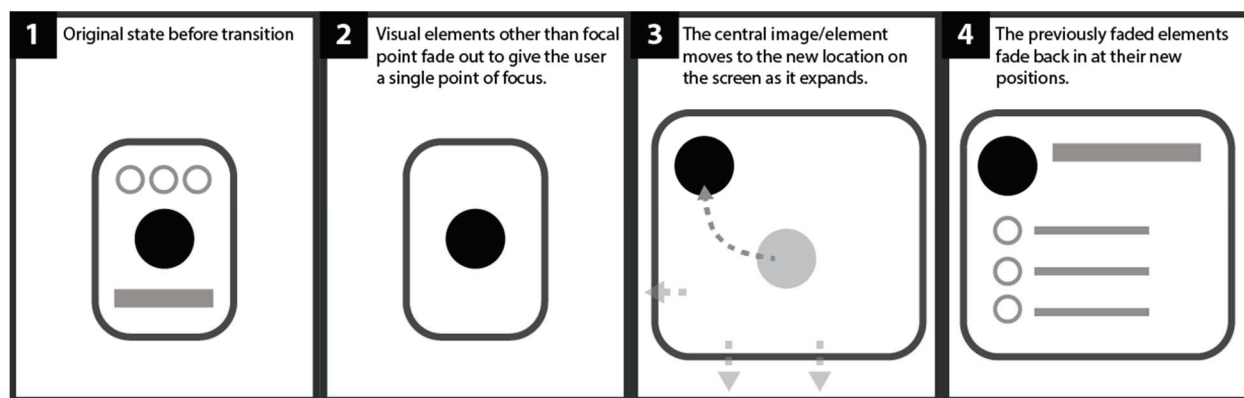


Figure 3 - Appropriate movement pattern based on Material Design Guidelines

In both of these examples, we can see how the choreography of the interface structures motion with the user's visual focus in mind. The use of staggered timing shown in Table 1 demonstrates how motion can suggest a particular reading pattern when an array of icons appears on the screen for the first time. The movement pattern offered in Figure 3 shows how a design pattern can maintain the viewer's focus through a complex transition, and how designers may choose to remove some visual objects from the frame in order to highlight the movement of others.

And yet, what I find most valuable about these examples is not the rules themselves, but the potential benefit of describing these independent design rules and guidelines as a form of

choreography. Etymologically defined as “dance writing,” we typically think of choreography as a planned sequence of bodily movements in a dance composition, but over the years the term has been applied to the design of a wide range of phenomena. Fight sequences, whether in film or on stage, are described as a form of choreography (Olavarria, 2014). Likewise, in the field of information architecture, practitioners delineate between a “service orchestration” in which computational processes are controlled by a central source, and “service choreography” in which processes are trained to send and receive information in response to one another (Havey, 2008). At the core of the term of choreography, either in relation to movement or to more general forms of activity, is the idea that movements are not designed individually, but as an inter-relational system. Framing the concept in terms of dance choreography, although each dancer moves as an individual (in that they control their own bodies), the movement of the dance as a whole is often composed and interpreted with both individual *and* collective movements in mind¹⁹.

The theoretical underpinnings of choreography in relation to technical and professional communication extend from two earlier attempts to describe the design of motion graphics in *Computers and Writing: compositing and montage*. Compositing is the combination of several independent sources so that the final product is identified as a single composition (this is similar to the way some use the term remix). In the film industry, compositing is primarily associated with layering visual effects, including green screens, computer generated images, and even the use of filters to adjust the color and texture of the final product. Each of these techniques operates in relation to the illusion that a film exists as a single media object rather than as a set of

¹⁹ I stop with dancer’s relation to each other for the sake of simplicity and the limits of the scope of visual rhetoric. However, there are other less obvious factors that we can think of as part of choreography in a theoretical sense, including the space of the room, the lighting, and the audience’s bodily positions in relation to the dancers. Though I don’t engage with these non-human (f)actors in my description of choreography here, I see these additional valences as potentially fruitful directions for future inquiry, especially with regard to the role of movement in the context of augmented and virtual realities.

differentiated visual elements. Drawing off this emphasis on combining dissimilar parts to create new meanings, Manovich (2001, 2006a, 2006b) and Bolter and Grusin (2000) have used the concept of compositing to describe what they see as genre-rupturing qualities of media combination²⁰ in motion graphics. But while the term compositing indicates that media is combined, it does not allow us to easily articulate how or why different media can be or should be combined.

Applying this idea of media compositing to design practices, Skjulstad (2007) draws another term from the lexicon of film studies in the concept of *montage*. Whereas compositing centers on the fact of combination, montage begins to identify the purpose of combination, framing multimedia as the juxtaposition of design elements. The juxtaposed elements can be used to reinforce certain qualities in a multimedia text, such as through the use of a consistent color scheme across media elements. Juxtaposed elements can also purposefully conflict one another, such as the use of an extremely large typeface to stand out from other media elements in an interface. A central point for Skjulstad's concept of montage is that it can be read spatially (via the arrangement of media elements in an interface) graphically (via abstraction, realism, color, etc.), and spatio-temporally (via the relations between moving objects and in the transition from one page of a website to another) (p. 376). Skjulstad offers these three dimensions as potential categories for textual analysis of motion design, showing how each of these categories turns the analyst's attention toward a different set of medialogical juxtapositions.

²⁰ "Genre-rupturing" here refers to the blur between compositional approaches to video, still image, animation, and procedural rhetoric that are discussed in detail by Manovich. For example, after noting the mixture of video, effects and animated typography in music videos, Manovich argues that "while the particular aesthetic solutions vary from one piece to the next and from one designer to another, they all share the same logic: the appearance of multiple media simultaneously in the same frame. Whether these media are openly juxtaposed or almost seamlessly blended together is less important than the fact of this co-presence itself." (p. 8).

Skjulstad's third category, spatio-temporal montage, provides a salient lens for motion design, as it attempts to account for the range of ways that movement occurs within an interface, including "1) in the interface itself, 2) in the moving images and motion graphics integrated into the website, and 3) in the movement created as a user interacts with a text" (p. 372). According to Skjulstad, the interrelation between these three simultaneous sites of movement are what distinguish motion graphics from photomontage (more spatial than temporal) and film montage (more temporal than spatial). Spatio-temporal montage is not only constituted through the movement of visual elements, but is also reactions *to movement* in that the user's clicks, swipes, and input offer a thread that must be woven into the way motion is designed.

Choreographies of motion design, as I outlined in relation to Material Design guidelines, provide language for differentiating one approach to spatio-temporal montage from another. Just as there are certain choreographic moves associated with certain styles of dance, such as lifts in ballroom dance or the six step in breakdance, there are certain choreographic moves associated with different user experiences, interactions, and genre conventions. The choreographic style of motion in a music video will necessarily differ from a mobile app due to the difference in screen size, purpose, and user activity. Even when considering similar media — two iOS apps, for example — there will be differences in the use of motion, just as there would be stylistic differences between two dances from the same style.

In turn, this variety of available choreographies plays a key role in rhetoricizing the relationship between animation and attention far more than previous approaches to motion design. The framework of cognitive perception imagines motion as a binary proposition: either the user's attention is drawn to the intended area of the interface or they are said to be distracted by motion, unwittingly attracted like a cat following a laser pointer. By understanding motion

through choreography we can see that indeed there are some designs that play on this relationship between motion and attention, like follow-the-bouncing-ball captions on children's singalong shows. However, this is only one of many ways of designing a relation between image, eye, and movement. If this follow-the-bouncing-ball approach works against the designers' intentions, distracting the user from necessary visual information, the problem may not lie in movement as a whole, but in the style of the choreography. So, faced with the critique of a distraction, a designer might adjust the acceleration of movement, or change the colors and layout of the design to better attract the user's attention, rather than simply remove movement altogether²¹.

Even those cases that may seem to present universally applicable rules for motion design, can be framed as a particular choreographic stance, grounding models of effective motion design within a context of users, designers, media, and materials. Google's Material Design Guidelines provide a prime example. In Material Design, choreography is defined as a general, neutral principle, but by including do's and don'ts of choreography the guidelines belie the undergirding logics and assumptions of their approach. The "do" patterns argue for movements that work "smoothly and quickly" and that "create a clear, smooth focal point in a single direction" (Material Design Guidelines, 2016b, para. 11). The contrasting "don't" movements warn designers not to "overwhelm" users with motion and argue that multiple motion paths will inevitably distract the user (2016b, para. 11).

²¹ In a way, defining choreography through Skjulstad's three aspects of spatio-temporal montage makes it impossible to create a visual design *without* movement. Making sense of even a "static" image requires the viewer's gaze to constantly dart across the visual field in order to develop a mental image of the image as a whole. Choreography, then, simply builds on this preexisting predilection to movement.

These details make sense for Google's purposes, as they hope that designers will create applications where there is never any question of where to look or what to touch. Still, while these rules would be applicable to many styles of interfaces, they are far from universal, as they discount the potential value of distracting or disorienting one's user as a choreographic scheme. Though this language may seem to contradict the goals of the average app developer, from the perspective of an advertiser creating pop-up ads the central goal is a form of distraction, as the user's attention is redirected from the task at hand to an overlooked area of an interface (the ad). These choreographies of redirection may overwhelm, confuse, and even anger a potential user, but to frame these responses as universally ineffective simply misses the range of purposes and audiences that may be addressed through motion. This is not to say that the Material Design examples inherently lead to poorly interfaces, but that they lead to design practices that occlude the rhetorical decisions that undergird motion design. Seeing the do's and don'ts of Material Design as two potential interface choreographies, on the other hand, brings rhetorical considerations to the forefront, encouraging designers to shape the user of motion in relation to the specific constraints of the situation.

In sum, framing motion design a form of choreography complicates simplistic views of animation as merely a visual trump card, pulling users to look at design elements against their will. Likewise, the potential variety of choreographic approaches, rules, and logics opens a new avenue for rhetorical analysis, allowing technical and professional communicators to determine the choreography that best fits the needs of their purpose, audience, and medium rather than searching for the one set of rules or principles that can explain every use of motion. Despite these benefits, choreographies are complex, requiring designers to understand the visuality of interfaces as temporally and spatially dynamic. It is not easy to define or design individual

choreographies with precision. Still, this rhetoricization is necessary if we are to teach and study animation with the same attention as we have directed to other areas of visual design.

3.6 Presence

The first two rhetorical features of animation I have discussed, personality and choreography, characterize animation as pre-constructed visual elements of an interface. The benefit of starting with these concepts is that they can be applied to different media in relatively similar ways. Designing an energetic personality for a cartoon character involves a similar approach to motion design as designing a computer interface with an energetic personality. Likewise, the choreography of the limited visual space of an Apple Watch requires the same attention to eye-movement and cognitive load as the choreography of an explainer video. Though the application of both principles certainly differs from situation to situation, they create a useful conceptual bridge between the principles of character animation and motion design as a whole. Still, when we mentally compare the movement of an animated feature film to the animations of an interface it is clear that the two are drastically different. How can we characterize these differences? How can we articulate how our approach to motion design must change from one medium to another?

One essential difference is interactivity. Defined by Porter (2009) as “the range and types of engagement (between people, between people and information) encouraged or allowed by digital designs,” (p. 217) interactivity plays a critical role in understanding how the material affordances of particular media can shape the user’s experience. The design of a book, for example, includes a number of design elements that allow for specific interactions between the text and the reader. The size of the margins allows the reader to flip through the pages and acts as

a place to hold the text while reading. The binding affects whether the book can lay flat on a table. Even between relatively similar media, such as between a book and a magazine, designers must plan for different interactions between reader and text. In turn, interactivity connects design to questions of: Where will this be read? What actions does the reader need to take in order to read this text? How can small changes in the construction of the text lead to changes in where and how they read?

Because interactivity can describe material relations between users and media, it is particularly useful for drawing out the differences between applications for motion design. To see an animated film in a theatre, to take one extreme, depends on minimal activity of the viewer. We might shift positions, laugh at the screen, or eat concessions, but none of these actions affect the movements on screen. When interact with animated films as viewers more than full-on users. Lights are dimmed and phones are set to vibrate so that we can maintain our focus on the progression of movements (and sound) on screen.

New media formats such as a phone interface, on the other hand, require a near-constant stream of interactions from the user in order to function as intended. Application icons require tapping, blog posts require scrolling, and old messages require swiping in order for the interface to function as interface. Meanwhile, in contrast to the experience of film, the phone user's focus is fleeting. The small screen takes up a fraction of their visual field — their gaze free to roam from our phones to our surroundings and back again. Indeed, the ease of shifting focus is essential to many mobile applications. Following directions in Google Maps, for example, encourages users to double-check their progress by mediating between the numerical, abstract display of the phone and the immediately visible landmarks of the environment. It is less that the user is distracted than the fact that they can more easily shift between multiple foci, flowing from

screen to environment and environment to screen²². At some moments the user might need to focus more fully on the phone, carefully studying the street names and locations. In other instances the user might forget about the phone all together, putting it in a pocket until the next notification. Where the filmgoer's attention is stable and concentrated, the phone user's attention is variable and dispersed. Motion design, so often celebrated as a mode of feedback and decried as a potential distraction, must be able to take these material differences into account.

Both the scholarly and corporate animation guidelines discussed in the previous chapter largely take these differences for granted, framing interaction as a universally positive factor in animation. The most detailed discussion to this end can be found in Google's Material Design Guidelines, where "Responsive Interaction" is listed as one of the principal style guidelines for motion. They state: "Interaction encourages deeper exploration of an app by creating timely, logical, and delightful screen reactions to user input. Each interaction is thoughtful, perhaps whimsical, but never distracting" (Material Design Guidelines, 2016d, para. 4). Though the guidelines give examples of "logical" and "distracting" movements in other sections of their website, this definition of interactivity lacks the contextual grounding to discuss motion rhetorically. What is the logic of interactive motion, and in what situations might this motion be seen as distracting? How can we link interactive motion to particular situations instead of a general injunction to always push for more interaction in all situations?

As scholarly discussions within Computers and Composition have shown, there are several methods of framing interactivity rhetorically, some more applicable to motion design than others. In her essay "Interface as Exordium: The Rhetoric of Interactivity," Carnegie (2009)

²² All this is not to say that video-based media are devoid of interaction, or that video is a "passive" medium in relation to the "active" medium of a user-interface. All too often such language establishes a false binary that arbitrarily privileges user action as an inherent technical good.

describes three independent “modes” of interactivity: multidirectionality, manipulability and presence. Though these modes are often co-present, they refer to distinct strategies for “enact[ing] models for creating various degrees of interactivity.” (p. 166). In turn, these categories make it easier to distinguish between the aspects of interactivity that relate to motion design, and those that do not.

Multidirectionality centers on the interactive affordances enabled by the networked, hypertextual capacities of new media composition. In media formats such as a standard book or film, the audience is setup as a receiver of information, with little ability to create content or to communicate with other users. These media are less *interactive*, then, because the user is given few ways to act with other users. In contrast, media become more interactive when there is an expectation of (and response to) user participation. In this sense, an email thread is a fairly interactive medium in that the user can be seen as both sender and receiver of information. The more the user participates with other nodes (people, media, algorithms, etc.) in the network, the greater the interactivity via multi-directionality. The effects of interactivity in motion design, however, have little to do with multidirectionality. Much like the interaction of turning the page of a book, most interactions characterized by motion allow for a deeper local relationship between user and interface, but amount to few connections to a wider network of users.

The mode of manipulability relates to the potential for the user to customize and add to the interface; the more options for customization, the greater the manipulability. Within this mode, a pre-packaged interface design would be seen as the least interactive, while superficial customization options such as changes in color and typeface would be classified as slightly more interactive. The most interactive designs in this mode are designs where the user has “the ability

to create and add content” (p. 169), such as uploading and editing a video on YouTube, or even the ability to edit content on Wikipedia.

In many contemporary interfaces for laptops, phones, and tablets, motion is a manipulable quality of the interface. Both Windows 10 and iOS provide easily accessible toggles to switch all interface animations off and on. The Apple Watch offers an option for reducing motion that converts movement transitions to fade transitions, and savvy Android users can choose between faster animation speeds, slower animation speeds, or removing the animation altogether. Though the motion is editable, however, these options still amount to little potential for interactivity. Motion does not allow users to create or add new content, but to customize existing content in the same minor way as customizing the color or typeface of an existing layout. In sum, neither multidirectionality nor manipulability offer particularly helpful directions for discussing the rhetorical interactivity of motion.

Carnegie’s third mode of interactivity, presence, refers to way media creates “an experience of interacting socially and of being in a particular place or space” (p. 169). Users feel present to the extent that they can perceive, interpret, and act on the sensory cues of an interface. The most potent and easily recognizable examples of presence are found in contemporary game design, specifically in the case of role playing games (RPGs). Designers of such games often include countless sensory cues to create an immersive game environment, from minor architectural features to the rising and setting of a virtual sun. The audio of games can be just as detailed, assigning individual sounds to each character movement and interaction with objects in the game-world.

Perhaps unsurprisingly, the motion of objects in game worlds often contributes the user’s sense of presence. This includes the motion of the player’s avatar, the movement of other

characters, and even the ambient movement of the scenery. The quality of movement is so important to some games that companies attempt to describe it in their marketing materials. For example, the following excerpt from the marketing materials for the football video game *Madden 25* attempt to describe movement-style created by their True Step algorithm:

True Step is the all-new, step-based locomotion system which calculates the steps ball carriers take on the field. The old-school running cycle has been replaced by a system constantly evaluates weight momentum and desired direction with 4x the precision. This allows steps to be selected from hundreds of new running animations on the fly. This creates an innovative new locomotion system that replicates decisions NFL players make on the field. (Madden NFL True Step Locomotion Overview, 2013, para. 3)

This technical description of movement allows EA Sports, the company behind the *Madden* franchise, to argue that players should purchase the latest version of the game if they are looking for an authentic game experience, even if the players, controls, and teams remain largely the same.

Though some may dismiss such details as the blind pursuit of realism for realism's sake, a greater sense of presence implicitly provides the player with a set of expectations about the game environment: what exists, what actions can be taken, and the potential effects of those actions. The fact that the True Step system "constantly evaluates weight momentum and desired direction with 4x precision" not only means that the motion will be aesthetically pleasing, but that the player can expect that the input of their controls will be more accurately portrayed by the players in the game²³. The purported realism of these movements actually matters less than

²³ This is not to say that the motion created by this system is a more accurate depiction of an actual player's movement in a football game, but instead that the system can differentiate between a player's input with greater granularity.

whether the movements set clear and reasonable expectations for the player, allowing them to answer questions such as: is my wide receiver accelerating faster than the defensive back? Does my running back have enough momentum to knock over the oncoming tackler? Does my quarterback have enough space to run for a first down? The more time that a player spends playing *Madden*, the more they will implicitly learn to interpret the motion-style of the game in order to answer these questions.

As these presence-ing details accumulate, they can lead players to enter into states of intense focus, often referred to as immersion (Carnegie, 2009). During states of immersion, players are provided with enough sensory details in the game that they can afford to lose track of the sensory details of their immediate, physical reality (Douglas & Hargadon, 2001). In turn, immersion allows players to concentrate on the difficult challenges and subtle narratives that make video games such a powerful medium instead of on the objects in their room or the other activities of their day. And despite the fact that immersion is sometimes labeled as a culturally threatening, digitally spurred moral conundrum²⁴, it is not bound to electronic media. Hargadon's "The Pleasure of Immersion and Engagement" (2001) cites how immersion functions as one of the key pleasures of reading a great novel or watching a great film, in both cases the creator uses descriptive sensory details to develop a virtual world that is worth engaging with.

The value of presence to a rhetorical understanding of motion design is that not all situations require the same approach to presence. In some cases the goals for user experience call for the user to be immersed in an interface, while in other cases the goal of immersion can lead to overly detailed designs, overwhelming the user with unnecessary visual information. These

²⁴ See specially Sherri Turkle's critiques of technology influential *Together Alone*.

rhetorical qualities of presence are beautifully illustrated by the difference between two competing interface design trends of the late 2000s and early 2010s: skeuomorphic design and flat design. In skeuomorphic design, interface objects are meant to mimic the exact form of a physical object we might encounter in the world. The style was popularized in the interface designs of the early iPhone, where the application “Contacts” appeared in the form of a leather bound notebook, and green felt texture of the “Game Center” application was designed to look like a billiards table. The built-in motions of the interface followed a similar design logic. Reading a book required flipping virtual pages. When flagging a note as important, it would be swiftly circled in red pen. Proponents of this design philosophy have argued that the realism of these design elements helps the user to understand their function, just as the metaphorical desktop and folders have helped users navigate interfaces for decades²⁵ (Hall, 2017).

The popularity of skeuomorphic interface design began to fade in the early 2010s, coinciding with Microsoft’s launch of Windows 8. In contrast to the interface of Apple’s iPhone, the visual components of Windows 8 relied primarily on a geometric arrangement of simple squares. Each square was assigned a single, arbitrary color for recognition with no bevels, gradients, or any signs that these squares represented real objects. Though Windows 8 suffered from a bevy of problems with usability (Villinger, 2011), the radical departure from Apple’s design philosophy opened space for web designers and tech bloggers to denounce skeuomorphic design as “a ludicrous forced metaphor” that “can often be a lazy solution” (Judah, 2013, para. 20). In a matter of months the antagonism toward skeuomorphic design came to be the dominant view of the design community, and in 2013 Apple “flattened out” their mobile interface,

²⁵ Of course, recalling the lesson of Selfe and Selfe’s (1994) “The Politics of the Interface,” some users were “helped” by the desktop metaphor more than others.

removing many of the characteristics that had defined the iPhone to that point. At the time of this shift, many publications heralded the “death” of skeuomorphism, as if the concept of realism itself had been vanquished in the name of a glorious future of geometric abstraction (Evans, 2013) (Worstell, 2011).

Summaries of this shift often claim that skeuomorphism “died” because we became more familiar with mobile interfaces, framing skeuomorphism as a type of training wheels for new users. Others claim that skeuomorphic design has always amounted to unnecessary visual clutter built to create an exciting demo rather than a cohesive user experience. But I would argue that skeuomorphic design fell out of favor not because skeuomorphism is naturally rudimentary or unnecessary, but because it implied that users should engage with a deeper sense of presence than was necessary for the majority of use cases. When users open a calendar application to check an appointment, the faux-leather binding invites the user to engage with the “world” of the calendar, to imagine that the calendar is relatively expensive (a leather bound calendar is usually pricier than the normal calendar) and that it is friendly, as the *faux* appearance is less formal than a *real* leather calendar. Noticing these attributes — mentally engaging with this other world — takes far too much time if the user is merely entering or checking an appointment. The result is distraction, not because the skeuomorphic elements are inherently distracting, but because they require too much of the user’s attention for the given situation.

The calls for realism in motion design function as a neo-skeuomorphism, drawing on the same logic that an attempt at “real” automatically creates a better user experience. But by understanding motion design in relation to the audience’s shifting need for presence, we can better answer questions about how to adjust that imposition of “real” to different design situations, or even to different areas of the same interface. For an application for text messaging

for example, a designer might consider whether a user is watching the open application, waiting for a new text message to arrive. If so, the designer might include more realistic movement of the message moving into place, pushing up all the previous messages. If the user is engaged with another application, or engaged in a non-phone activity altogether, the movement might be programmed to look more slight, as little more than a visual reminder of which messages are new and which messages are old. How long should the motion last? Should motion be initiated by the user? How closely does the motion need to refer to gravity or momentum or inertia? Invoking the concept of presence offers a method of answering these questions according to the needs of the audience rather than by claiming the authority of verisimilitude.

3.7 Accessibility

In 2013, Apple made its first attempt to update its mobile interface from the skeuomorphic details of iOS 6 to the trendy, flat style popularized by Microsoft and Google, and one of the most significant visual changes in this shift was the use of motion. The newly released version, iOS 7, featured semi-transparent interface elements that a user would zoom in and out of, and objects would use carefully crafted slide animations to move on and off the screen. Even the home screen made use of motion, with the icons hovering slightly above parallax wallpaper. Unfortunately, it made people sick...physically sick. Users around the country reported experiencing the effects of motion sickness, including intense nausea and dizziness (Lee, 2013). The gravity of these symptoms was described most sharply by developer Jenni Leder, stating, “It's not apps that affect me, but accessing them. Tap a folder and the view zooms in. Tap an app and it's like flying through the icon and landing in that app's micro world — and I'm getting dizzy on the journey there...I now have to close my eyes or cover the screen during transitions,

which is ridiculous.” (Grannell, 2013, para. 2). Just as designers hoped to close the chapter on Apple’s interface design woes. Instead, the new designs made people sick — physically sick.

The final step in establishing a rhetorically grounded approach to motion design is to acknowledge the range of potential bodily experiences that are so often left out of our typical definition of “user.” Motion design necessarily requires a visual engagement with new media, but vision and cognition can change wildly from user to user. As Apple discovered with the first release of iOS 7, some users are predisposed to cognitively translate visual motion as their own motion, creating what medical professionals call “visual-vestibular conflict” (Grannell, 2013, para. 6). Bodily issues extend beyond the Apple situation as well. How do we design motion knowing that some users will not have 20/200 vision? How do we design motion knowing that some users won’t be able to see at all?

These questions emerge in the face of the ongoing scholarly discussions of accessibility in technical and professional writing, particularly as those discussions tamper down the romantic excitement of new modes of communication. As Zdeneck (2009) argues in “Accessible Podcasting: College Students on the Margins in the New Media Classroom:”

Students with disabilities are in danger of being either excluded from the new media revolution or accommodated as after-thoughts of pedagogies that fail to anticipate their needs. Too often, our excitement about new media, even when that excitement is tempered by sober reflection, leaves intact a set of normative assumptions about students’ bodies, minds, and abilities. (2009, p. 1)

Taking this idea a step further, the authors of “Multimodality in Motion: Disability and Kairotic Spaces” (Yergeau et. al, 2013) demonstrate how these normative assumptions remain

embedded in the core logic of multimodality, as the “multi” imagines that every user can access the exact same range of sensorial capabilities. Making matters worse, the authors demonstrate how attempts to remedy these sensorial inequalities often take the form of “retrofit” solutions whereby non-normative users are provided with separate, unequal access to multimodal texts long after publication. In turn, the authors articulate an ethics of inclusion in which “access is built into technologies, not added on” (“Over There,” 2013, para. 5).

Despite Apple’s public accessibility blunder with iOS 7, and the increased scholarly calls for accessible interfaces, the subject is rarely discussed in guidelines for motion design. The academic guidelines produced by Chang and Ungar (1993), Thomas and Calder (2001), and Novick et al. (2011) do not discuss the topic at all. Similarly, while Microsoft, Apple, and Google do reference the relationship between motion design and accessibility, they often downplay the potential for inaccessible motion. For example, Apple’s Human Interface Guidelines include the advice: “Make animations optional. When the option to reduce motion is enabled in accessibility preferences, your app should minimize or eliminate application animations” (2016, para. 5). Though this advice implies how users may require different amounts of motion, there is no indication of how motion might be designed to *include* a wider range of bodily and cognitive abilities. Such limited advice differs from Apple’s guidelines for the use of color, which include a lengthy discussion of how to design for colorblind users. Likewise, Google’s Material Design Guidelines provide almost no mention of the potential for inaccessible motion. Despite the detailed discussion on customizing motion from application to application, the only mention of designing accessible motion is buried deep within a catch-all accessibility section that attempts to cover everything from screen readers to auditory feedback. Moreover, the section on accessible motion includes only lists the basic, rigid rules from the W3C (World

Wide Web Consortium): enable motion to be paused if lasting more than five seconds, limit flashing content to three times per one second interval, and avoid large flashing regions of the screen (Material Design Guidelines, 2016e). Including these rules is certainly a good step toward designing accessible interfaces, but limits inaccessible motion to only the potential inducement of seizures. There is no mention of users of differing cognitive abilities, motion sensitivities, or differing visual capacities in terms of motion, even though these differences are referenced in relation to color, typography, and layout. In turn, these solutions come off more as defensive buffers to critique rather than critical engagement with the limitations of motion. It is accessibility as a system of unthinking checkmarks.

The rhetoric of motion design should include strategies for how to deploy motion, as well as how to critique motion as a potentially exclusionary design practice. In order to mount such a critique, we must include non-normative abilities in our understanding of the user. This includes users who are blind, users who do not have perfect vision, and users who struggle with the cognition of motion. For these users, options to reduce or “turn off” motion acts as what Jay Dolmage has described as a “retrofit” solution, as it “does not necessarily make the product function, does not necessarily fix a faulty product, but acts as a sort of corrective solution” (2008, p. 20). Even as a “reduce motion” option provides access to non-normative users, it simultaneously frames those users as a problem to be solved by building a separate, unequal mode of engagement for the interface.

The alternative to these retrofit design practices is to design accessible motion from the start, avoiding known problematic design patterns and turning instead to designs where the usability is reinforced through multiple modes simultaneously. Just as with her discussion of personality, Head provides an excellent model for designing accessible motion, devoting a

chapter of her book to what she calls “responsible animation.” In the chapter, Head discusses the value of current guidelines for accessible motion, such as the option to reduce motion and the W3C rule of no more than three flashes per second, but she also articulates the factors that most often trigger vestibular issues: the size of movement, mismatched directions of movement, and movement that covers a lot of spatial distance (p. 200). Importantly, Head’s solution is not to define rigid boundaries for which movements are too big or too distant, but instead to encourage designers to evaluate the potential for exclusion in each design situation. Head also argues that web browsers and mobile platforms should provide more sophisticated options for choosing motion sensitivity preferences that are built into users’ first interactions with an interface (p. 202). Unpacking Head’s logic, it is possible to imagine a welcome screen that not only asks for a username, password, and preferred language, but also a motion sensitivity preference.

At the same time as we recognize Head’s promising vision of accessible motion, we must acknowledge that visual motion is necessarily inaccessible for some users, that there is no magic style of movement that will eliminate inequality in user experience. But as Yergeau et al. (2013) discuss in the preface to “Multimodality in Motion,” “Universal design is a process, a means rather than an end... to say that no text will be universally accessible is not a justification for failing to consider what audiences are invited into and imagined as part of a text. It matters who reads, it matters who engages, and it matters who is conceptualized as a reader” (“Landing Page,” 2013, para. 5). Accessible motion should be similarly understood as a process, as a way of constantly returning to the insufficiency of the term “user” and of designing motion with a range of potential users in mind.

3.8 Conclusion

The four concepts I've outlined here are not new ground for technical and professional communication, and, with the exception of accessibility, they are also tangentially mentioned in motion design guidelines. However, as I've shown in the previous two chapters, these aspects of motion design typically live in the margins of design guidelines, while arguments for realistic, natural movement take center stage. Foregrounding rhetorical concepts of personality, choreography, presence, and accessibility; and resisting the terminology of abstract realism strengthens our understanding of multimodality, helping us to articulate the value of motion in scholarly multimedia and community engagement work. These concepts also offer language for rhetorically grounded critique. Motion can be flashy and distracting, but it is not flashy and distracting *simply because it is motion*. It is flashy and distracting because the design takes an insufficient account of the situation at hand. As the use of motion continues to influence traditionally "static" genres in technical and professional communication, it will be all the more necessary to draw on rhetorically grounded language of praise and critique.

CHAPTER 4: PEDAGOGICAL STRATEGIES FOR MOTION DESIGN IN PROFESSIONAL AND TECHNICAL COMMUNICATION

4.1 Introduction

As I discuss in the first chapter of this dissertation, the lack of attention to motion design in professional and technical communication leads to both analytical problems (via arhetorical claims of realism and distraction) and pedagogical problems (via published accounts of instructors struggling to teach animation projects in technical and professional communication). In many respects, the concepts of personality, choreography, presence, and accessibility respond to both problems simultaneously. Personality/Affect, for example, is flexible enough to describe the affective potential of motion, and the notion of personality is common enough to work as an accessible metaphor for students who are new to working with motion. However, instructor accounts also indicate that engaging with motion pedagogically requires more than just a shift in terminology. Folk (2014) describes how it may take students more time to become familiar with animation software than with other design programs, and Mogull (2014) reports that entry-level animation software may be too restrictive and template-driven to allow students to adapt their design choices from situation to situation (p. 351). Moreover, given the largely negative legacy of Flash animation, many instructors may be rightly hesitant to incorporate animation/motion as an explicit component of multimodality technical and professional communication. With these issues in mind, I find it necessary to consider the practical, day-to-day obstacles for approaching motion design from a pedagogical perspective.

To this end, in this chapter I discuss pedagogical practices that have been useful for working on motion design projects in my own classrooms. Drawing from repeated attempts to teach motion design projects, I describe the pedagogical hurdles for incorporating animation as a

facet of multimedia production, including those that extend beyond our vocabularies for visual description and analysis. In order to counter these issues, I offer three pedagogical practices for connecting motion design to multimodal projects that are assigned in technical and professional communication: dissuading students from starting with full-character animation, scaffolding choreography as an extension of visual hierarchy, and preparing students for the challenges of storyboarding with motion. I close this chapter by reiterating the importance of motion design as a component of visual rhetoric in the 21st century, and point to areas for further research.

4.2 Pedagogical Context

The pedagogical strategies I discuss in this chapter were inevitably shaped by my specific curricular, departmental, and institutional context, and I find it necessary to describe this context, including the course objectives and major assignments, before launching into the three teaching strategies I propose. By including this extended discussion of my context (and the assignments that emerged from that context), I hope that my account and my materials might be useful for other instructors who may want to teach motion graphics projects in their classes. To this end, this section provides an overview of institutional/curricular factors, an explanation of my assignments and activities, and some caveats about the privilege of my context for teaching these courses.

My experience teaching motion design principles in a professional writing context emerge directly from my time teaching ENGL 419: Multimedia Writing at Purdue University, a large research university that attracts high-achieving students from around the country (Student Enrollment). The projects, activities, and lessons for the class were developed recursively over a period of four consecutive semesters from the fall of 2015 to the spring 2017. Enrollment

fluctuated between 15 to 20 students per semester, and across all four semesters a total of 71 students took the class. Roughly one third of the students each semester were majoring Professional Writing, while most other students took the class to fulfill a writing requirement for a major in Computer Science and/or Computer Graphics Technology. Though students could have inferred from the course title (“Multimedia Writing”) that the course would focus on more than text-based communication, there was no indication that the course focused on motion design until I discussed this focus on the first day of class. Additionally, though many students were majoring in what we might label as technology-heavy disciplines (Computer Graphics Technology and Computer Science), students rarely started the class with any prior knowledge of the Adobe Creative Cloud (the primary design programs used). I taught all four sections of the class in a computer lab equipped with the latest versions of all software programs in the Adobe Creative Cloud, though the class focused specifically on Adobe Illustrator, Adobe Premiere Pro, Adobe After Effects, Adobe Audition, and Adobe Media Encoder. The students also had access to these programs in every computer lab on campus. This made it easy for students to work on assignments outside of class.

The designated course objectives were quite broad (for syllabus see Appendix A), which historically provided instructors with the flexibility to adapt the major assignments to current research and emerging technologies in multimodal composition. This flexibility provided me with the curricular space to develop exercises and assignments that framed motion as a standard design component rather than as a specialized factor applied to a singular assignment. Students completed four major projects designed to shift from analysis to production and from visual rhetoric to a wider array of multimodal factors. For the first few weeks of the class, students learned about the rhetorical affordances of arrangement, color, typography, and motion while

working on a rhetorical analysis of a multimodal artifact (for assignment sheet, see Appendix B). Concurrently, students were introduced to Adobe Illustrator, Adobe After Effects, and Adobe Media Encoder, and were given low stakes design challenges as a chance to learn the core functions of each program (See Appendix C, D). Some of these design challenges required all students in the class to produce the same artifact by following a rote set of instructions, such as creating the same pizza icon or animating the same layout on/off the screen. These rote exercises were often paired with more exploratory challenges which encouraged students to explore the programs and take early risks in their design, such as animating a quote of their choice on screen. These low-stakes challenges allowed students to build basic competencies for each program before applying their knowledge to a complex design scenario.

After establishing basic analytical and technical competencies during these first few weeks, the class shifted to two major case studies focused on producing rhetorically grounded multimedia materials. The first case study required students to produce short (1 - 2 minute) promotional videos for a local organization that students deemed to struggle with social media (Appendix E)²⁶. For the second case study students created similarly short (1 - 2 minute) videos to raise awareness for a public health issue in the state, acting as if they were social media interns for the Indiana State Department of Health (Appendix F). Even though both case studies required students to produce motion graphics, class readings and discussions during this middle portion of the class focused on rhetorical delivery/circulation (for the promotional video) and the rhetoric of data visualization (for the public health video). This turn to production was meant to emphasize

²⁶ In order to further ease students' anxieties for working with professional programs, this first case was structured as a group project. I selected the groups myself, pairing stronger designers, writers, and communicators with weaker designers, writers, and communicators.

how particular movements/choreographies are only effective for certain audiences in specific situations.

For the final four to five weeks of the class, students were asked to apply the skills they had developed to a rhetorical situation of their choice (Appendix G). Though I suggested three potential directions for these independent final projects, students often used this opportunity to create deeply personal videos or to improve the graphics of local organizations. For all production-focused projects, including both case studies and the final independent project, students wrote extensive design rationales and reflections on their work (Appendix H). These documents were used to ensure that students could articulate the logic behind their design decisions - including their use of motion. The focus on video production and explanatory graphics made for a logical inclusion of motion design principles, as many genres of online video include motion graphics.

It is critical to note that many of the institutional and departmental features that shaped this class are not transferable to other programs and universities. For one, while students may not have previously used the Adobe programs that we worked with, several had experience with other programs in the Adobe suite, and some had already mastered discipline-specific design software for their major. Learning new software is never easy, students did struggle, but I also suspect that students likely entered the class with greater confidence in their technical abilities than the average student at the university. The class also benefited from its role within the professional writing curriculum, as the program included a class on document design in addition to the class on multimedia writing. Having two design-focused writing classes is extremely valuable, but many professional writing departments may not have the resources to allocate this much curricular space to design factors. It would inevitably be more complicated to include

motion design projects within a program that relies on one design-focused class, or that spreads design-focused pedagogy throughout the curriculum, as there would be less time to scaffold motion design literacies into the mix. Finally, the relatively easy access to a computer lab classroom and the Adobe Creative Cloud was a privilege of working at a large research university. It is hard to imagine that students would have such easy access to these programs in other institutional situations.

In spite of these unique factors, teaching four consecutive sections of the class allowed me to notice three common pedagogical problems with teaching motion design as a component of multimedia literacy. Students 1) struggled to transfer their previous experience with animation to class assignments, and 2) often attempted to fix poor design decisions by adding more motion. Additionally, 3) I struggled to develop a process-driven assignment structure for motion graphics projects, as it proved difficult for students to signal motion design decisions using traditional storyboarding techniques. Though these three problems arose out of my specific situation, they are applicable to a wide range of potential intersections between motion design and professional/technical writing, from using presentations software like Prezi to developing the motion style guidelines for an organization. Therefore, in the following three sections I describe each of these three issues in greater detail and discuss my teaching strategies for responding to these common obstacles.

4.3 De-emphasizing Character Animation

One of the inherent issues of teaching motion as a potential design element is that most students (and, I would argue, many instructors) have little to no prior framework for talking about motion without the terms “distracting,” “flashy,” or “eye-catching.” Further, discussing the

motion rhetorically often leads to abstract conversations about the relationship between vision and cognition, or the way humans tend to read intentionality and personality even in movements of abstract shapes. And so when I taught Multimedia Writing for the first time, I included a short discussion of animated cartoons and films that students were familiar with, including Disney's *The Lion King*, *The Simpsons*, and *Loony Toons*. I then tied these references to the 12 Principles of Animation, hoping to build from known cultural artifacts to the unknown territory of abstract motion. However, in my experience, students' prior knowledge of cartoon animation often made it more difficult for them to recognize available and appropriate opportunities for motion in their videos, and by the final semester of teaching the class I actively dissuaded students from including fully animated characters in their projects.

During the semesters when I did start with character animation, I would have students read the chapter on the 12 principles of animation in Thomas and Johnson's *The Illusion of Life*. To prepare for class discussion I asked students to focus less on the way Thomas and Johnson talk about the realism of characters, and to look for ways that motion indicated the difference in personalities of the characters. Then, in class, I asked students to compare these rules for animation to the rules of body language in different situations. It wasn't a simple connection, but it did allow students to consider two familiar touchpoints (Disney and body language) for connecting motion to rhetoric. These pedagogical moves also led to interesting class discussions about body language and gender, specifically how some body movements are read as inherently masculine or feminine in workplace communication.

But while these touchpoints established motion on familiar ground, I later found that it had intimidated many students in the class, especially students who were already apprehensive about composing multimodally in the first place. By starting with animated characters, I

implicitly suggested that students needed to develop projects that were as visually complex as a Disney short film, or as nuanced as the difference in human body movements. Even though I quickly pivoted to animated interfaces and the value of a well-timed fade effect, students locked on to character animation as a baseline for effective motion design. In turn, many students worried that they would never be able to live up to the standards of the class, imagining that at some point they would eventually need to design a three dimensional world filled with animated characters. Furthermore, when I was able to clarify my expectations and direct students toward manageable design patterns, some students lost motivation to work on their projects, as their imaginations continued to push them beyond what they were able to create.

I also encountered a different, but similarly problematic attitude in students who were overly inspired by early discussions of character animation, and resolutely decided to produce animated characters in my class. In contrast to the majority of their classmates, these students often started the class with significant experience with visual design, with the Adobe Creative Cloud, or both. Accordingly, these students were less likely to heed my warnings about the difficulty of character driven animated projects, believing that the combination of their prior experience and raw determination would allow them to overcome the challenge. But from my experience teaching and producing motion graphics, I knew how labor-intensive motion design could be. Even working on a relatively short video, students need to create a storyboard, collect the visual assets, import and name those assets within the program²⁷, arrange the necessary

²⁷ Instructors who are new to motion design should note this process, particularly the separation between collecting assets and animating them. Though it may seem like common sense, students must have some kind of visual “stuff” to put in motion whether it is text, icons, images, or a full character, and collecting these visual assets and arranging them appropriately takes a some time. Therefore, along with their storyboards, students were required to turn in a “grocery list” of the visual assets they needed to create/collect in order to complete the project, and there was a “grocery day” in which students had to demonstrate that they had collected the majority of items on their list. As prescriptive as this may seem, these extra steps were vital for helping students to keep track of their workload from week to week.

starting and ending layout(s) of the assets, and then edit the motion between those layouts. When these steps are going smoothly (which is rarely the case), a student new to motion can take upwards of 15 hours to produce a first draft of a 30 second video. This load increases exponentially when designing an animated character, as moving a character is inevitably more complex than moving text boxes or simple shapes. Whereas an animated shape may require only one set of start, end, and interpolation settings, a personified character is often composed of multiple sub - elements, such as the eyes, eyebrows, and mouth of an animated face²⁸. Each of these segments must be adjusted from moment to moment in order to indicate its personality through its movement. Therefore, a first draft of a character-driven animation would double or triple the drafting time of a motion graphic (approximately 30 hours for a draft), leaving students less room for early experimentation and less time for revision before the project was due. I also found that the students who worked on animating characters often overlooked other the other design elements in their compositions, hoping that the viewers' delight in the character would make up for problems with layout, typography, and color.

Still, for the first two semesters of teaching the class, I accepted students' proposals for character-driven projects after significant warning about the difficulties involved. But after watching one tenacious student after another burn out on these ambitious projects, I rewrote my assignment guidelines to discourage character animation until the final independent project (See Appendix E). Additionally, I started to de-emphasize discussions of character animation and focused my introduction on the movement of inanimate objects such as cars²⁹, bouncing balls,

²⁸ Because this process is so tedious, professional animators often built what is called a "rig" that connects moving parts across a character's body. This allows the animator to achieve complex, nuanced movement while only editing a few body parts per frame.

²⁹ Cars make for an especially interesting case because 1) they travel as one single visual "block" and 2) students are used to reading the motion of cars in traffic to determine when someone is angry, kind, or not paying attention.

and jello. By the third semester I stopped asking students to read the Thomas and Johnson's 12 principles altogether, and instead began with readings about interface animation (excerpts from Head, 2016) that were more in line with the factors I discussed in the previous chapter (personality, choreography, presence, and accessibility). And because these readings emphasized the value of subtle applications of motion design, students were less likely to compare their finished designs to Disney animation. In turn, I found that students were more realistic in their proposals and less intimidated by the projects. During my final semester teaching the class I noticed that I actively avoided the term animation altogether in order to avoid the connection with animated characters as much as possible.

This is not to say that animation can or should be eliminated from our design vocabularies in technical and professional communication. Animation is a more visible and recognizable term than motion design to non-designers and is far less awkward when shifted into certain sentence types (e.g. "animated" vs. "motion designed"). Animation is also useful for describing visual changes that are not changes in position, such as a fade, a flicker, or a morph effect. Additionally, exchanging the term animation fails to eliminate the potential for overwhelmed or overzealous students. Still, I argue that the deep cultural associations between animation and animated characters are hard to reconfigure, and that the strength of these associations can make it hard for students to see the value in more subtle motions/animations. Instructors who are new to animation/motion should be especially wary of this dynamic, as students may only start to articulate anxiety or exasperation near the end of a project. Furthermore, though motion design may be an unfamiliar term for students (as well as many instructors), I found that it guided students to choose more manageable projects and made it easier for students to articulate the rationale for their use of motion/animation.

4.4 Connecting Visual Hierarchy to Choreography

Another major struggle with teaching motion design emerged from the difficulty of connecting motion to the concept of visual hierarchy, which is a fairly common method for establishing visual order in technical and professional documents. Without this connective link, students often lacked a framework for considering a user's attentional needs, leading to projects overloaded with motion or projects where the motion conflicted with other design elements. Over time, I began to position choreography, discussed in the previous chapter, as a way of extending visual hierarchy to motion design. In this section I discuss why visual hierarchy is difficult to connect to motion design and describe three rudimentary choreographic patterns that I used to help students to better account for attentional patterns in their motion graphics.

Adapted from the perceptual undertones of Gestalt psychology and graphic design, visual hierarchy is a commonly invoked, basic strategy for discussing visual design in professional and technical communication. In *Becoming Rhetorical: Analyzing and Composing in a Multimedia World*, Nicotra (2018) defines visual hierarchy as “how clearly a visual composition portrays the relative importance of different pieces of information...creat[ing] a visual path through the document, allowing viewers to intuitively and quickly grasp the important information” (p. 324). One method of helping students to articulate visual hierarchy is to describe design elements as possessing differing levels of emphasis, or “weight,” based on the potential for drawing a reader's attention. Larger elements have more weight than smaller elements, bold text carries more weight than non-bolded text, images carry more weight than text, etc. Though visual hierarchy can

problematically re-root design in cognitive perception³⁰, it also presses students to consider the relative importance of visual elements according to the situation, raising questions such as: How important is the title relative to the rest of the design? Do the headings need to more emphasis, or do they need to blend in more with the body paragraphs? When is it necessary to emphasize the body text via a pull quote or a separate text box, and how can this separate area be integrated into the document without throwing off the hierarchy of the rest of the page? By considering these types of questions students learn how to reinforce and/or challenge a sense of visual order in their designs.

Motion, however, does not fit neatly into discussions of visual hierarchy because motion carries so much more “weight” than other design elements. Even a small amount of movement or visual change tends to draw a user’s focus, even if the rest of the interface is heavily weighted in terms of size, color, contrast, and other visual factors. To put this phenomena in Head’s terms, “Of all the design tools available to us on the web, animation is the one most likely to be using its outside voice at any given moment” (2016, p. 80). Whereas the visual hierarchy of print documents often allows the reader to glance from one element to another, motion disrupts this perceptual freedom by consistently pulling the reader’s attention back to the point of movement or visual change³¹.

Furthermore, because movement and animation depend on visual changes, motion graphics require us to see visual hierarchy as a temporally dynamic property of visual design. At

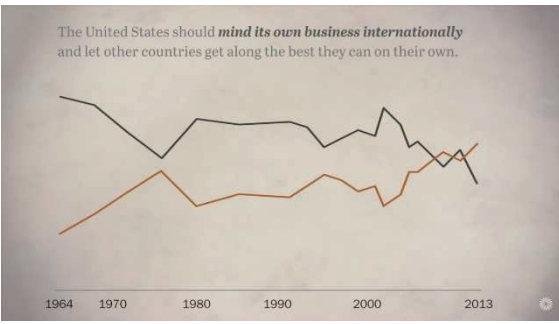
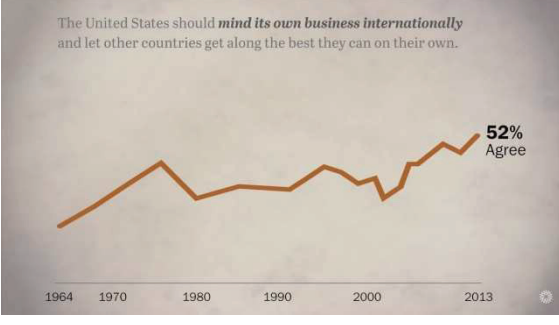
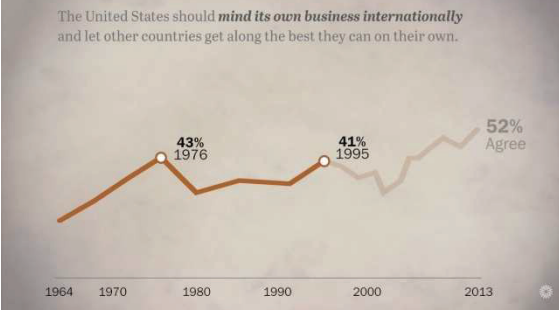
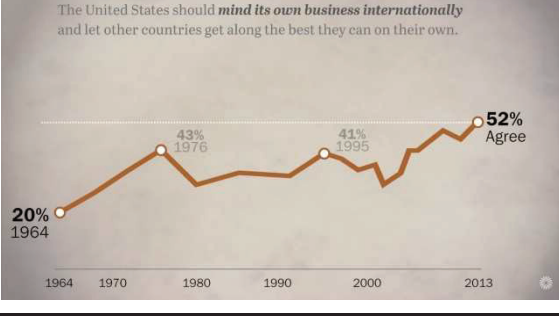
³⁰ Wysocki calls attention to this tendency in “The Sticky Embrace of Beauty,” and recommends that teachers and students of visual rhetoric create purposefully “strange” visual designs to counterbalance the urge to privilege order as a universal good in design.

³¹ Designers in data visualization such as Cole Knafllic discuss this difference in terms of exploratory and explanatory visualizations. In exploratory data visualizations the user is encouraged to look at many data points in order to draw their own conclusions. In explanatory data visualizations the designer highlights certain data points in order to guide the user toward the most important information. Part of my difficulty with teaching hierarchy, then, may have been because I primarily taught documents as exploratory visual artefacts, but animation/motion makes it much harder for the user to explore.

one moment the visual hierarchy may encourage one perceptual pattern, and in another moment - after elements have changed color, shape, and/or position - the hierarchy may shift to encourage a different reading pattern entirely. To clarify this process, I've pulled four consecutive screenshots from a video produced by the PEW Research Center (Table 2). Over a twenty second period visual elements appear, disappear, and fade slightly in order to shift the hierarchy from a focus on the graph as a whole to an emphasis on specific data points within the graph. In turn, rather than articulating *the* visual hierarchy of a graphic, working with motion/animation requires designers to constantly rearticulate visual hierarchy from moment to moment. Instead of asking "how much emphasis should be put on this element?" motion designers must ask "how much emphasis should be put on this element *at this moment*?" Considering that many of our students may have only just learned to identify visual hierarchy in any form, adding this temporal variable can be extremely hard to for students to put into practice.

The disjunction between visual hierarchy in "still" media and motion graphics led to two problematic tendencies in students' motion graphics projects, even when I discussed how motion was a naturally powerful design element for drawing the viewer's attention. First, students tended to undervalue moments of stillness in their videos, imagining that an effective motion graphic is a graphic that is *always* moving and that the solution to poor composition was simply to add more motion/animation to the design. This approach led to unwieldy designs where important design elements, such as a quote or a block of text, were often overwhelmed by movement on another area of the screen. Second, students struggled to understand how the timing of movements/animation could connect to the other visual elements in their designs, especially when there were multiple elements that needed to be moved on or off the frame. Some students would only move one element on screen at a time, leading to long, slow compositions.

Table 7: Shifts in Visual Hierarchy in Pew Research Video

<p>Hierarchy 1: (00:18 -00:21)</p> <p>The two competing line graphs are drawn onto the screen from start to end, placing emphasis on both lines at once.</p>	
<p>Hierarchy 2: (00:22 - 00:27)</p> <p>The data for “disagree” fades out and the final percentage of agreement fades on, drawing attention to the end of the line graph.</p>	
<p>Hierarchy 3: (00:27 - 00:32)</p> <p>The existing line fades slightly and a new line is drawn on. Labels also appear at 1976 and 1995 to emphasize previous peaks in agreement.</p>	
<p>Hierarchy 4: (00:32 - 00:38)</p> <p>1976 and 1995 fade slightly and the rest of the line is drawn on. A dotted line extends from the right side of the screen to the left side of the screen and a label appears at the lowest point of agreement. This emphasizes the overall shift from 1964 to 2013.</p>	
<p>Note: Images for Table 6 taken from <i>America's Place in the World</i> published by Pew Research Video on December 3, 2013.</p>	

Other students decided to move all elements on screen at simultaneously, often overloading the frame in the process. In either case, students were usually unable to explain why elements came on the screen at a particular pace or in a particular order, and they rarely connected their rationale for the timing of these movements back to the viewer's attentional needs.

Because of the added complexity of visual hierarchy in motion, I found it necessary to spend a few class sessions talking through these issues with students, especially the tendency for motion/animation to disrupt the intended reading pattern. In one activity that spun out of these discussions, I asked students to examine *Animate.css*, an interactive library of dozens of CSS animations. After discussing the potential personalities of these animations (drawing off another concept from the previous chapter), I asked challenged students to choose ten animation types and rank them from the most subtle to the most conspicuous³². By comparing these different animation types, students not only learned that an element fading on screen draws less attention than one rolling on screen, but also that they should consider the users' attentional needs when planning their designs.

To emphasize the relationship between motion and visual hierarchy, I also learned to introduce students to three basic motion design patterns or, to use the terminology I offered in the previous chapter, three choreographies. The most basic choreography is what I called the "bouncing ball" pattern, named after the children's shows that would use a visual bouncing ball to help young viewers to sing along with music. The rules for this pattern are 1) that only one visual element can be moving on screen at a time, and 2) whatever element is moving must be important enough to attract most of the user's attention. If there are three icons that need to move onto the screen, for example, each icon would need to come to a complete stop before the next

³² I used this term to avoid the phrase "attention grabbing."

icon enters the frame. As one might imagine, adhering to this “bouncing ball” choreography is extremely limiting, and students rarely used this mentality throughout an entire animated project. Still, by limiting movement/change to one object at a time, students learned to respect the visual “weight” of motion by continually predicting the path and timing of the user’s gaze.

Once students understood the limits of bouncing ball choreography, I introduced them to rules for staggering motion drawn directly from a section on “Choreography” in Google’s Material Design Guidelines. Their guidelines state “when multiple surfaces are created at the same time, quickly stagger the appearance of each. Create a clear, smooth focal path in a single direction” (Material Design Guidelines, 2016b, para. 2). The easiest way to imagine this rule in practice is to consider designing the motion of multiple items in a vertical list as they appear on screen. Instead of bringing each item to a complete rest before bringing on the next item, a staggered choreography would time the movements so that all of the listed items move as one unit, but arrive at their final positions at slightly different moments. The goal of this asynchronicity is often to reinforce and/or indicate the hierarchy of these elements. In Google’s example, the top item arrives first, the next item arrives second, and so on until all items in the list have reached their intended positions. This choreography provided students with a visual logic for simultaneous motion that harmonized particularly well with traditional approaches to visual hierarchy. Still, staggered choreography comes with its own limitations, such as situations where the stagger calls too much attention to the elements entering the screen, and such limitations inevitably lead back to the same foundation of audience and purpose as visual hierarchy.

To better rhetoricize the concept of choreography, I also encouraged students to consider the potential benefits of designing motion with the complete opposite of the bouncing ball

example, where nearly the entire screen is taken up with simultaneous movement with no clearly intended visual element for the viewer to follow. I call this an “overwhelming” choreography, since the user’s visual field is literally overwhelmed with movement. I was happily surprised to find that students were typically quite good at finding examples this choreographic style. Some students connected overwhelming choreography to video games, suggesting that particularly hard levels seek to overwhelm players visually in order to resonate with a sense of being overwhelmed procedurally. Other students pointed out how some films and television programs try to visually overwhelm the viewer during large battles or fight scenes in order to reinforce the sense of drama and conflict. Locating this choreography in these examples helped students to understand how overwhelming the viewer with motion is often inappropriate while simultaneously acknowledging that it can be useful given the right rhetorical situation.

These three choreographic patterns, the bouncing ball, staggering, and overwhelming choreography, were useful for helping students resist the urge to solve problems in motion design by adding more motion. This is not to say that these are the only patterns, or that they are the most common patterns in motion design. However, they did provide students with schemes for connecting motion to more common discussions of visual hierarchy in technical and professional communication.

4.5 Approaches to Storyboarding for Motion Design

One of the more surprising difficulties of working with motion design pedagogically was the difficulty of having students create low-fidelity prototypes of motion graphics, commonly known as storyboards. Storyboarding plays a critical role in video production because it allows content creators to plot out the content, pacing, and visual style of the video before shifting to

complicated programs like Adobe Illustrator, After Effects, and Premiere Pro³³. Though it may seem tedious to create rough sketches of each scene, it takes much less time to completely change the composition of a rough sketch than video footage or an animated scene. As Balzotti (2016) has argued, storyboarding also functions as a vital space for invention in multimodal projects, as the low stakes, low-fi nature of storyboards provides students with “the space, opportunity, and freedom to experiment with different approaches as they work to define their communication goals” (p. 67) much in the same way as the brainstorming, prewriting, and outlining of a traditional paper.

Having taught video-based projects before, I assumed that these same benefits would extend to my students’ motion graphics projects, however, I found that it was actually quite difficult for students to plan motion and animation using the storyboard format. Storyboards divide the user’s/viewer’s experience into a set of still images, and still images are not particularly useful for sketching motion. In one of my first semesters teaching motion design, students attempted to signal motion within the storyboard frames, drawing arrows to show motion and writing small parenthetical notes such as “(fades out)” or “(scales up)” to denote other visual changes. But this approach led to messy, unreadable storyboards, and it was often hard to tell whether an arrow or text-element was meant to actually appear in the frame or act as meta-text to explain visual changes. Scrapping this initial approach, I advised students to storyboard motion by drawing replacing each single frame with three “motion-frames” representing the beginning, middle, and end of each visual change. However these motion frames tripled the length of my students’ storyboards from approximately 15 frames per project to approximately 45 frames per project, and students were driven to exhaustion by the tedium of

³³ While my references to “storyboarding” here are limited to video production, the term is also used to describe early pen-and-paper prototypes for user interfaces and other interactive media. (Little).

sketching nearly the same image three times over. And, near the end of one semester, I required students to plan their motion by creating a traditional storyboard and adding a few sentences describing the motion below each frame. On the one hand, writing descriptions of their plans for motion forced students to consider how motion can be described in concrete ways. However, it was still often difficult to understand how the description matched up with the elements in each frame.

Amid all these failed strategies, I did stumble upon two particularly useful approaches for integrating motion into storyboards. The first was a technique I learned from Trapp and Yasmin's (2013) "Addressing Animated Transitions already in Mobile App Storyboards," which outlines a set of 66 icons for referencing the most common animated transitions in mobile applications. The icons are composed of simple shapes, designed to be easy enough to sketch by hand, but distinctive enough to differentiate at a glance. Building off Trapp and Yasmin's example, I gave the list of icons to my students, and encouraged them to use the icons as a concise way to signal the overall visual change from one frame to the next. Over time, students began to use these icons for more than just whole-screen transitions, especially with fades and sequential movement. Because the icons were so easy to draw and redraw, they encouraged students to experiment with different combinations of movement both in transitions and between each scene, which was precisely the goal of the storyboards. This is not to say the icons were a perfect solution, as the more students worked with the icons, the less likely they were to experiment with new movements and choreographies. Additionally, the icons were so easy to apply that students would occasionally apply them uncritically, including motion for motion's sake.

But perhaps the most unexpected change to the storyboarding process was the heightened importance of face-to-face conferences *about* the storyboards, as these conferences provided a space for students to clarify their plans with bodily movements and gestures in lieu of textual explanation. Though some students struggled to verbally explain the acceleration or path of motion, most could act out the intended movements with their hands. And so, when I responded to students' storyboards, I also relied on hand-movements to make my points, pantomiming the movement of invisible objects across the frames of their storyboards. Even after weeks of working in After Effects, it was often clearer for us to communicate through these hand movements than by talking about the problems of linear interpolation or the need for a softer ease-in. While the storyboard documents played a critical role in discussing the general composition of each individual frame, the face-to-face meetings were essential for clarifying students' intentions and my comments with regard to motion.

These points on the nature of storyboarding with motion are particularly important for multimodally minded teachers in technical and professional writing. Storyboarding is an attractive tool because it connects our disciplinary care for invention and drafting to the multimodal possibilities of comics and video production. But this excitement can also lead us to assume that storyboards are more widely applicable than they actually are, especially when it comes to video production. From my experience teaching motion design, the solution is not to find a new catch-all model for a process-driven approach to multimodality, but to question how the process may be shaped by the particular modes we choose to work with.

4.6 Conclusion

From my research on motion design in technical and professional communication it is clear to me that motion/animation is not new to the field. Other scholars have noted the potential value of working approaching movement/animation pedagogically (Sorapure, 2009; Mogull, 2014; Folk, 2014), or have pointed to applications of motion/animation in professional and technical contexts (Johnson-Sheehan, 2001; Kostelnick, 2016; Skjulstad, 2007; Norvick et al., 2011; Spinozzo & Perozza, 2015). But as I argue in the first chapter of this dissertation, most examples of teaching focus primarily on technological difficulties, and our advice to budding designers tends to center on reasons to avoid motion/animation rather than articulating its rhetorical potential. In the meantime, applications for motion/animation have shifted from visual experiments and novelties to common features of amateur video and data visualization. Moreover, motion/animation is now a standard design element in user interfaces, leading all major mobile platforms and even some large companies to incorporate motion/animation into their official style guidelines.

Given this expanded role in multimedia design, I have argued that we must develop a robust, rhetorically grounded vocabulary for describing what motion is and what it can do. Toward such a vocabulary, I have compared three broad sets of design guidelines for animation: the twelve principles of Disney animation, the principles developed by researchers in HCI, and the current guidelines for animation in mobile user interfaces. Through this comparison I highlighted several trends in the vocabulary of motion design, most notably the tendency to define effective motion as realistic or natural. The problem with these terms, as I discuss early in my third chapter, is that they rely on the assumption that we all share a single, unspoken definition of what natural and/or realistic motion looks like, when, in truth, the way we perceive

and compose motion is culturally and socially inscribed. Moreover, I contend that many interfaces and visualizations are comprised of simple shapes, text, and other visual elements that do not correspond to “real” objects with “natural” movement.

My solution to this problematic tendency toward realism is to connect underdeveloped terms and concepts from motion design guidelines to the research on visual rhetoric in technical and professional communication. This process led me to the four categories discussed in chapter four: affect/personality, choreography, presence, and accessibility. Each of these categories relates to a rhetorical capacity of animation, by which I mean, a way of linking design choices to situations and audiences. The ultimate goal of these categories, then, is to shift discussions of animation and motion away from questions like “is the motion natural?” or “what and toward questions such as “what kinds of affect can we create with these visual elements?” or “what is the range of sensorial capacities in our intended audiences?” Importantly, this shift not only leads to more rigorous analysis of motion graphics (including critique!), but also to more thoughtful approaches to integrating animation into technical and professional writing assignments. When working with multimodal projects we must teach students how to argue for their designs, and that it is not enough to state that “it looks good when the words fade out” (Sorapure, 2009). The four categories I’ve proposed should help students to design motion with a purpose that extends beyond their personal preferences, potentially helping them connect motion to discussions of visual design from other courses. And yet, actually teaching motion design has taught me that a vocabulary shift is not enough to make a class run smoothly, which is why I discussed three pedagogical strategies earlier in this chapter.

Though I believe my research here builds valuable interdisciplinary connections between the motion design and technical/professional communication, it also suggests the need for further

research to support analytical and pedagogical approaches to motion. For example, in chapter 3 I argue that we should recognize how our readings of the realities of motion are shaped by our cultural, social, and embodied perspectives, however, I provide only short, explanatory examples of these contingencies. Building off this dissertation, we should remain cautious of terms that may be used to frame motion as a universal human language and look for ways that subtle differences in movement achieve different effects. By the same token, we should examine how culturally contingent readings of movement are often deployed to justify the actions of those in power, especially when it is against those with purportedly aggressive bodies, irresponsible bodies, or consenting bodies. The rhetorical valence of movement in these cases becomes all the more important given the rise of video surveillance and motion-capture technology.

From a pedagogical perspective, the pressing question unaddressed by this dissertation is the question of technology. Though I was provided with the curricular time and the institutional resources to have students work with Adobe After Effects, I am aware that many teachers will not have access to the same resources. This is not to say that the tools for motion design only appear in professional-grade programs. After all, basic presentation tools such as PowerPoint, Prezi, and Google Slides all include basic functions for editing the motion of visual materials. Additionally, even the design tools for supposedly “static” media, such as Adobe Photoshop and Adobe InDesign now include tools for adding basic movements to images and documents. However, as with most design programs, professional-grade tools attempt to give designers absolute freedom for creating subtle personalities and complex choreographies, while less sophisticated tools often limit designers to pre-programmed movements and template choreographies. The pertinent question for technical and professional communicators, then, is to assess the range of available strategies for motion design in these non-professional programs.

Even if these programs provide students with a limited set of motion design decisions, I would expect that the templates and pre-programmed options can still allow students to design motion rhetorically by attending to personality, choreography, presence, and/or accessibility.

As I have advocated for a more thoughtful, rhetorically grounded design vocabulary for motion and animation, I have tried to avoid overstating the rhetorical potential of motion. It is easy to fetishize motion, to imagine that designing motion allow us to engage with a deeper aspect of human experience than designing text on a page. Such an argument is a task for another dissertation. My claim is not that motion is new and exciting, but rather that it is simply more common than we may think in professional and technical multimedia. Accordingly, I claim that motion is most appropriately framed as a standard design element akin to arrangement, typography, and color. This is not to say that motion can or should be applied to every design situation. After all, many documents are most effective when written in black, 12 pt., Times New Roman type on white paper, but this has not stopped us from studying emerging trends in document design. Over the next decade amateur design software will only become more powerful, and, for better and for worse, part of this extra power will make it easier for amateur designers to include motion in their digital materials. By recognizing the growth of motion design and attending to its rhetorical capacities, we can better adapt our teaching and scholarship for professional communication in the 21st century.

REFERENCES

- [AlanBeckerTutorials]. (2017, May 30). *12 Principles of animation (Official Full Series)* [Video File]. Retrieved from <https://www.youtube.com/watch?v=uDqjIdI4bF4>
- Allison, T. (2015). Blackface, happy feet: The politics of race in motion capture and animation. In D. North, B. Rehak & M. Duffy (Eds.), *Special effects: New histories, theories, contexts*, 114-126.
- Amare, N., & Manning, A. (2012, October). Seeing typeface personality: Emotional Responses to form as tone. In *Professional Communication Conference (IPCC), 2012 IEEE International*, 1-9.
- Anderson, D. (2003). Prosumer approaches to new media composition: Consumption and production in continuum. *Kairos*, 8(1).
- Animation Library. (2015). *IBM design language*. Retrieved from <https://www.ibm.com/design/language/resources/animation-library>
- Animation Style Guidelines. (2015). *Salesforce lightning design system*. Retrieved from <https://www.lightningdesignsystem.com/guidelines/animation/styleguidelines>
- Animation. (2016). *Apple human interface guidelines*. Retrieved from <https://developer.apple.com/ios/human-interface-guidelines/visual-design/animation/>
- Arola, K. L. (2010). The design of web 2.0: The rise of the template, the fall of design. *Computers and Composition*, 27(1), 4-14.
- Balzotti, J. (2016). Storyboarding for invention: Layering modes for more effective transfer in a multimodal composition classroom. *Journal of Basic Writing*, 35(1).
- Barker, T. (1986). Issues in software development in composition. *Computers and composition*, 3(2), 54-67.

- Barthes, R. (1977). Rhetoric of the image. *Image - Music - Text (Stephen Heath, Trans.)*. New York, Hill and Wang.
- Barton, B. F., & Barton, M. S. (1985). Toward a rhetoric of visuals for the computer Era. *The Technical Writing Teacher*, 12(2), 126-145.
- Barton, B. F., & Barton, M. S. (1993). Ideology and the map: Toward a postmodern visual pesign practice. *Professional Communication: The Social Perspective*, 49-78.
- Blackton, J. (1907). *Lightning Sketch*. Retrieved from <http://www.criticalcommons.org/Members/sammondn/clips/blackton-lightning-a.mp4/view>
- Brasseur, L. E. (2006). Visualizing technical information: A cultural critique (Baywood\'s Technical Communications Series).
- Brian, M. (2014). Google's new 'material design' UI coming to Android, Chrome OS and the web. *Engadget*. Available at <https://www.engadget.com/2014/06/25/googles-new-design-language-is-called-material-design/>
- Breaux, R. M. (2010). After 75 years of magic: Disney answers its critics, rewrites African American history, and cashes in on its racist past. *Journal of African American Studies*, 14(4), 398-416.
- Bochner, S. (1982). The social psychology of cross-cultural relations. In S. Bochner (Ed.), *Cultures in contact: Studies in cross-cultural interaction*, 5-44.
- Boje, D. M. (1995). Stories of the storytelling organization: A postmodern analysis of Disney as “Tamara-Land”. *Academy of management journal*, 38(4), 997-1035.
- Boyle, C. (2015). The rhetorical question concerning glitch. *Computers and Composition*, 35, 12-29.

- Brooks, K. (2009). More “seriously visible” reading: McCloud, McLuhan, and the visual language of *The medium is the message*. *College Composition and Communication* 61(1), 217-237.
- Brumberger, E. R. (2003). The rhetoric of typography: The persona of typeface and text. *Technical Communication*, 50(2), 206-223.
- Burns, H. (1981). Pandora's chip: Concerns about quality CA1. *Pipelines*, 6(2).
- Bolter, J. D., & Grusin, R. A. (2000). *Remediation: Understanding new media*. MIT Press.
- Boudlin, J. (2004). The body, animation and the real: Race, reality and the rotoscope in Betty Boop. In A. Koivunen & S. Paasonen (Eds.), *Affective encounters: Rethinking embodiment in feminist media studies*. 48-54.
- Caldwell, J. (2013). Japanese typeface personalities: Are typeface personalities consistent across culture? In *Professional Communication Conference (IPCC), 2013 IEEE International*, 1-8.
- Carnegie, T. A. (2009). Interface as exordium: The rhetoric of interactivity. *Computers and Composition*, 26(3), 164-173.
- Chang, B. W., & Ungar, D. (1995). Animation: from cartoons to the user interface. *Proceedings of the 6th annual ACM symposium on User Interface Software and Technology (UIST '93)*, 45-55.
- Combs, D. (2012). Ban comic sans from gmail. *Change.org*. Retrieved from <https://www.change.org/p/google-ban-comic-sans-from-gmail>
- Dempsey, M. (2010). *Comic sans criminals*. Retrieved from <http://www.comicsanscriminal.com/>
- Dolmage, Jay. (2011). All of our literacies, as much as possible, all of the time?” Paper presented at the Conference on College Composition and Communication, Atlanta, GA.

- Douglas, Y., & Hargadon, A. (2000). The pleasure principle: immersion, engagement, flow. In *Proceedings of the eleventh ACM on Hypertext and hypermedia*, 153-160.
- [DropDaBox]. (2009). *Dropbox intro video*. Retrieved from https://www.youtube.com/watch?time_continue=5&v=w4eTR7tci6A
- Evans, C. (2013). A eulogy for skeuomorphism. *Motherboard*. Retrieved from https://motherboard.vice.com/en_us/article/nzzpyz/a-eulogy-for-skeuomorphism
- Feenberg, A. (1991). *Critical theory of technology* (Vol. 5). New York: Oxford University Press.
- Flynn, J. (2015). Motion graphics vs. animation. *Genuine*. Retrieved from <https://www.wearegenuine.com/blog/motion-graphics-vs-animation/>
- Folk, M. (2014). Animate to advocate for non-profits. *Kairos Praxis Wiki*, 16(2).
- Fulcher, R. (2015). “Tumblr.” *Material Design Awards*. Available at <https://design.google.com/articles/material-design-awards/>
- [Google.] (2009). *Google Docs in plain english*. Retrieved from <https://www.youtube.com/watch?v=eRqUE6IHTEA>
- Grannell, C. (2013). Why iOS 7 is making some users sick. *The Guardian*. Retrieved from <https://www.theguardian.com/technology/2013/sep/27/ios-7-motion-sickness-nausea>
- Hall, Z. (2017). Scott Forstall finally weighs in on the flat versus skeuomorphic design debate. *9TO5Mac*. Retrieved from <https://9to5mac.com/2017/06/21/scott-forstall-design-debate/>
- Havey, M. (2008). Modeling orchestration and choreography. *SOA Cookbook*. Packt Publishing Ltd.
- Head, V. (2016). *Designing interface animation: meaningful motion for user experience*. Rosenfeld Media.

- Heider, F & Simmel, M. (1944). An experimental study of apparent behavior. *The American Journal of Psychology*, 57(2), 243-259.
- Hudgins, L. (2017). Hating comic sans is ableist. *The Establishment*. Retrieved from <https://theestablishment.co/hating-comic-sans-is-ableist-bc4a4de87093>
- Ingram, M. (2016). As Facebook focuses on video, engagement for top publishers declines. *Fortune*. Retrieved from <http://fortune.com/2016/05/30/facebook-video-engagement/>
- Ingold, T. (2016). *Lines: A brief history*. Routledge.
- Jacobs, M. (2016). Motion for UWP apps. *Windows Dev Center*. Retrieved from <https://msdn.microsoft.com/en-us/windows/uwp/style/motion>
- Jacobs, M. (2016). Fade animations. *Windows Dev Center*. Retrieved from <https://docs.microsoft.com/en-us/windows/uwp/style/motion-fade>
- Johnson-Sheehan, R., & Baehr, C. (2001): "Visual-spatial thinking in hypertexts." *Technical Communication* 48.1 22-30.
- Johnston, O., & Thomas, F. (1981). *The illusion of life: Disney animation*. Disney Editions.
- Jones, C. (1999). *Chuck Amuck: The life and times of an animated cartoonist*. Macmillan.
- Jones, J. (2015). Information graphics and intuition: Heuristics as a techne for visualization. *Journal of Business and Technical Communication*. 29(3), 284-313.
- Judah, S. (2013). What is skeuomorphism?. *BBC News Magazine*. Retrieved from <http://www.bbc.com/news/magazine-22840833>
- Kadvy, D. (2017). Why you hate comic sans. *Design <for> hackers*. Retrieved from <https://designforhackers.com/blog/comic-sans-hate/>
- Kostelnick, C., & Hassett, M. (2003). *Shaping information: The rhetoric of visual conventions*. SIU Press.

- Kostelnick, C. (2016). The re-emergence of emotional appeals in interactive data visualization. *Technical Communication*, 63(2), 116-135.
- Lanham, R. A. (2006). *The economics of attention: Style and substance in the age of information*. University of Chicago Press.
- Lauer, C. (2009). Contending with terms: “multimodal” and “multimedia” in the academic and public spheres. *Computers and Composition*, 26(4), 225-239.
- Lehman, C. P. (2009). *The colored cartoon: Black representation in American animated short films, 1907-1954*. Univ of Massachusetts Press.
- Lee, C. (2013). Apple iOS 7 causing motion sickness for some users. *United Press International*. Retrieved from https://www.upi.com/Science_News/Technology/2013/09/26/Apple-iOS-7-causing-motion-sickness-for-some-users/8961380216511/
- Little, A. (2013, February 8). Storyboarding in the software design process. *UX Magazine*. Retrieved from <https://uxmag.com/articles/storyboarding-in-the-software-design-process>
- Liu, L. (2017, April 16). Video might be your best bet with facebook's algorithm update. *Entrepreneur*. Retrieved from <https://www.entrepreneur.com/article/274590#>
- Mackiewicz, J. O. (2005). How to use five letterforms to gauge a typeface's personality: A research-driven method. *Journal of Technical Writing and Communication*, 35(3), 291-315.
- Mackiewicz, J. (2007). Audience perceptions of fonts in projected PowerPoint text slides. *Technical Communication*, 54(3), 295-307.
- Madden NFL true step locomotion overview. (October 17, 2013). Retrieved from <https://www.easports.com/madden-nfl/news/2013/true-step-player-control-overview>

Manovich, L. (2006). After effects, or velvet revolution in modern culture, Part 1. Retrieved from <http://manovich.net/index.php/projects/after-effects-part-1>

Manovich, L. (2006). After effects, or velvet revolution in modern culture, Part 2. Retrieved from <http://manovich.net/index.php/projects/after-effects-part-2>

Manovich, L. (2001). *The language of new media*. MIT press.

Material Design Guidelines (2016a). Introduction. Retrieved from <https://www.google.com/design/spec/material-design/introduction.html>

Material Design Guidelines (2016b). Choreography. Retrieved from <https://material.io/guidelines/motion/choreography.html>

Material Design Guidelines (2016c). Creative Customization. Retrieved from <https://material.io/guidelines/motion/creativecustomization.html>

Material Design Guidelines (2016d). Material Motion. Retrieved from <https://material.io/guidelines/motion/materialmotion.html>

Material Design Guidelines (2016e). Accessibility – Sound and Motion. Retrieved from <https://material.io/design/usability/accessibility.html#composition>

Mogull, S. (2014, December). Integrating online informative videos into technical communication service courses. *IEEE Transactions On Professional Communication*, 57(4), 340-363.

Nielsen, J. (1996, May 1). Original top 10 mistakes in web design. *Nielsen Norman Group*. Retrieved from <https://www.nngroup.com/articles/original-top-ten-mistakes-in-web-design/>

Nielsen, J. (2005, October 3). Top ten web design mistakes of 2005. *Nielsen Norman Group*. Retrieved from <https://www.nngroup.com/articles/top-ten-web-design-mistakes-of-2005/>

- Nielsen, J. (2012). Full site vs. mobile site. *Nielsen Norman Group*. Available at <https://www.nngroup.com/articles/mobile-site-vs-full-site/>
- Novick, D., Rhodes, J., & Wert, W. (2011, October). The communicative functions of animation in user interfaces. In *Proceedings of the 29th ACM international conference on the design of communication* (pp. 1-8). ACM.
- Olavarria, Pedro. (2014). Keanu Reeves's fight choreographer talked to us about 'John Wick.' *Vice*. Retrieved from <http://fightland.vice.com/blog/we-talked-to-keanu-reeves-fight-coreographer-on-his-new-film-john-wick>
- Olsen, L. C., Finnegan, C. A., & Hope, D. S. (2008). *Visual rhetoric: A reader in communication and American culture*. Sage.
- Pew Research Center. (2013, December 3). *America's place in the world*. [Video file]. Retrieved from <https://www.youtube.com/watch?v=tdxhDHcF5Fc&t=37s>
- Porter, J. E. (2009). Recovering delivery for digital rhetoric. *Computers and Composition*, 26(4), 207-224.
- Propen, A. D. (2012). *Locating visual-material rhetorics: The map, the mill, and the GPS*. Parlor Press.
- Rice, R., and Ball, C. (2006). Remediating the text: Reading multimodal texts. *Kairos* 10(2).
- Rosinski, P., & Squire, M. (2009). Strange bedfellows: Human-computer interaction, interface design, and composition pedagogy. *Computers and Composition*, 26(3), 149-163.
- Salinas, C. (2002). Technical rhetoricians and the art of configuring images. *Technical Communication Quarterly*. 11(2), 165 - 183.

- Salazar, L. H. A., Lacerda, T., Nunes, J. V., & von Wangenheim, C. G. (2013). A systematic literature review on usability heuristics for mobile phones. *International Journal of Mobile Human Computer Interaction (IJMHCI)*, 5(2), 50 - 61.
- Selfe, C. L., & Selfe, R. J. (1994). The politics of the interface: Power and its exercise in electronic contact zones. *College composition and communication*, 45(4), 480-504.
- Skjulstad, S. (2007). Communication design and motion graphics on the Web. *Journal of media practice*, 8(3), 359-378.
- Sorapure, M. (2009). Moving writing: A critical approach to animation in composition. In B. Hawk, O. Oviedo, & J. Walker (Eds.), *Digital Tools in Composition Studies*. Cresskill, New Jersey: Hampton Press.
- Spinillo, C.G. & Perozza, R. (2015). An interactive guide to design animated visual instructions in Brazil. In *Proceedings of the 4th International Conference of Design, User Experience, and Usability (DUXU)*. 374–381.
- Student Enrollment. (2017). Purdue University undergraduate admissions. Retrieved from <https://www.admissions.purdue.edu/academics/enrollment.php>
- Sullivan, P. (1989). Human-computer interaction perspectives on word-processing issues. *Computers and Composition*, 6(3), 11-33.
- Sullivan, P. (2001). Practicing safe visual rhetoric on the world wide web. *Computers and Composition*. (18), 103 - 121.
- Thomas, B. H., & Calder, P. (2001). Applying cartoon animation techniques to graphical user interfaces. *ACM Transactions on Computer-Human Interaction (TOCHI)*, 8(3), 198-222.

- Trapp, M., & Yasmin, R. (2013, July). Addressing animated transitions already in mobile app storyboards. In *International Conference of Design, User Experience, and Usability*, 723-732.
- Villinger, S. (Nov 16, 2011). Windows 8: The 10 biggest problems so far. *IT World*. Retrieved from <https://www.itworld.com/article/2827054/enterprise-software/windows-8--the-10-biggest-problems-so-far.html>
- Wasserman, A. I. (2010, November). Software engineering issues for mobile application development. In *Proceedings of the FSE/SDP workshop on Future of software engineering research*, 397-400.
- Williams, R. (1994). *The non-designer's design book: design and typographic principles for the visual novice*. Peachpit Press.
- Williams, A. (2013, February 13). Fresh from the internet's attic. *The New York Times*. Retrieved from <http://www.nytimes.com/2013/02/14/fashion/common-on-early-internet-gif-files-make-comeback.html>
- Worstell, T. (Sep 19, 2013). Apple's iOS7, well, it was time for skeuomorphism to die. *Forbes*. Retrieved from <https://www.forbes.com/sites/timworstell/2013/09/19/apples-ios7-well-it-was-time-for-skeuomorphism-to-die/#196c294f455a>
- Wysocki, A. (2007). The sticky embrace of beauty: On some formal relations in teaching about the visual aspects of texts. In *Writing new media: Theory and applications for expanding the teaching of composition*. University Press of Colorado.
- Wysocki, A. F., & Jasken, J. I. (2004). What should be an unforgettable face.... *Computers and Composition*, 21(1), 29-48.

- Yergeau, M. et al. (2013). Multimodality in motion: Disability and kairotic spaces. *Kairos: A Journal of Rhetoric, Technology, and Pedagogy*, 18(1). Retrieved from <http://kairos.technorhetoric.net/18.1/coverweb/yergeau-et-al/pages/access.html>
- Zdenek, S. (2007). "Just roll your mouse over me": Designing virtual women for customer service on the web. *Technical Communication Quarterly*, 16(4), 397-430.
- Zdenek, S. (2009). Accessible podcasting: College students on the margins in the new media classroom. *Computers and Composition Online*, 1-21.

APPENDIX A. MULTIMEDIA WRITING SYLLABUS

ENGLISH 419:

MULTIMEDIA WRITING

COURSE DESCRIPTION

Being a good writer means more than choosing the right words for the page. It involves choices in genre, formatting, color, arrangement, typography, and other visual factors. One of the most divisive of these visual factors is motion. In what cases can motion strengthen an argument? In what cases is it unnecessary, distracting, or (pun intended) “flashy”? To this end, this class will explore genres that literally make arguments through motion, including animated gifs, animated infographics, video explainers, and other interactive graphics.

During the first half of the semester we will focus on general tenants of rhetoric and visual argument, exploring the intersections between visual, written, and aural communication. In the second half of the semester we will turn to specific projects in which students will use motion to enhance particular messages for particular audiences.

Students learn both theory and practice of multimodal writing through readings, blog posts, quizzes, software tutorials, design exercises, and a series of creative projects. **This course requires no prior knowledge of graphic design, animation, or any specialized software.**

INSTRUCTOR:

Daniel Liddle

OFFICE HOURS:

HEAV 303 E
Mon & Weds 10:00-11:00

CRN:

#18948

EMAIL:

dliddle@purdue.edu

EMAIL POLICY:

There are two major factors that influence when and how I respond to your emails. First, I may take as much as 24 hours to respond to your emails; I do not live online. Second, if I don't respond in a week, bug me about it; Sometimes I need a reminder.

OFFICE HOURS POLICY:

I spend a lot of time in my office, but it's always a good idea to lock in an appointment verbally or through email the day before you stop by.

COURSE GOALS

CRITICAL

Evaluate the rhetorical effectiveness of specific media artifacts, examining both compositional elements and the artifact's distribution in popular culture.

Identify specific genre conventions of multimedia artifacts and **compare** instances of one genre convention as it appears in different multimedia artifacts

Understand the different rhetorical affordances and limitations of print-based texts, hypertexts, images, videos, and animated elements.

Interrogate the binary opposition of multimedia artifacts as needlessly "flashy," "decorative," "pretty," "cosmetic," in opposition to "plain," "simple," or "clear" print texts.

PRACTICAL

Manage a range of visual assets across individual projects and programs. Know when to create your own visual assets and when to draw from online sources.

Design a range of multimedia products using color, typography, shape, and motion to support the tone and credibility of the end-product.

Demonstrate competency with multimedia design programs including Adobe Illustrator, Adobe Premiere, and Adobe After Effects

Appraise the workload of a multimedia project in order to submit a final version on time. This should include planning time, production time, rendering time, and delivery time.

REQUIRED MATERIALS

A USB Storage Device of at least 16 GB that can be used to transport large project files to/from class.

A Writing Utensil and Notebook Paper that can be used for taking notes and sketching your ideas before you jump into the computer design programs.

Access to the Adobe Creative Cloud. This can be obtained for free through the on-campus computers at Purdue. If you want to work from home, the suite of programs can be purchased for 19.99 per month (along with a 30 day free trial).

TEXTBOOK INFORMATION: The assigned textbook for this class is Collin Brooke's *Lingua Fracta*. However, you also will be expected to work on class projects at home, and this may include paying for access to Adobe CC (See Above).



MAJOR PROJECTS

1 Analytical Essay

For the first assignment of the semester you will write an analytical essay about the rhetorical elements used in a multimedia artifact. Through this analysis you will articulate the ways that these elements connect to particular audiences, and explain how the elements increase effectiveness (or not).

2 Promotional Video Graphics Case Study

For this assignment you will create a set of graphic elements that promote an event or business in Lafayette or West Lafayette. You will need to use color, composition, typography, and movement to create a particular tone when adding graphics to video materials.

3 Public Health Explainer Case Study

For this assignment you will create an animated video that explains a current health issue to the public. The video must re-present the information in an engaging, novel way while maintaining the credibility of the information.

4 Independent Project

For the last project of the class you will propose an individual project of your choice. The project can be creative or practical, but it must demonstrate the critical and technical skills acquired through the course of the semester.

Blog Posts

At the start of the semester you will set up a course blog. On each day a reading is due, you will post a brief summary of the reading, an example that illustrates the reading, and a question for the class. You may be asked to discuss your blog posts with the class.

GRADING

WEIGHTED COMPONENTS

Rhetorical Analysis Essay	20%
Promotional Video Case	20%
Public Health Explainer Case	20%
Independent Project	25%
Blog Posts, Exercises, and Quizzes	15%
Total	100%

GRADING SCALE

Percentage

100- 93.00	A	76.99-73.00	C
92.99-90.00	A-	72.99-70.00	C-
89.99-87.00	B+	69.99-67.00	D+
86.99-83.00	B	66.99-63.00	D
82.99-80.00	B-	62.99-60.00	D-
79.99-77.00	C+	BELOW 60%	F

APPENDIX B. RHETORICAL ANALYSIS ASSIGNMENT SHEET

Assignment 1: Rhetorical Analysis

Overview:

For the first essay of the semester you will be required to write a rhetorical analysis of a multimedia artifact. As with most rhetorical analyses, the goal is to link the *what* of the multimedia text with the *why*. How is the artifact organized and why? What visuals are used along with the text and why? What is the tone of the artifact and why? What medium was used and why? As you answer these various “why” questions, you will need to connect the artifact to the various audiences and purposes in the rhetorical situation.

By describing and analyzing the compositional factors of a multimedia text, you will start to build an instinct for what makes an effective use of multimedia. I expect the final essay to be approximately 1,500-1,800 words in length, though I can see these papers expanding beyond that limit.

Goals:

During this project you will learn:

- How to identify distinct compositional elements in a multimedia text.
- How to link compositional factors to the audience, purpose, and delivery of a multimedia text.
- How to evaluate the effectiveness of a particular multimedia text within a particular rhetorical situation

Step One: Choosing What to Analyze

For this assignment you have the freedom to analyze any multimedia text that might interest you. I encourage you to choose an example of motion graphics (a video, an animated infographic, an animated gif, kinetic typography, etc), but there are many other avenues that could be equally fruitful.

You might want to do a web site analysis, perhaps looking at the online portfolio of a student or working professional, or the web site of a company you’re interested in working for, or the web site of a local nonprofit organization.

You might want to focus on the rhetoric involved in a video game, either in a particular scene or through the gameplay as a whole.

Step Two: Choosing an Organizational Framework for Analysis

Next, decide on a framework for assessing the piece of digital media you’ve chosen to analyze. Essentially, this is a framework you will apply to structure your analysis and to shape your claims and conclusions. You might select a framework such as:

- Focusing on **audiences**: In this method you would start by assessing the audiences (plural) for the media artifact, considering both the intended and unintended audiences of the artifact. Drawing on concrete evidence, you would then evaluate the effectiveness of the artifact for primary, secondary, and unintended audiences. The greater number of specific audiences involved, the broader the appeal.
- Focusing on **purpose**: In this method you would organize the paper by looking at identifying the central purpose of the artifact, tracing how the design of the artifact helps it to achieve the purpose (or not). In this case your argument might be that certain design elements are more essential to achieving the purpose, and some are less essential.
- Focusing on the **author**: If you can narrow down who specifically created the artifact you might focus your analysis on the way one writer/creator/developer typically deploys design elements, and whether this particular artifact is usual or unusual for their particular style. In this case your paper would explain how the ethos of the author connects to the ethos of the media artifact.

Step Three: Research

Most of your analysis should consist of concrete descriptions of the artifact and its rhetorical purposes. However, you also will need to do research to fully understand the context of the artifact and to back up your argument. This research may include:

- Basic information about where/when/how the artifact was made.
- Whether the artifact belongs to a particular collection or authorial style.
- Reviews of the artifact.
- Comments on the artifact.
- Finding alternate examples to demonstrate how the chosen artifact could have been more/less effective.

A Note on Flexibility

As you can see from the prompt, the focus of this paper is open to a number of different directions. I encourage you to find a media artifact that interests you, because the more interested you are, the deeper your analysis will be.

Grading and Timeline

All papers will be graded and returned within two weeks of their submission. All papers will be submitted via the Blackboard “Submittables” folder. The document must be submitted by class time on January 10th.

Grading for this project will be based on the depth and clarity of your analysis. As I read your paper I will ask the following questions:

- Does the writer provide descriptive and contextual background about what the multimedia text is and where it comes from?

- Is there clear evidence that the writer has researched the background of the multimedia text?
- Does the writer connect the text(s) to a particular audience? Is this connection backed up using concrete evidence from the text?
- Does the writer make claims about the effectiveness or ineffectiveness of the multimedia text? Is there enough evidence to support these claims?
- Are verbs and nouns direct and specific? Are the sentence structures clear?
- Is the paper cleanly formatted in MLA, APA, or another common mode of formatting?
- Are there any grammatical or syntactical errors that make it hard to understand the author's point?

This paper will be graded on a scale of 0-100 points. It is worth 20% of your final grade.

APPENDIX C. THIS VS THAT EXERCISE

Purpose

This semester you will be using After Effects to create motion graphics videos. Illustrator is not a necessary tool for working with After Effects, but it is essential for planning and drafting initials compositions. By the end of this activity you should be able to create basic icons, add color to them, and export them from Ai.

Goals

- Be able to create/export files in Adobe Illustrator
- Be able to create basic shapes in Adobe Illustrator
- Be able to import and manipulate icons
- Be able to edit the fill and stroke of designs
- Practice using visual rhetoric to communicate

If you already have a firm handle on the basic functions of Illustrator, now is a time to refresh your memory and play around with the program a bit.

You Will Submit

- 1 logo from the Adobe Pizza Tutorial
- 1 “This Not That” Visual

Pizza Tutorial Directions

The link below leads to a tutorial from the Adobe website on how to create a colorful icon of a pizza slice.

<https://helpx.adobe.com/illustrator/how-to/logo-design.html?playlist=/ccx/v1/collection/product/illustrator/segment/designer/explevel/beginner/applaunch/orientation/collection.ccx.js>

Follow along with the tutorial to learn the basics of shapes, lines, paths, and color. At the end of the tutorial, export the image as a .png file. This is the file you will submit to Blackboard. [Note: If you are an **advanced user of Illustrator**, you have the freedom to create some other kind of logo constructed from multiple shapes (10+).]

This Not That Directions

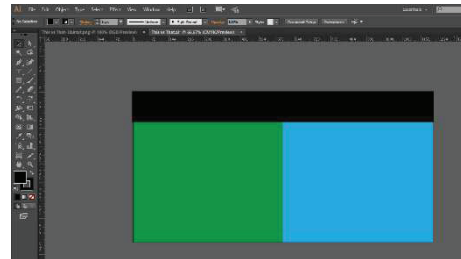
Review Quartz Article

Read the quartz article about the “cultural differences between east and west:” <http://qz.com/567479/the-cultural-differences-between-east-and-west-according-to-one-artist/>. These comparisons aren’t revolutionary (and the binary cultural comparison is very concerning), but they do offer an example of minimal, icon-based designs that we can use to practice creating materials.

Think of a comparison between you and some other group or person. It could be a comparison between you and your friends, between you and most Purdue students, or between you and a friend of yours. How would you represent those differences with these kinds of simple icons? That’s what we’re up to here.

Create the Background

- Create a new canvas that’s longer than it is wide. (I made mine 600 x 1200)
- Use the Create Shape tool to create 3 rectangles. One should take up the entire width of the canvas at the top of the canvas. The other two should divide the canvas into left and right portions.
- Change the fill color of the top rectangle to black. Change the two bottom rectangles to contrasting colors.
- At this point your project should look like this:



like

Use Icons to Make a Comparison

- Use the basic drawing and shape creation tools to establish a visual comparison between two perspectives or points of view. Try to resist using words or numbers to assist you.
- If you’re struggling to create your own icons, you may use a service like The Noun Project to import icons (as royalty-free SVGs) into your designs.
 - <https://thenounproject.com/>
- **If you’re struggling to think of a comparison** just mimic one of the comparisons shown in the Quartz article or one of the examples from past semesters [*examples removed from dissertation*].

Label/Title the Design

- Use the Type Tool to create a title at the top of the image and small labels in the top left corner of each of the comparisons.
- Your final product should look something like this:



Export as a PNG

- Export the image by selecting File -> Export, and then change the file type to .png

Grading

I will grade your images on a scale of 1-20. This grade will be based on answers to the following criteria:

- The background consists of two colored rectangles
- Both halves of the design include icons, lines, and shapes to make a comparison between two ways of thinking
- There is a title at the top of the image and a small label on each rectangle to clarify what is being compared

APPENDIX D. BASICS OF AFTER EFFECTS TYPOGRAPHY EXERCISE

Purpose

This exercise is meant to give you an opportunity to play with After Effects before you are required to use it with major projects. The main goal here is animate text using keyframes. **These skills will come up in projects in the future.**

Step 1: Choose a Quote

Think of a quote that you enjoy. It can be about a specific topic or a quote from a movie.

Step 2: Format the Quote Inside After Effects (or in Illustrator)

- A) Create a new composition with the dimensions 720 X 1280 pixels.
- B) Create a background solid that is the same size as the composition. (Layer > New > Solid)
- C) Format the quote using color, typeface, and composition. If you get stuck, try mimicking one of the ideas from the “pairing typefaces” reading. (found here: <https://webdesign.tutsplus.com/articles/a-beginners-guide-to-pairing-fonts--webdesign-5706>).

Step 3: Animate the Text on to the Screen

Using **TWO** of the three methods shown in class (masking, typing, scripting), animate the text on-screen. If you need a refresher on how to perform these animations, see the demo videos on our class Blackboard page.

Step 4: Export the Video

Go to File > Export > Add to Render Queue. Once the file is in the render queue, adjust the output settings to an mp4 (H.264) file. This will compress the file and make it easier to view.

Grading

This document will be graded on a scale of 0 – 10. You will receive full credit if 1) the quote uses two typefaces 2) the text moves on screen two of the three keyframe techniques demonstrated in class 3) the video is properly exported.

APPENDIX E. PROMOTIONAL VIDEO ASSIGNMENT SHEET

Case 1: Local Motion Graphics

Overview:

For the second major assignment you will apply your knowledge of rhetoric and multimedia design to a specific situation. You will need to use After Effects to complete this assignment, but the central grade for this assignment will **not** be based solely on your technical ability with animation and graphics design. Instead, it will be based on your ability to plan and design materials that use text, image, and movement to enhance existing video materials.

In addition to the video products you develop, you will submit 1) Proposal for the Project 2) a mini-analysis of the organization’s existing materials and your design idea 3) a post-mortem write-up. These three documents will be used to assess your ability to explain design decisions in a clear, concise way.

Goals:

During this project you will learn:

- How to apply principles of visual rhetoric to different rhetorical situations
- How to describe (and implicitly argue for) design decisions during and after production
- How to develop consistent visual designs across different video products
- How to take a collaborative approach to writing with multimedia

The Scenario:

You work as the “Assistant Digital Content Coordinator” for Visit Lafayette – West Lafayette (VLWL), which is, for all intents and purposes, the board of tourism for the Lafayette/West Lafayette area. Most of your job entails managing the company’s varied social media accounts and identifying new opportunities for connecting with the public.

One day, your boss (the “PR and Social Media Strategist”) calls you into her office. She tells you that *her boss* recently looked at the video materials on YouTube and called them “boring,” “plain,” and “pointless.” She tells you that many of the videos ([found here](#)) are too long and aren’t visually connected to the brands of the organizations. It’s even hard to tell what the videos are about without some on-screen graphics to shape the story. “So we’re starting from scratch!” she tells you excitedly.

She asks your team (you and your partner) to choose a local organization in Lafayette or West-Lafayette that would benefit from a slow release of video content. Then, you will produce on-screen graphics that can be easily applied on-top of captured footage in order to make the videos more professional. **YOU DO NOT NEED TO FILM THE ORGANIZATIONS THEMSELVES.** Just develop graphics and a plan for the kinds of videos they might use.

Your boss gives a few specifics about the project:

- **You must produce at least** 1) an animated logo sting with the organization’s existing logo, 2) a text-graphic that can be animated on and off the screen, and 3) a credits/thanks/outro sequence that can be put onto the end of a video.
- “I’m a bit worried that this is going to look like a photo slideshow that’s been pooped out of a PowerPoint presentation. [I saw one created by the Naperville Illinois](#). It’s garbage. Please make it better than theirs.”
- **“Please don’t focus on Purdue specifically.** We already have enough Purdue-centric motion graphics.”
- “You should keep the organization’s original color, typography, and branding materials in mind. Don’t create anything that would conflict with their existing graphic materials”

Primary Deliverables:

Your group must create:

- **A 1 page, single spaced document** with a short description of 3-4 videos (or other multimedia) that could be used to build a personal connection between the organization and the community. Looking for ideas? [Try Here](#).
- **1 Logo Sting** (2 – 10 seconds) that animates the logo onto the screen. At the end of the clip there should be a transition to show how the sting would transition to the main video. Not sure what a logo sting looks like? Take a look [here](#)
- **1 Text Holder** (5 – 15 seconds) that can maintain the ethos of the organization while content is playing.
 - This can be a [lower third](#).
 - Or it can be a transition graphic like you see [here](#).
 - Or it can even be something that takes up a large portion of the screen like [this](#).
- **1 Outro Sequence** (1 still image) that could be easily edited to include credits, special thanks, and calls to action. You can see an example [here](#).

[Note: At this point you do not have the time or the technical competency to produce fully animated characters. If you have an idea for a character-driven video, you must have the idea approved by me before moving forward.]

Additional Documents:

Mini-Analysis/Proposal

This document will begin with an overview of the organization's brand, including a description of their logo, color scheme, typography, and organizational ethos.

From this information you will propose a direction for your graphics, including how you plan to integrate color, typography, and movement in order to connect with the original brand. You will include screenshots of any images or sketches you've created thus far. Then, you will include short descriptions of 3 "inspiration videos" that you will try to emulate in your graphics package. Finally, the document will describe your plan for creating the video with your partner. How what parts will you each create?

Post Mortem Write-Up

This document will explain and defend the design choices made in the creation of the video. In this write up you will be required to support your decisions using the readings from the course. You will also get a chance to reflect on what you've learned about After Effects, and how you might approach the next case differently.

A Note on Group Work

Neither group member should perform all of the animation or all of the writing for this assignment. Moreover, even if you work collaboratively with your partner(s), you must be able to describe your individual contributions at the end of the case study.

Unless group evaluations demonstrate an extreme disparity in contributions, you and your partner will receive the same grade on this assignment. If you and your partner did not contribute equally, I may raise or lower the assignment grade of an individual group member by up to 10%.

Grading and Timeline:

All papers and videos will be graded and returned within one week of their submission. All papers will be submitted via the Blackboard "Submittables" folder. While the due dates for the documents will vary, the **due date for the entirety of the materials is Friday, March 3rd at Midnight.**

Grading for the documents will be based on answers to the following questions:

- Is there evidence of research about the area?
- Is there evidence of research for inspirational examples?
- Does the writing demonstrate ability to identify the strong design decisions?
- Does the writing connect design decisions to the rhetorical aspects of the case including the ethos of the organization?
- Does the writing explain the strengths and weaknesses of the designs?

Grading for the video package will be based on the following questions:

- Does the video avoid visual confusion?
- Are there stylistic elements that connect the video with the organization?
- Do the video elements transition on and off the sequence in effective ways?
- Is there a clear choice in typographic style?
- Is there a clear choice in the colors used throughout the video elements?
- Is there continuity between the different graphical elements?

APPENDIX F. PUBLIC HEALTH VIDEO ASSIGNMENT SHEET

Assignment 3: Public Health Animated Infographic

Overview:

For the second case study you will need to create an animated infographic that will support pre-existing written material. Like the previous case, you will need to use After Effects and Illustrator to complete the assignment, though in this case I will also introduce you to Adobe Premiere Pro for creating long-form materials and adding background music. Like with the last project, much of the grade will be determined based on your ability to explicate your design process, and analyze pre-existing materials.

In addition to the video products you develop, you will submit 1) an analysis of an existing video (or series of videos) about your topic. 2) A brief proposal for the kind of video you will produce. 3) a “grocery list” of all the visual materials that you’ll need to collect in order to create this video. 4) A 12-20 frame storyboard that outlines a more specific direction for your video. 5) A Post-Mortem document that discusses your design decisions, what went well, and what went poorly. These three documents will be used to assess your ability to explain design decisions in a clear, concise way.

Goals:

During this project you will learn:

- How to develop visual expressions of primarily textual information
- How to communicate serious messages with animated content
- How to build graphics that simultaneously inform and raise interest in a topic
- How to add visual interest and seriousness without relying on photographic visuals

The Situation:

Once again you work as the “Assistant Digital Content Coordinator,” but this time for the Center for Disease Control (CDC). Your primary responsibility is to develop materials that help a **specific audience** understand a major health issue in their state or region. Usually this means creating image-heavy documents that can be easily printed, such as brochures, pamphlets, or infographics.

However, recently you’ve created video materials as well, such as these recent video materials on the Zika virus. These videos, while lacking in content, achieved a much wider reach than the usual documentation. Consequently, your boss would like to see you produce more videos about current health crises.

For this case your goal is to continue this work by 1) finding a topic in public health (one already discussed by the CDC) that could benefit from video materials and 2) developing a short video that could be distributed on Facebook, Twitter, Instagram, or sent out locally by health professionals.

The primary of goal of your video **may** include:

- Alerting a particular demographic about a new disease or health crisis, and where to go for new information
- Communicating the best practices for dealing with a natural disaster (flood, hurricane, earthquake, etc.)
- Clearing up “wives tales” or “myths” about a health issue
- Alerting a demographic of a new treatment option for specific diseases (like the HPV Vaccine, or PrEP)

The **secondary** goals of you video will be:

- Maintaining the credibility of the information provided by the CDC.
- Leading viewers to more in-depth sources of information through the CDC.

Deliverables (Video):

You must create 1 video with the following elements.

- A series of animations that educate a specific demographic about a public health issue.
- The video must include at least one visualized statistic or numerical graphic. This element must visualize the numerical information in some way, whether it be a chart, graph, visual icon, or some other animation type.
- Background music that reflect and establish the tone of the video.
- A logo sting at the **start or end** of the video that directs the viewer back to the CDC website for more information.
- This video should be no more than 90 seconds long, and the shorter the video the better. 45 seconds to 1 minute is the target length.

(Note: Voiceover is not required for this video. It is difficult to write, record, and integrate into video. However, if you choose to integrate voiceover I will help you along the way.)

Research:

You may use any statistics, facts, or outside information to make this graphic, but your video should reflect the research and statements that are already provided by the CDC. **You will need to find one statistic or numerical statement** to include in your video. This can include:

- # of people affected
- % of survival (past or present)
- \$ spent per year
- Likelihood of occurrence
- An amount of time, like a clock or a calendar.

Your video should **not** be directed toward *the entire United States*. Narrowing your focus, you might focus on parents, children, teens, homeowners, non-homeowners, community workers, or

small business owners. You could even focus on helping children or young adults understand these guidelines. You could choose people from a specific part of the country. Each of these groups will require different information. The more specific, the better.

Use as much of the existing materials on the CDC website as you can. In fact, successful projects often draw inspiration directly from preexisting colors, terms, and graphics from the CDC website. Most of your time working with the data should be spent deciding which facts are most appropriate, and the best way to represent these facts with animated icons.

Deliverables (3 Documents):

Mini Analysis and Proposal

This document will begin with a comparative analysis between two videos. One video will be rhetorically effective, and the other video will not be. In this analysis you will discuss the visual elements we've been discussing so far, but also how the videos use music and video for inspiration.

In the second half of the document you will propose your topic, audience, and content for your Case 2 video. You will need to explain why this video is necessary, and demonstrate that this video does not already exist on YouTube or the CDC website.

Grocery List

Because this is a longer video, you will need far more visual and aural materials than you needed for the promotional graphic. Therefore, you will be required to make a list of all the still images you need to collect, and all the graphical elements you will need to create/find.

Storyboard

This document will function as a second checkpoint as you continue to create your video. It will require you to start aligning the visuals, text, and motion in order to communicate what this video is going to look like.

Post Mortem

This document will explain and defend the design choices made in the creation of the different video elements. In this write up you will be required to support your decisions using readings from the first half of the course.

Grading and Timeline:

All papers and videos will be graded and returned within one week of their submission. All papers will be submitted via the Blackboard "Submittables" folder. While the due dates for the documents will vary, the **due date for the video package is Wednesday, April 5th**.

Grading for the documents will be based on answers to the following questions:

- Is there a critical evaluation the existing materials about the topic?
- Are there critical connections between the project and other videos/images found online?
- Does the writing connect design decisions to the specific contingencies of the topic?
- Does the writing connect design decisions to a specific, narrow audience?
- Does the final post-mortem explain the strengths and weaknesses of the designs?

Grading for the video will be based on the following questions:

- Does the video maintain a serious tone about the topic while still making the information interesting and engaging?
- Does the video display the information in ways that are clear and ethical?
- Does the video include one statistic or number reinforced graphically?
- Does the video clearly establish an audience and purpose?
- Do the video elements transition on and off the sequence in effective ways?
- Is there a clear choice in typographic style?
- Is there a clear choice in the colors?
- Is the video submitted on time and in an Mp4 H.264 format?

APPENDIX G. FINAL PROJECT ASSIGNMENT SHEET

Assignment 4: Independent Project

Overview:

For the fourth major assignment you will have some freedom to carve out a video/motion graphics project that applies to your life, your field, or your interests. The project must be a video that uses graphic visual elements, but does not need to be wholly composed in After Effects. To this end, there are three common trajectories for this assignment:

Option 1: Produce an **Animated Explanation** of a topic that is important to your field of study (or important to you personally), but which is often misunderstood or disliked by the public.

Option 2: Produce a **Promotional Video** for a local business or a campus organization that could use the video for marketing their goals/services. (You can build on the graphics from the first video project. Hint, hint....)

Option 3: Create a **Video Resume** that you can use to showcase your professional skills or reel. This kind of video would be suitable for the homepage of a personal website.

Goals:

During this project you will learn:

- How to identify **new cases** where motion graphics may be applicable/useful for communicating with a specific audience.
- How to define the parameters of a motion graphics project given **your** specific audience and constraints.
- Plan and argue for your project using a short analysis, proposal, and storyboard.
- Articulate your design decisions in a final rationale.

Graphic Deliverables:

You must create graphic material using After Effects for this project. The general aesthetic of the graphics you create will change based on the subject you are working with. You might use stock photos or images you capture yourself. You might create everything entirely in After Effects. You might use voiceover. You might not. Regardless of what you choose to create, **you must be able to argue for your design decisions through the text deliverables for the project.** This is the central parameter for the project.

Text Deliverables (4 Documents):

Analysis and Project Proposal

This document will propose the basic parameters of your final project, including which genre you will attempt to create, what topic you will focus on, and an outline of what the

project might be able to cover. In addition, you will outline the intended audience of the video. Why might they watch the video? What do you want them to take away from the video? This does not need to be described in great detail.

Script/Storyboard Document

This document will give a skeletal view of your final project. You will need to include a breakdown of the different sections of the video, the length of the different sections, sketches (or initial versions) of what each section might look like, a script of the voiceover, etc. This document should include both **text** descriptions of what will happen and **visuals** that show your progress thus far.

Presentation

On the last two days of class you will present your final project to the class. In your presentation you will introduce the project, show the project, and then talk about at least one visual factor that makes it rhetorically effective.

Design Rationale

This document will be turned in along with the graphics for your final project. In this document you will discuss the purpose of the graphics, the audience for the graphics, and the success of the graphics. Each design decision will be discussed in detail. Finally, you will discuss two readings from the semester that apply to your project.

A Note on Group Work

You may work on this project in a small group if you choose, however, each group member will need to write a different design rationale to submit. Further, my expectations for the quantity and quality of your work will inevitably rise with each additional group member.

Grading and Timeline:

All papers and videos will be graded and returned within one week of their submission. All papers will be submitted via the Blackboard “Submittables” folder. While the due dates for the documents will vary, the **due date for the graphics and design rationale will be Wednesday, April 26th**.

Grading for the video elements will be based on the following questions:

- How are the visual elements composed? Are the visual elements substantive and purposeful? Or are they added simply for decoration?
- Do the graphics include appropriate connections to the intended audience? Would the intended audience be at all confused by the information presented, or by what is left out?
- Are the graphics shaped by the rhetorical situation to balance the depth of information and the pacing of the video? In other words, does the video move too quickly or too slowly for the information being covered?

- Is the design of the graphics unified across all elements?
- Is there a clear, rhetorical choice in typographic style?
- Is there a clear, rhetorical choice in the colors used?

APPENDIX H. DESIGN RATIONALE GUIDE

Design Rationale Guide

Purpose

This document will be turned in along with the graphics for your final project. In this document you will discuss the purpose of the video, the audience for the video, and the design of the video. Each design decision will be discussed in detail. Finally, you will discuss two readings from the semester **that apply to your project.**

Contents

The first section should include a reprise of the case. What is your role? Who is the audience? What are the rhetorical challenges in terms of persuading, informing, provoking, or directing the audience? What are the difficulties of delivering a credible, inviting, interesting message given this situation?

The second section of the document should include full paragraphs describing specific design decisions that you made during the course of the project, and **how these decisions connect to the intended audience.** Include an in-depth discussion of 2-3 general and 2-3 specific design decisions. An example of a general design decision might be the typeface used throughout the graphics. An example of a specific design decision might be a discussion of how you arranged and sized all the visuals in a particular frame to draw the reader's eye through the material. This should be the most substantial section of the write up.

The third and final section should connect your project to the main readings of the semester. This section should demonstrate that you understand each author's main point, and that you're able to connect those points to your project. This discussion can discuss visual rhetoric, the rhetoric of animation, various approaches to clarity in information design, the ethical design of visuals, or other subjects discussed in the readings from class.

Grading

The design rationale will be graded along with your final video. The better you explain your design decisions, the better chance I will be able to understand your direction. The importance of this document is to prove that your graphics are created with attention to detail, and that you understand the strengths and weaknesses of the graphics you created.

It is possible that you struggled and struggled, but the video still is not very effective. That's okay, but tell me what you struggled with, how you tried to overcome that struggle, and what you might do if you had more time.

Miscellaneous

- There is no required or minimal length, though you should note my expectations about spending a few *paragraphs*, not sentences, discussing each section. I would be worried to see a three page document, and extremely worried to see a two page document.
- Include your name and date on the document
- Submitted as a pdf.