For Lack of Personal Methodologies

in Game Design

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Dedication

Firstly, I dedicate this thesis to my parents, Denise and Doug Kronenberger; Kaila Johnson, who got me through the roughest times; Lindsay Holloway, for proving it could be done; my husband Victor, for enduring sleepless nights, attending to my injuries, and bringing me lots of food; and my Chinese mother and father, Yuqi and Ning.

Secondly, I dedicate this thesis to my committee, Wan Chiu, Hoi Lam Ho, and Ronald Wilcox; Dean Derek Black; Winnie Soon, Deborah Wacks, and Jose Rueda who approved my original proposal; and Adam Khemiri just for being awesome.

Lastly and most importantly, I dedicate this thesis to my cats, Tychus J. Findlay and James E. Raynor, who kept me warm and gave me snuggles; and my tea shop, which fed me in the wee hours of the morning even though I couldn't speak a word of Cantonese.

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Abstract

For Lack of Personal Methodologies in Game Design

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To say that all game designers have an unspoken 'personal methodology' requires the granting of two key assumptions: One, that success is not wholly arbitrary and so can be deconstructed; and two, that success is not strictly mechanical, and thus requires some creative intuition. A 'methodology' can be articulated, evaluated, and evolved; Thus, a game designer becomes capable of growing herself. In his talk "Triangulation, a Schizophrenic Approach to Game Design," lauded *The Sims* designer Will Wright describes this process as both adding new 'tools' to a 'toolbox', and yet also developing the intuition for where and why to use those tools. This paper looks at the evolution of a living, personal game design methodology as a function of its contextual narrative. Drawing on a broad contextual review, deep self-reflection, and the inspirations from eccentric architects, dour information designers, charismatic entrepreneurs, and splendidly distracted games professionals, it constructs an appropriate design methodology for one context and one designer, in the hopes of opening up a conversation on how all game designers can do likewise.

Key words: personal, design, methodology, philosophy, game, statement, paradigm, intuition

Introduction

I. Overview

There's nothing quite like biting off more than you can chew, and then chewing anyway.

- Mark Burnett

I was working on an old project and struggling with an influx of new skills, like a cheerful but greenhorn handyman stumbling about with my arms clenched tight across everything from sledge hammers to plumber's wrenches. I was the proud owner of each and every new tool—of course!—but one day I woke up to find myself dreading projects I'd once had such childish enthusiasm for.

The more new 'rules' I learned, the less and less I knew how to reconcile them against each other and against the brick of intuition and the mortar of holistic free-association. The lack of synergy between data and gut grew into a rift, until I was quite submerged in a murky pool of designer's fatigue.

So it was that I found my intuition in hiding, rocking to-and-fro as if in an effort to soothe itself. As anyone can tell you, this was no fit way to design much of anything, and so I made a pact with said intuition: It would need to be the boss again, but I would stop contradicting it until I had figured out where this terrible design-fatigue-puddle-thing on the floor had come from.

And that was how I set out on an epic quest to uncover what it meant to be a game designer—and an artist!—and learned that the tools one carries are unmanageable without a toolbox to keep them in, or the good sense—the intuition!—to know when to use them. There is a place and

time for even the best sledgehammer, and it is seldom ever the place one ought to use a plumber's wrench.[1]

[1] Always bring metaphors full-circle.

1. Inspiration

1.1. The 'Personal Design Methodology'

When we engage what we are naturally suited to do, our work takes on the quality of play and it is play that stimulates creativity.

- Linda Naiman[2]

It was while reading about architect Frank Gehry's spiraling OPUS Hong Kong apartment building that I was first introduced to the idea of a *'personal design methodology'*. Gehry's 'design philosophy'—an interrelated but different term—is comparatively well-known: "Life is chaotic. Buildings should reflect it" (Siegel).

But the world-famous architect also kicks off his work in a unique fashion when it comes to his *actions,* by assembling towers of toy wooden blocks (Field). While block-building might seem strange to some, one could still frame it as a design pattern—if only Gehry's results from applying the pattern were not so individualized and distinctive in their twisted style. Something about his approach has become wholly personal to him.

Could Gehry design buildings without his blocks? Perhaps. But he *doesn't* (Field), and that merits thinking about.

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[2] Heaven help the game designer who does not approach all work with a ludic spirit;* she is in the wrong profession.

* Of *course* this can entail hijacking her own footnotes. Who do you think we are? Accountants?**

** My mother is an accountant. I am therefore entitled to tease accountants.

It might be that his technique is born of a need to work with his hands (Chang), or simply because he is one incredibly odd fellow.[3] Either way, philosophy and block-building work together to help him to visualize the world of abstracted shapes and infinite possibilities, and to drive down to the end result he will eventually settle on (Field).

His peculiar process did not inspire me to start building games with wooden blocks, or to twist their metaphorical sides to their breaking points, but it did make me realize that in architecture and design, as in most of life, there are no right answers. There are only "good, bad, and better answers" (Spencer). Every designer must ask themselves where to *start* their design and where to *end* it, and Gehry answers the first with his block towers and the second with his philosophy. His composite 'design methodology', then, appears to be a combination of *both* actions and beliefs.

Yet not everyone understands the world best by touch as Gehry does (Thalheimer),[4] or comes from a background with the same specialty, and so it must be granted that all architects and indeed all people should manifest differences not only in philosophy and skill level, but also in their *flavoring*.

This is the juncture that must reconcile laws and rules with instincts and creativity: a designer's *personal design methodology.* By 'personal design methodology', I refer to a designer's internal and external *way of operating:* the manner in which her personal philosophy, intuition,

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[3] It's both. Definitely both. That's why it's hard to find a picture of him without his middle finger extended.

[4] I, for one, am partial to reading and annotating with commentary. Can you tell?

experience, selectivity, curiosity, toolsets, methodology, and quirks manifest as actions, allowing her (or him) to pursue one creative path out of multitudes of potentials.

1.2. Background Narrative

The man who writes about himself and his own time is the only man who writes about all people and all time.

- George Bernard Shaw

Every work is shaped by its context, and thus I should step back several paces and illustrate further how I ended up seizing onto personal design methodologies as the central focus of my research.

Not so very long ago, I began to wonder how games could be designed differently if we presumed players were seeking relief from situations of high stress, depression, anxiety, or loneliness. I began to suspect that many casual games, despite seeking to be pleasurable, may have actually been successful because they provided some type of relief (Russoniello, O'Brien and Parks).

Assessing this relief and the factors required for eliciting it required me to closely study a target market consisting loosely of women ages thirty to fifty, which nears the top of the bell curve both as the core casual gaming market (RealityMine Limited), and as the demographic group reporting the highest levels of anxiety and depression (Joffe, Chang and Dhaliwal). Digital pet games seemed well-suited to providing enhanced relief from their depressive symptoms.

There were unlimited ways to design a new game for depressed women, and plenty of valid arguments for where one ought to start. As my work grew to encompass numerous disciplines, from economics to psychology, the question of *what* I ought to be designing metamorphosed into a

realization that there was little literature to explain *how* I might justify any starting point at all within such a large problem space.

1.3. Paradigms in Tiers[5]

Creativity is not a talent. It is a way of operating.

- John Cleese

As I started categorizing my studies in terms of *what* and *how,* I could not help but frame them in light of leadership-expert Simon Sinek's influential *Start with Why,* where he divides a leadership into three concentric circles of enlightenment: *what* you do, *how* you do it, and *why* you do it. Dubbing this a 'Golden Circle',[6] he explains: "People don't buy *what* you do, they buy *why* you do it." Visions, dreams and innovation stem from the third and innermost tier (Sinek, Start with Why).

My 'depression project' had its specific goal, as explained above, but this goal did not satisfy me by providing solid ground on which to found design decisions because it merely provided criteria for evaluation of the end result.

By flipping Sinek's ideas from the outward space of leadership into the inward framework of self-concept and self-actualization, I began to suspect all self-reflective designers required an internal,

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[5] And a triplet of pennies in hysterics. These footnotes embed the design persona within the thesis format, experimentally reproducing her mental 'way of operating' outside of a design document. See ***Creating Networks of Idea Nodes*** and ***Manifestation of Methods***.

[6] It is really more of a series of concentric circles. Come to think of it, he didn't draw it in gold, either. And then I'm rather sure he went and turned it into a *cone*…

belief-driven, and actionable foundation which, while as living and amendable as a constitution, nevertheless served as source for their gut instincts. Instead of starting with *why,* I found myself very nearly starting with *who.*

I took Sinek's 'three question words' and applied them to the designer and the designer's labor, and they then became the skeleton structure holding aloft the design process I would need to investigate:

- The *what:* The fruit of the designer's labors. Namely, game-design documentation.
- The *how:* Tools and methods by which a game will be designed.
- The *why:* A belief system and activities for selecting the *how*-level methods.

By rephrasing my design woes in the light of this paradigm, I found I was able to more clearly delineate the *why* tier which had thus far eluded me, and to establish a noun—a *'personal design methodology'*—which I could use to circumscribe and capture it in a definition.

1.4. Iterative Refinement

Be in beta.

- Whitney Johnson

Understanding the existence of one's own personal design methodology, however, is merely informative and does nothing directly to assist the designer. Systematic honing of methods is commonplace in engineering (Flynt and Salem 4-7), but by applying iterative critique to an artistic and personal 'methodology', a designer becomes capable of reflecting upon, testing, and refining the internal system she uses to make intuitive choices.

Honing one's personal philosophy like a weapon—exactly as one hones finalized product designs—ended up becoming the keystone of my work. It became a philosophy upholding that a designer is not merely talented or untalented, equipped with stellar intuition or *not,* but rather a living work of art in her own right, constantly fine-tuning herself so as to best accomplish whatever she wishes to accomplish.

This paper therefore becomes an art artifact in *its* own right: the manifested expression of my labor over the art of design, and the new knowledge I offer to my community, structured and refined using the same skills in design, iteration, honing, research, and wordsmithing which many of us lavish onto game-design documentation.

2. Research Question

The art and science of asking questions is the source of all knowledge.

- Thomas Berger

While my paradigm calls for a methodology such that it meets the criteria of being personal, actionable, and evaluable, it does not provide an explicit description for what methodologies are or should be made of. We therefore have a metaphorical demand for a cake, but no recipe.

The research question from here on out is then clear: We must ask what resources exist, internal to the self, internal to the industry, and external to both, and whether they require primary or secondary investigation, which might allow us to build the skeleton of my *personal design methodology* and provide scaffolding upon which to flesh it out.

The personal design methodology solicited by this thesis must also satisfy three requirements: to model a designer's creative process, to identify the impetus under which the designer creates, and

to outline actions the designer can take to select, evaluate, and refine the *how*-phase patterns and methods.

3. Thesis

I am driven by a fierce *need* to open up conversations on the means by which game designers can tackle new, large, complex problem spaces in personalized, adaptive, and holistic fashions, blending skills from numerous origins into a concerted arsenal. I intend to show the development of my personal design methodology, and to open further conversations on the roles personal artistic judgement, technology, the humanities, client constraints, ethical concerns, marketing data, budget, commercial product design, and other factors all play in our emerging discipline.[7]

4. Roadmap

This paper will cover a great deal of ground before the creation of its 'personal design methodology' so as to ensure it has built up a proper foundation for supporting itself.

Work will commence with the outlining of a detailed ***Research Plan,*** which will discuss the objectives and philosophies of research in the arts, and specify the mental framework under which the rest of the paper will operate in order to produce valuable knowledge. The plan will also discuss the research and work context of game designers, so as to better explain why a proposed 'interdisciplinary exploration' of the topic will be so valuable.

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[7] It would be misleading to avoid mentioning the high relevancy of ***Managing Large Solution Spaces*** to young researchers crafting a concise thesis statement.

The ***Contextual Review*** will pick up where the ***Research Plan*** left off, gathering up the plan's mandates and heading out into design, art, engineering, philosophy, psychology, and humanities spaces, while gathering everything from vocabulary definitions and evaluation metrics to samples of methodologies from other fields, so as to form a pool of useful tools for ultimately building the methodology. The review's purpose will be to determine what design methodologies ought to look like, how they ought to relate to the designer and to others, and what conceptual and actual 'materials' they ought to be built of.

When we arrive at ***One, Personal, Game Design Methodology***, we will synthesize all of our research, exploration, inspiration, metrics, and personal data into a sample design methodology befitting the needs of its designer. Far from definitive, this methodology will exist as an example from which to create other methodologies suited to different designers, for iterating and refining itself, and for provoking conversation on the subject of personal design methodologies in the realm of game design.

In sum, this roadmap will help us restructure how we each *think* about design, and will acknowledge the interesting challenges we face in both debating and exchanging information should we choose to accept how *differently* we sometimes think.

II. Research Plan

I can do anything I want, I'm eccentric!

- John Cleese

I could not, as it turned out, 'do anything I wanted'. Which I suppose was momentarily disappointing.

Then I realized only the most difficult of project constraints had ever led me on any truly interesting adventures. There is an Orson Welles quote for this: *"The enemy of art is the absence of limitations."*

The forging of my design methodology began while I was off on another adventure,[8] and so it was that I honed the two in parallel for some time before recognizing the methodology's individual importance. But as Gray and Malins quote the old idiom: "knowledge keeps as well as fish" (Visualizing Research 17), and so it was I learned the methodology was of great significance.

I set out to retread my steps, using several methods to triangulate with my initial findings to uncover further evidence and information which would help to build up my knowledge about my creative process, and summarily transfer that knowledge to my community (31). Both chronologically and causally, there exists some overlap between my time periods of unintentional

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[8] Young games researchers: know that the entire process is explorative, and sends one off on a terrific number of adventures in wholly bizarre spaces.

(casual) and intentional (formal) inquiry. The resultant design methodology therefore exhibits a natural relationship with the context in which it emerged, and which I will strive to capture to a sufficient degree of fidelity.

1. Intended Contribution

This paper intends to offer the game design academic community a two-pronged contribution, working from the perspective of the arts:

1. The creation of a 'personal design methodology', the specifications for which will be determined through research.
2. The documentation of the narrative surrounding the creation of that methodology, which is to serve as a launch point for further discussion on the topic of personal design methodologies in general.

As part of its narrative, this paper will delve into the definitions and assumptions usable for assessing the value of the methodology, both to its community and as a representation of art knowledge.

In the process of achieving these outcome, this thesis hopes to indirectly touch on three softer goals, set with regards to the greater game design community. These goals are:

1. To demonstrate that professionalism, efficiency, and artistry are not mutually exclusive by providing an example pathway for harmonizing them.
2. To demonstrate that one's own design intuition can be mastered by breaking it down into smaller pieces and understanding where instincts and gut reactions originate from.

3. To open discussions with designers who have mastered the basics, began their career, but now feel hesitant, doubtful, or stalled concerning where to go next.[9]

This paper, its methodology, and its narrative should therefore be expected to spend less time discussing themes in the vein of 'how to begin the creative process' than on understanding existing personal processes and tactics for resolving problems and rekindling creative enthusiasm.

2. Approach

2.1. Organizing Definitions

In the context of a masters or doctoral theses, research typically is conducted according to a 'research paradigm', which is divisible into three parts (Robin Woods Johnson Foundation; Gray and Malins, Visualizing Research 19-20):

- **An ontology:** a belief about existence. What exists, and is it subjective?
- **An epistemology:** a belief about knowledge. What can be known, and through what means?
- **A research methodology:**[10] A technique for generating or locating knowledge according to those aforementioned beliefs.

Vital to the continued sanity of all parties reading from and/or contributing to this line of inquiry—particularly those coming from non-academic fields—is the distinction between the

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[9] 'Burned-Out Designers Anonymous'?

[10] Stay tuned for the section where I return to address this sudden and unexpected occurrence of the word 'methodology.' Alternatively, just reference ***'Methodology' as a Component of a Paradigm.***

research paradigms and methodologies and the *design* paradigms and methodologies. Although similar-sounding and infrequently appearing in day-to-day conversational English, these terms are not used interchangeably.

Indeed, this paper's contextual review devotes a whole subchapter to the definitions, non-definitions, colloquial-usages, and definitions-that-we're-simply-not-referring-to-right-now of 'methodology', so as to make clearer our objectives, our tools, and our scope.[11]

From the definitions outlined above, we can see that we should establish our ontology and epistemology first before inferring an appropriate method for research.

2.2. Ontology and Epistemology

'Ontology' and 'epistemology' are words that govern their own independent spheres of philosophical discourse regarding truth and knowledge, but in research paradigms they are employed to describe the differences between qualitative, quantitative, and alternative research methods (Gialdino).

By keeping in mind our three-tiered *design* paradigm, we can initially infer that our *research* paradigm may be 'constructivist', as we propose that each designer interpret and build their own system for how to design, thereby constructing their own flavor of knowledge through a relativist ontology and a subjectivist epistemology (Trochim).

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[11] Naturally, this is to weed out the non-believers with our artistically punctuated and not-exactly-widely-understood phrase-concepts. Much like Computer Science 101.

However, Gray and Malins interject, explaining that art and design *create* knowledge and likewise have no established research paradigm (Visualizing Research 20). Constructivism arose as a challenge to positivism to legitimize the social sciences (Trochim), irrespective of arts, for gathering and assessing multiple individual viewpoints—which is why Gray and Malins mention we can at times *borrow* (with modifications) research methods from the social sciences (Visualizing Research 30).

Riding to the rescue to better explain these matters is Henk Borgdorff,[12] whose short *The Debate on Research in the Arts* reminds us that different types of academic research are concerned with different types of facts (10), each with intrinsic values that should not be conflated with one another. He warns any obsession with following uniform rules is a misconception of the pathways of both science and scholarship, the methods for which frequently grow and adapt *in vivo* in pursuit of new learning (6).

Borgdorff sets forth an ontology and epistemology for art, even as he explains that any given quest may rub shoulders with other disciplines (8-9). He states that the ontology of art may either

[12] Long before even mentioning he is a professor at the Royal Conservatoire of The Hague, 'Borgdorff' is just the sort of name that deserves to be riding to the rescue upon entering any stage.

concern itself with the artwork or with the creative process which produces the artwork,[13] but that in both cases the greater 'embeddedness' lent by the context should be part of the research.[14]

In discussing epistemology, he maintains that art knowledge and art research are not irrational or non-cognitive, regardless of being multi-faceted, generative, subjective, intertwined with intuition and tacit knowledge, and contrasted with sciences or social sciences (11). Art knowledge, Borgdorff argues, is produced by the relationship between creativity and cognition, between practice and reflection, and between doing and understanding—and while it stems from a personal source, it can most certainly be *shared.*

This above discussion of ontology and epistemology leads us back to Gray and Malins, and to the use of reflective practice as a keystone research method for researching the creative process within its personal context as a function of the bond between the creative intuition and the powers of rational inference (Visualizing Research 22-29).

2.3. Research Methodology

When researching in design and the arts, as within any other space, methods should be applied strategically, consistently, with discipline, and with care (Gray and Malins, Visualizing Research 16, 102). However, one's methodology must also be *responsive,* as research problems are

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[13] I think we just found our personal design methodology's research ontology. And possibly a tongue twister.

[14] Despite being plenty entitled to find a semiotics or formal analysis art history professor to stage an argument with us over the matter, we did mention this design methodology would be 'personal,' after all.

daily raised in practice and answered through practice (20-21). An arts researcher is not aloof from her research, but rather acts as a participant in it: creating work, reflecting upon the creative act, producing information, and often encountering new problems and understandings spontaneously.

In addition to dilemmas faced by art and design research in general, this paper also must fulfill greater methodological demands owed to its intent to innovate in a less-than-incremental fashion (Carter). As the contextual review will more thoroughly examine, there are few to no existing academic papers on personal design methodologies within the domain of game design. This places a heavy burden on the research methods to establish the validity of the paper's inspiration, 'generate knowledge' clearly, and organize ideas into a cohesive argument. Extensive documentation must be observed.

The primary methods of research utilized by this paper are, therefore, as follows:

- **Explorative, broad, interdisciplinary content analysis**. Owed to the multidisciplinary nature of games and game design research, this entails the analysis of texts from exterior disciplines in search of ideas that, when repurposed through the lens of game design, become potentially valuable knowledge for understanding the intuitive artistic process or melding intuition with engineering.
- **Abductive inference**. A logical process for forming conclusions, abductive inference is a form of logical reasoning which migrates from observations to a theory which accounts for those observation. In abductive reasoning, unlike in deductive reasoning, the premises do not guarantee the conclusion, such that one can understand abductive reasoning as 'inference by best guess'. Abductive inference is suited for discussing heuristics, which are the means by

which humans or machines seek to understand and function in the world despite lacking the complete data sets necessary to make guaranteed-true inferences. Here, abductive inference is used to steer the explorative content analysis and yet also reduce the clutter 'netted' by the process.

- **Justification through holistic coherentism**. The long-time rival to foundationalism as a theory of knowledge, holistic[15] coherentism maintains that things can be justified as true by the strength of their relationships with one another. In short, things that are *true* form a system by which all of the parts contribute to one another's truth values, and this system can be strengthened or unraveled by supporting or challenging its individual components.
- **Practice**. As described by Gray and Malins (104-105), this entails the creation of game designs and game design components (including prototypes) for the purpose of exploring the content and context of the researcher's own creative process in relation to others, so as to make intuitive knowledge explicit and communicable.

2.4. Manifestation of Methods

By applying these four research methods, we become enabled to innovate in a predictable manner:[16] by generating and assembling a new system of ideas from personal reflection and proven disciplines, 'pitching' the result into a fresh space, and then assessing the system's value as new

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[15] Not to be confused with 'organic' or 'gluten-free.'

[16] The predictability is crucial in that it allows the results to be discussed and, more importantly, criticized. Because it can't be art if absolutely no one has any strong opinions on it.

knowledge by creating designs that help us to determine whether any of the pieces are simultaneously incoherent and irreplaceable in their new context. Repeated iterations of this process can help steer the abductive inferences to 'simpler' and 'better' answers. Specific employments of each method are delineated more clearly below.

2.4.1. Interdisciplinary Exploration

Explorative, broad, interdisciplinary content analysis will emerge firstly through the broader game-centric scope of the contextual review, and through individualized explorations conducted at each stage of defining the personal design methodology.

This explorative process will be used to uncover inspiration for everything from the structure that the design methodology should take, to the criteria it must meet, to the content that will fill it. It is responsible for the brief, localized explorations into new ideas that are scattered throughout the paper, which reflect on the design tenet ***Creating Networks of Idea Nodes.***

2.4.2. Abductive Inference

Abductive inference[17] is the primary method under which all presented design knowledge was originally *supposed at* before being summarily investigated and discarded or else refined. Inductive inference is present in the usage of psychology; deductive inference arises in relevant microcosms, such as the realm of information design under ***Managing Large Solution Spaces,*** but abductive inference governs the dominant lean of the investigative process. As with inductive

[17] Clearly this is inference by alien abductees. Right?

inference, the ability to apply abductive inference in spaces with incomplete data and hesitant premises makes it suited to the arts in a way deductive inference is not.

Abductive reasoning is embedded in the original hypothesis which risked believing that personal design methodologies were both possible and important. It is used to study the supposition that engineering (empirical) and art (intuitive) methods may be synergistic as opposed to exclusive. It is the common-sense logic in the author's sureness that game design did not have to be so *exhausting*, and that *logically* there needed to be a better 'way of operating'.

Abductive inference suits the interdisciplinary explorative method by helping to suggest that, should game design have any sort of problem, there exists more than one exterior discipline that has a better and simpler solution than trying to reinvent the wheel in game design alone.

2.4.3. Holistic Coherentism

Justification through holistic coherentism is necessary in order to transform what otherwise would be a set of conflicting rules into a system of tools for accepting numerous contradictory ideas and then questioning them. It utilizes the biases and limitations of their origins so as to reach the best possible and most coherent outcome. Relying on coherentism has resulted in a 'roundness' to the design methodology itself, with all of its subsections focused inward and each expressing their individual origins and criteria for validation within a greater whole.

2.4.4. Practice-Led

When discussing practice as a mode of conducting research, one emphasizes the value of the artist or designer's 'tacit knowledge', where tacit is information that is communicated or understood without being stated (Merriam-Webster). When practice-led research entails the designer's personal

analysis of the non-verbal knowledge implicit in the designer's own work, we all find ourselves deep within the realm of subjective—and at times intimate—needs, beliefs, desires, struggles, and dreams. Practice-led research and self-reflection, then, is inherently a richly individualized process. A design methodology created from this type of research cannot be anything other than *personal*.

This paper will consider certain artifacts of practice, the nature of which will be discussed at length in an upcoming section titled ***Objects of Study.*** The artifact space is largely verbal in the sense that most of what the game designer directly produces is 'game design documentation'.

Several types of artifact for study are:

1. Journal articles and design documents chronicling past instances of practice, upon which reflection has garnered some new information.
2. Chronicled instances of research-driven practice, which channel or evaluate a design method.
3. Finalized games.
4. Postmortems written for games.
5. Attempts to verbalize or teach a methodology.
6. The thesis paper *itself* in its entirety, as it has been purposefully composed under the influence of its own *personal game design methodology,* with frequent iterations so as to demonstrate the manner in which its author tackles *all* creative problems.
7. The articles, workshops, and conference presentations of practitioners, who are attempting to understand and communicate tacit knowledge in a verbal manner, and whose writing and speaking styles may unveil information in the same fashion as this thesis paper.

3. Research Context

3.1. Researching the Art of Design

Art isn't only a painting. Art is anything that's creative, passionate, and personal. And great art resonates with the viewer, not only with the creator.

- Seth Godin

In an academic space where 'Interactive Design and Game Development' is a *fine art* deserving of *mastery*, a game design researcher is charged with investigating game design as an *art;* that is, she must earn a metaphorical black belt in that *art,* and develop or discover new knowledge through *artistic* investigation.

And should these sentences initially seem to repeat the word 'art' with high intensity but without apparent objective, it is worth taking a moment to reflect on the current climate of rhetoric in design: Deep explorations of the *intuitive, personal* or *belief* element of game design have often gone missing amidst an elaborate, multi-decade brawl over whether design is art or engineering (Peuc; Ochalla), whether *entertainment* design or *interactive* design are somehow different (Williams; Gibson), whether being called 'art' is even healthy for games (Zimmerman; Goldstein),[18] and so on and so forth.

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[18] Eric Zimmerman has a good read about how this is less a rejection of 'art' than a rejection of the high-art culture norms that translate into poor design practices and result in poor games.

Digressions into the supposed mutual exclusiveness of art and engineering aside,[19] influential experts on art theses, Gray and Malins, remind us that artists and designers-who-act-like-artists have been writing less (or at least less clearly) than technologists in general (*Visualizing Research,* 25), even on important topics such as *why* they do what they do. This leaves a great deal of distance to cover in a large number of directions when it comes to researching game-design-as-an-art.

3.2. The State of the Research Community

Much of this research territory is relatively uncharted.

It is easy to get lost down a rabbit hole.

- Mike Press

Terminating degree programs in 'game design' remain, by and large, comparatively few in number (UBM Technology Group). Fortunately, this is only a temporary problem, as the number of institutions offering programs in game design has skyrocketed (Valentine) and can be expected to grow (Sheridan). [20] *Un*fortunately, terminating-degree-holders are the sorts of people who write peer-reviewed research papers which would have served as useful springboards for our own arguments on methodology.

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[19] I think we can already tell I would digress on very nearly anything, and with great gusto.

[20] My undergraduate degree is a fantastically vague and misleading mouthful that goes something like: 'Bachelors of Science and the Arts in Digital Media with a Specialty in Interactive Systems,' which should explain the sort of piecemeal environment we are still working in.

While we are waiting for the years to catch up with us and knowledge to accrue, we have the chance to *join* in the knowledge-building, to set down academic groundwork for some of the earliest conversations in game design (Press; Freyermuth 121-133), and to determine everything from what methods are permissible to what tone and format our discussions should take. If academia is anything like business, we might as well call game design academia a 'Blue Ocean', ripe with opportunities for innovative research and methodological development (Mauborgne and Kim).

However this is not to imply that we as 'game-designers-conducting-research-akin-to-artists' are alone in our ecosystem, or without friends to guide us (Gray and Malins, Visualizing Research).[21] New games researchers, peers from other disciplines, recent surges in general design and art research, and loquacious bloggers from the game design industry, all offer interdisciplinary examples for how to research new queries and express our findings to one another (Skučaitė; Appleby; Schell).

Our research community may be a broad, blue ocean, but it is one dotted with islands of deep volcanic activity.

3.3. Nearby Islands

And you'll be positively the most fearsome pirates in the Spanish Main.

- Elizabeth Swann in Pirates of the Caribbean: The Curse of the Black Pearl[22]

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[21] Take game designer Jane McGonigal; she knows our pain! Her 'game design' degree was a 'Doctor of Philosophy in Performance Studies and the Designated Emphasis in Film Studies' (McGonigal, This Might Be a Game: Ubiquitous Play and Performance at the Turn of the Twenty-First Century)!

[22] 'Metaphor' is a valid exploration technique for artistic research. I even have a citation to prove it (Gray and Malins, Visualizing Research 30)!

When it comes to video games and psychology, the National Center for Biotechnology Information (under the 'United States National Library of Medicine and the National Institutes of Health') serves as an invaluable and gargantuan hub of both closed and open-access research journals. The publishing communities for research in medicine, the sciences, and the humanities are mature to the point of over-saturation (Cottage Labs LLP).

While the game design research community has yet to home in on a comparative 'Port Royal', its piecemeal assortment of journals like *Game Studies* and *G|A|M|E* is growing into a handsome fleet. The *International Game Developers Association* and UBM Technology's *Gamasutra* and *Game Developers Conference* build communities and aggregate references and ideas, serving as professional and academic hubs from which to begin expeditions out into uncharted waters.

4. Objects of Study

4.1. Studying Direct Art Objects

A rock pile ceases to be a rock pile the moment a single man contemplates it, bearing within him the image of a cathedral.

- Antoine de Saint-Exupéry,

A painter paints, and the product of her labor is then usually called a 'painting'. A sculptor sculpts, and the product of *her* labor is typically sculpture. A painting's medium may be watercolor, oil, acrylic, or even blood; a sculptor may work in metal, stone, or even butter. Yet in general these art disciplines have more straightforward art object definitions than others (Collins), the latter of which are famously demonstrated by found-object art and Duchamp's *Fountain.*

Many large art objects, such as films, require production teams to realize, and this results in intermediate art. If we only follow the basic linguistic pattern exhibited in 'a painter makes paintings' and 'a sculptor makes sculptures', then we are left to presume that the film director's art object is incorporeal or performance-based: the film director makes 'directions'. This is strictly true, and we can assemble video recordings, testimony, and other data concerning these 'directions', and treat 'directions' as an art object upon which we can conduct research.

Continuing in this vein, musical 'compositions' are much like 'directions'. Together we might call both of them 'direct art objects' (Strayer), which is to say that they are meaningful and expressive work produced *directly* by the labor of their artist. Of course these art objects are also never

intentionally stand-alone; they are instructions or blueprints for indirect artworks, works like 'music' and 'film', (Strayer), which require performers or teams to manifest them (Feinberg).

Unlike directions, compositions have a physical form, a music score, a *document.* Artifacts like written compositions do not allow one to immediately experience music in its 'native' medium, but they are often the purest available link to the composer's intent because of their direct and unadulterated line of authorship. In this sense, although it is both a vehicle and capable of being rendered in multiplicity, the composition *is* the artwork—or at least *one* of the most direct artworks—that arises out of the act of musical composition (Livingston).

4.2. Studying Indirect Art Objects

All this said, a director's work is typically perceived to be the studio's finalized film, and not merely the directions she contributed to the film (Tregde). Auteur theory addresses this by suggesting a director's overarching artistic vision can often be felt at the end of even a lengthy production process (Ryan; Encyclopaedia Britannica, Inc.).

The famous Soviet pianist Fienberg tackles the inverse problem of attempting to define the artist for the art object we call 'music' in his article *The Composer and the Performer.* Fienberg explains music as a synthesis in which the performer interprets and attempts to faithfully convey or explore the composer's intent, such that the two—the composer and the performer, together—become the collaborative artists for a final work of 'music' (Feinberg).

4.3. Studying Game Design Art Objects

What I strive for us to make the person playing the game the director.

- Shigeru Miyamoto

Ultimately, the purpose of these conversations on 'art objects' is to draw attention to what exactly we should consider to be a game designer's 'work': her designs, the finished games which she has contributed to, or the play-throughs of those finished games as they are conducted by the players? By distinguishing between direct and indirect works and accepting the value of intermediary objects, we can see that *all three* are valuable art objects, and that documentations, productions, and performances are all valuable *artifacts* for game-design research (Livingston).

Merriam-Webster defines an 'artwork' lazily as 'an artistic work', which initially seems incredibly terrible for a dictionary to do until one considers all the controversy involved in defining 'art.' Livingston tackles this problem along with the problem of vehicles and multiple works in *History of the Ontology of Art,* in which he too briefly notes the eerie similarities between game designs and music compositions.[23]

A related word to 'artwork' which bloomed in the same time period, 'artifact', draws fewer opinions as to its use; artifacts are defined as practical or rational, often aesthetically or spiritually noteworthy, and are brought into being by human action and human culture (Merriam-Webster). If we switch gears briefly and say a composer's envisioned music is to be considered her art, then the music score itself is a direct, singularly produced, physical artifact, and a rendition of her art by a performer would be an indirect, collaboratively produced, and significantly less physical artifact. By this analogy, a game-design document is a direct physical artifact, a game is a collaboration with a

[23] I honestly only noticed this after the fact, but then naturally I felt smug.

studio to produce an indirect but 'physical' artifact, and the event of a player 'performing' the game is an indirect, collaborative, 'event' artifact.

Distinguishing the indirect and direct art objects—the work we feel comfortable calling 'artifacts' from the work we feel comfortable calling 'artworks'—helps to set the stage for critiquing many different facets of an artist's labor.

Similarly, designs and even prototypes can also be studied as 'unfinished', in a similar fashion to da Vinci's powerful but eternally incomplete *Adoration of the Magi.* In either sense, whether we treat them as 'pure visions' or as 'unfinished manifestations', game designs are valuable artifacts for research.

4.4. Studying Component Art Objects

Presuming from the previous discussions that we intend to employ research methods to study game designs and to create a methodology for designing games, it is worth taking a moment to assess what actually goes into the creation of a game design. According to Schell, game design requires skills ranging from storyboarding and computer programming to anthropology and woodworking (Schell).

What is certainly true is that all game designers must communicate, that a significant chunk of this communication is done through a mixture of technical and creative writing, and that verbal communications are typically supplemented by technical or visual components (Urustar S.r.l.). The chief art object created by the game designer is the game design document, or GDD, but this artifact stands side by side with Game Bibles, prototypes, game concept documents, business pitches, 'wikis' and other art objects.

Depending on the needs of the project and the communicative preferences of the designer, game design documentation itself may contain a tremendous gamut of component artifacts, from algorithms to use-case scenarios, to character concepts, to script-writing or story-boarding, to plans for prototyping mechanics. Some of these artifacts obviously qualify as fine artworks in their own independent mediums.

Yet in order to create a sane methodology justified through the principles of holistic coherentism, *all* of these components must be subject to the same rational mind and creative problem-solving skills. Each artifact—be it a storyboard or a game mechanic—is created by the same game designer using various methods from the same methodology, and so each artifact is to be considered part of the designer's 'work'.

In this manner, the 'art' of thinking about game mechanics, player experience, or price points should be treated no differently from the art of thinking about the game's aesthetic properties. Methods that address these issues may not operate in separate spaces, but must consider one another, synergize with one another, and provide a path to resolution when they come into conflict.

The designer may perform *better* along one avenue of design than another owed to her individual skillset, and may need to collaborate with other designers or with team members from other disciplines to fill in the 'holes' of her design, but none of her 'component art objects' is by nature *inferior* to the next when it comes to their potential for value.

III. Contextual Review

Relationships are all there is. Everything in the universe only exists because it is in relationship to everything else. Nothing exists in isolation.

- Margaret J. Wheatley[24]

Pages are useful. They—and the 'location' indicator on the Kindle—serve as valuable tools for guiding fellow researchers to key ideas in text. Without them, we would doom our posterity to devote hours sifting through haystacks for needles.[25]

Games don't have pages. And unlike films, which we can occasionally wrestle into a 'pagination' by enumerating scenes, they are not necessarily linear. To point a researcher to a specific game experience, one might have to lay out a series of *instructions,* or else cite a video-recorded performance of the piece.

The term 'contextual review' here replaces 'literature review' at the suggestion of Gray and Malins (Visualizing Research 14), as this term acknowledges that information exists in a wide range of objects, events, and attributes within a piece's context. What follows is an investigation of

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[24] I was tracking down the origins of an idiom, 'no work is done in a vacuum', and have come to suspect it developed via circuitous route from a quote by Gautama Buddha. He was speaking about how everything in the universe is interwoven like the mesh of a net.

[25] Well, unless you managed to download a PDF of it. Then you might have access to a 'search' feature.

dictionaries, methodologies, and idols, a review in which even 'the self' is context for the creation of a personal game design methodology. Its appearance *after* the ***Research Plan*** highlights the intimate relationship between a work and its context, rather than presuming the latter is a cold and distant framework.

1. Working with Vocabulary

1.1. Overview

1.1.1. The Significance of Definitions

People say jargon is a bad thing, but it's really a shorthand vocabulary professionals use to understand one another.

- Erin McKean

Whatever one's field, establishing good definitions is key to ensuring research findings can be interpreted meaningfully (Phoebus).

Consider, for example, the many definitions of 'design'. Ought a reader first think of visual arts (Gray and Malins, Research Procedures / Methodology for Artists & Designers) or of technology (Prance)?[26] Every word in the phrase, 'personal design methodology' is open to interpretation. If unaddressed, this leaves the mind preoccupied with that which is mistakenly *expected,* but which was not intended as the primary topic of conversation.

In some disciplines, defining one's terms is so unexceptional as to be mandatory (Phoebus), and while arts papers may introduce such formalities with an almost bashful-sounding hesitance, they also begin to demonstrate beautifully how much confusion and difficulty can be avoided through the clarification of vague or overlapping terminology (Niedderer and Roworth-Stokes).

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[26] Again, this is an MFA thesis. Whose side do you think we're on, hmm?

1.1.2. No Essay Is an Island[27]

In its forward by Frank Lantz, *Rules of Play* is described as an urgent manifesto seeking to address game design's underdeveloped level of discourse. The work became a foundational text for games professionals (Järvinen). This paper will follow from Salen and Zimmerman's example and the manner in which *Rules of Play* dedicates itself to the definitions of its vital terms. This has already manifested in the ***Research Plan's*** discussion of ontology, epistemology, and paradigms, and it will continue onward into the design methodology as is necessary.

1.2. What is 'Personal'?28

1.2.1. What is the Value of 'Personal'?

Art is a personal act of courage, something one human does that creates change in another.

- Seth Godin

In discussing design and art, Gray and Malins refer to a 'personal' component of the 'general' works-creation process, one "intimately linked with the artist's particular intentions, and reflecting the idiosyncrasies of the individual's working process" (Research Procedures / Methodology for Artists & Designers 7).

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[27] Actually this is an Eric Zimmerman quote. *Clearly*, he is also copying Buddha. It's fashionable these days, you know.

[28] Political! Yay, what did I win!?

A 'personal' methodology meets the following criteria: it belongs to, relates to, is made by, and is designed to be used by *one person* (Merriam-Webster). That is not to say that designers cannot compare notes, make suggestions, or borrow from one another, and a great deal of art arises from the belief that the personal and the intuitive relate harmoniously to the universal (Taylor). By stating that design methodologies are 'personal', we specify that they are in some manner unique and that they emerge from, or in response to, the self.

1.2.2. What Is 'Personalized' and How Is It Different?

Merriam-Webster has a simple definition of 'personalize' that reads: "To mark something in a way that shows it belongs to a particular person" (Merriam-Webster). Alternatively, it was *changed* to suit that person. For the purposes of this paper, 'personalize' means to make a small addition to a pool of pre-canned ideas before accepting them as one's own, or selecting ideas from a pool of available ones to create a suite. While useful and certainly employable amidst creating design methodologies, 'personalized' is not sufficiently 'personal.'

1.2.3. The 'Personal' Must Be Tempered

In design circles, a rejection of the 'ego'—in the sense of 'egotistical', not in the usage of Freud—is more pronounced than in art circles, to the point that many designers reject design as art entirely owed to 'the ego' (Knight; Peuc).

Personal design methodologies, by virtue of being personal, certainly have the potential for exhibiting personal bias (Gray and Malins, Visualizing Research 38-40). To counteract this bias, the personal design methodology should be subject to critical reasoning. This does not imply that

personal reasoning is faulty reasoning, but rather that its origins must be understood so as to comprehend every impetus' advantages and to realize its limitations.[29]

1.2.4. 'Personality' Has a Bearing on 'Personal'

A full discussion of the relationship between 'personal' and 'personality' is presented later, under ***Discussing 'Personal'.*** This thesis dabbles with the notion that there may be discernable themes and variations which are common among subsets of designers classified by *personality,* and that it is possible to derive methods and methodological reasoning from those themes and associate ideas with personality classifications.

1.3. Defining 'Methodology' by Extended Process of Elimination

1.3.1. What Is *Not* a 'Methodology'?[30]

a. A 'Process', 'Method', 'Technique', or 'Pattern'

In writing an installment of his *On Good Behavior: The Essentials of Interaction Design* on *UX Matters,* Pabini Gabriel-Petit ends up on an elaborate tangent on how so many of his fellow designers use the word 'methodology' where he insists they ought to be using 'processes' or 'methods' to describe specific techniques for resolving user experience problems. He suggests that the mix-up may

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[29] Violent, personal hatred for clashing colors is a fine reason never to place teal next to orange! Until you're designing for the Miami Dolphins. Then you just need to get over yourself for a bit.

[30] You cannot think to not overcome the limitations of language in art by writing a paper that doesn't make confusing use of negations. It wouldn't not be *bad form,* now would it?

have occurred due to user experience design's close association with user research and software engineering (Gabriel-Petit).

A 'method', Merriam-Webster is happy to inform us, is in fact synonymous with a process, a plan, or a technique, and is defined as a "procedure […] for attaining an object." A method may be systematic, and an individual method or set of methods may be "proper to a particular discipline or art" (Merriam-Webster). For the purposes of this paper, the terms 'method', and 'process' may be thought of as a prepackaged set of prescribed questions and actions for generating a solution to a problem.

These methods are the *how*-level 'tools' described in the ***Background Narrative,*** and so while Gabriel-Petit and his exploration of design methods is on target for his scope, it cannot directly assist us in the pursuit of this paper's research objective, which seeks enlightenment on the *why*-level. In our case, we truly are looking for a 'methodology'.

b. A 'Paradigm'

Merriam-Webster explains that a paradigm is either "a philosophical and theoretical framework of a scientific school," or "an outstandingly clear or typical example or archetype (Merriam-Webster)." With regards to paradigms of interest to this paper, these two definitions can loosely and respectively be divided into '*research* paradigms' and '*design* paradigms'.

i. A 'Research Paradigm'

An excellent article titled "Research Dilemmas: Paradigms, Methods, and Methodology" sums together an illustration of how its titular terms have become unpleasantly entangled, leading the authors to re-smelt and clarify useful definitions for each (Mackenzie and Knipe).

The authors define a paradigm as an actionable philosophy, but as a philosophy towards *research,* not with regards to *creativity.* Research paradigms are made up of methods, a scope of validity, and a fundamental belief concerning the nature of knowledge (Robin Woods Johnson Foundation).

Despite what the word 'belief' might otherwise suggest, paradigms fall into a rough categorization scheme and may be largely standardized across a discipline (Mackenzie and Knipe). A researcher will typically align with one established paradigm or another.[31] We can definitively conclude that 'paradigm' is not an acceptable synonym for the both personalized and *personal* construct we are attempting to create.

ii. A 'Design Paradigm'

It seems less common to see the term 'design paradigm' than 'research paradigm'. Despite its name, it is not inherently more applicable to our questions regarding game design. A design paradigm has one of two definitions: it may be an example or archetypal solution to a problem that can be taken as standard, or it may be the set of underlying beliefs that specifies a range of solutions as normal (Braha and Maimon). If the word 'normal' should seem subjective, it is important to note that this term is being used in the sense of prescribing solutions to problems, and that the word 'design' is being used more synonymously here with 'blueprint' than with 'art'.

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[31] Remember how much work we had to do defining epistemologies and ontologies only to eventually get rescued by Henk Borgdorff and his amazingly concise writing?

When one looks more closely at these definitions, and considers 'research paradigms' and 'software development paradigms', it becomes clearer that 'design paradigm' is intended to describe a new model or lens for looking at large-scale design issues. A new paradigm encourages the creation of methodologies or simply methods for solving design issues according to that model. In this sense, our three-tiered model of design that divides design into *why, how, and what* can correctly be considered a design paradigm,[32] for which we intend to produce a methodology.

c. A 'Philosophy'

There are a few definitions of philosophy to examine at this juncture.

One is the ontology or epistemology of a research paradigm, as was discussed under the ***Research Plan,*** which is a philosophy about knowledge or validity; one example of such a philosophy might be *critical realism,* the belief that there exist objective truths in the world but that human bias influences how researchers draw measurements of those truths (University of Southampton). This is an interesting line of inquiry, but clearly not the sort of philosophy mandated by our research question.

An 'artist's philosophy', on the other hand, is within the higher space of *why* because it embodies a belief system, such as architect Frank Lloyd Wright's "Form and function are one" (Siegel). Yet Simon Sinek, who originally informed our search for *why,* is quick to point out that a

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[32] The ontology is halfway between critical-realist and relativist with a dollop of 'healthy skepticism bequeathed by the invisible pink unicorn and flying spaghetti monster pantheon.' See, this is why mastering a reasoning system is important.

noun-driven or descriptive belief is not actionable. Until it is phrased as a set of verbs, verbs which explain what the belief requires the believer to actually *do,* the successful manifestation of the belief cannot be measured, evaluated or encouraged. In essence, words are just words until they inform action.

A philosophy alone is insufficient to serve as a synonym for our personal design methodology, though perhaps only because it lacks an obligation to be actionable.[33]

1.3.2. What Is Not *Our* 'Methodology'?

a. Discarding Some Definitions in Research

i. 'Methodology' in the Singular

The '–logy' suffix at the end of 'methodology' immediately suggests the word may be defined as a study of its prefix (Merriam-Webster). 'Methodology', by this definition, is then the study of methods, patterns, and procedures, just as psychology is a study of the psyche.[34]

One might in this sense use methodology to argue the age-old rift between quantitative and qualitative research methods, and say, "In my study of methodology, I have found qualitative research to yield unexpectedly useful results." This usage of methodology is common in *Visualizing Research,* which heads a discussion of practice-read research in the arts (Gray and Malins).

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[33] I'll level with you on this one: I got really mad at English for not having a word for something *between* a 'philosophy' and a 'methodology.'

[34] Slip 'personal' and 'one's own' into this definition and you can skip the next handful of pages!

This definition, however, is not personal, and is relevant more to academia than to the production of works.

ii. 'Methodology' as a Choice

One step removed from this etymologically derived definition of methodology, and we have a usage which exists as one of a collection of possible options, some of which may yet to be discovered. These options may be standard to a discipline, or they may be left to personal taste. According to Merriam-Webster (emphasis added), this definition of methodology goes like so: "The analysis of the principles or procedures of inquiry *in a particular field*."[35]

By this definition, we might say, "She took issue with the study's methodology,"[36] or that "He practiced an unusual but highly effective methodology." The division between 'method' and 'methodology' is slightly blurred, but stands akin to the definition between 'recipe' and 'cook book'. A good methodology for one's research is then like a contextually appropriate cookbook.

iii. 'Methodology' as a Component of a Paradigm (A Research Methodology)

We may recall that there are three components to a research paradigm: the ontology, epistemology, and methodology. In this sense, the methodology is a choice as a function of the discipline's or researcher's beliefs concerning the nature and validity of knowledge. Based on what is

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[35] This addendum on the end of the definition was eventually cured by remedial application of the word 'personal.'

[36] Actually, I predominantly see this usage of 'methodology' in complaining about other people's scientific papers. We can rename it 'methodology as a fancy word for grouping together everything you did wrong.'

believed to be 'knowable facts', the researcher may, for example, employ the scientific method to carry out her research, and surround her results with a quantitative method of analysis.

This definition merited further discussion under the ***Research Plan.***

b. Discarding Some Definitions in Design, Engineering, Science, Art, and Production

i. 'Methodology' as a Synonym for a Method

Under our exploration of the definition of 'method' and 'pattern', we have already run into an article by Gabriel-Petit titled "Design is a Process, not a Methodology," which helps to clarify the means by which 'methodology' conflated with the usage of the word 'method'. Here, 'methodology' may be incorrectly used to refer to a single design pattern, or to a broader method with a larger toolbox, such as the scientific method.[38]

This definition is irrelevant to our research question, but is one of the most likely definitions to be confused with our topic by persons of design professions, as it is the place they are most likely to have heard the word 'methodology'.

ii. 'Methodology' as a Synonym for a Production Process

The article "Design Methodologies – Instructional, Thinking, Agile, System, or X Problem?" serves to compare and contrast a number of production and development processes relevant to software engineering, and therefore also systems engineering and systems design (Clark). While these

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[38] To be fair, this is probably because the scientific method implies quantitative research, and the argument between qualitative and quantitative research is the only reason any of know the word 'methodology' in the first place.

patterns and processes are often useful to game designers because they help manage development hurdles and allow design and production to occur almost simultaneously, the term 'design methodology' is a misnomer for them.

'Agile', for instance, refers to principles laid out in the *Manifesto for Agile Software Development.*[39] Agile development is more properly considered a paradigm because it describes a set of principles and philosophies for software development. If we treat the Agile paradigm and all Agile methods as a methodology, Agile would still then be considered a '*software development* methodology' or '*project management* methodology' as opposed to a *design* methodology.

Game software development methodologies exist largely within the space of *how,* and do not satisfy the *why*-level criteria mandated by the paper's research question. They may answer questions about the nature of development in the same fashion as paradigm methodologies answer questions about the nature of knowledge, but they do not serve as personal instruments or bastions of intuition.

This definition is discarded as insufficiently relative to our research question, but one of the most likely definitions to be confused with our topic by persons of design professions.

iii. 'Methodology' as a Synonym for Art-Making Processes

The term 'methodology' may be used to describe the physical manner in which one produces art to achieve a certain result. This definition bears a strong resemblance to design methods and

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[39] Agile is not a design methodology. Agile is not a design methodology. Agile is not a design methodology.

production processes in how it focuses on describing the mechanical *how* by which the art is to be made or interpreted. This usage of the term crops up in art education, as a student engages in learning best-practices and reflection.[40]

iv. Getting Closer: The 'Methodologies' in Art Practice and Art Research

An artist may also make art so as to explore a deep or complex research question (Gray and Malins, Visualizing Research).

Unlike previous definitions of methodology, an 'art methodology' is not uniformly shared across a discipline; it is more amorphous and includes philosophies, rules of thumb, and personal preferences that segue from idea into action: methods that developed in tandem with the artist herself (Garrett-Petts and Nash).[41] For an established artist, a new art method is less of a scientifically-verified template than an experience-tested *tip* shared between friends.[42] 'Art methodology' therefore coaxes our attention away from definitions arising in the research, engineering, and even design disciplines, and into the realm of the artistic.

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[40] I think we're back in 'everything you did that was wrong' territory, only now it's based on someone's opinion instead of on an objective critique of empirical data.

[41] Sometimes to the point of complete obfuscation, which is where game designers usually have an edge lent by their familiarity with written mediums.

[42] This is basically what happens when we leave 'everything you did that was wrong' territory and become Pablo Picasso.

1.3.3. An '*Artist's* Methodology'

In retrospect, it seems obvious that we would arrive hereabouts for our definition of 'methodology' in a 'personal design methodology' written for a masters of fine art.

The word 'methodology' is a low-frequency English word, and yet it occurs so many times in the space surrounding research, design, art, and engineering—in so many strictly pedantic or else liberally colloquial usages—that it became important to conduct an elaborate breakdown of precisely what we wanted to talk about in this paper and, more importantly, to delineate what was out of scope or off-topic.

The selection of the word 'methodology' was not arbitrary, despite these hardships. For example, consider an alternative term, an 'artist's statement':

An artist's statement serves as a brief, after-the-fact invitation to view an artist's work, hopefully providing insight and context about the work, and at times becoming one with the installation (Tyrrell). It is didactic—intended to inform and persuade—and reflective. It is not a tool to be used by the artist, whether philosophically, emotionally, or mechanically; at the best, it is a tool for marketing, or for interpretation by the audience.[43] Even an 'artist's' philosophy is *expository* when held up against the word 'methodology'. What this thesis demanded was a meta-level *tool* for selecting lower-level tools.

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[43] And while I'm taking potshots from the peanut gallery, please stop using hyphens, and stay away from words like 'effervescent,' 'texts,' 'spaces,' and 'continuum' unless you intend on writing a glossary. You need to talk like a wine-taster, not like you threw an art history professor into a word-salad tosser.

By moving halfway between the realm of an 'artist's philosophy' and the overall world of 'art methods', we arrive at the idea of an 'artist's methodology' or a 'personal art methodology'. These terms turn up less in the literature than we would like, a state of affairs illuminated by Gray and Malins' observations on the quality and quantity of writing in the arts.

Therefore we must look to comparatively new writings for enlightenment, documents such as the excellent and colorful "SketchBook Sunday" articles (Takahashi), the beautiful personal struggles and artistic explorations laid out by typographers in their very own fonts (Nathanson; Peng), decisive summaries, slide shows, and maps repeatedly iterating and refining lessons learned (Spector), or even a comparatively blunt and mechanical breakdown of mental tasks that help one drill to the heart of an unwieldy design problem (Antlerz).[44] These documents are often fresh off the graduate-school work-bench, and hail from art universities like Pratt and SCAD, sharing little outside of their struggle to understand the creative self in an articulable and structured fashion.

1.3.4. A 'Personal Design Methodology'

By combining our previous definitional labor with examples in art and design, we can establish that a 'personal art methodology' describes a subjectively constructed and honed (whether by accident or design), actionable view of the creative process as held by a single artist (Cotterill).

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[44] But who remembers they are artists just in time to advise you to eat something and then tell you to Free Your Mind.

Templates may be shared, but they become personalized. The chief differences between this and other disciplines' methodologies are largely in its morphable and instanced properties.[45]

A 'personal art methodology' couples the will to express (the artist's philosophy) with critical reasoning, tactics, and skill (the ability to act), all in an effort to perform an expression of mood or meaning. The methods chosen by these methodologies, at both meta and lower levels, may be self-made or repurposed: they may link back to a shared commons pervading the discipline, or reference nothing but the artist's own personal history; they are multitudinous.

This type of methodology is synonymous with our intended 'personal design methodology'. Of course, we expect a *design* methodology to feature different methods and at times more uniformity or pragmatism regarding matters of efficiency, owed to constraints such as target audience, budget, production time, usability, function, and client. However, the personal design methodology still shares the personal art methodology's morphable and instanced properties, as well as its synthesis of artistic intuition, reflection, skill, and critical reasoning.

1.4. A Note on 'Reflection-in-Action'

This paper's separation of research methodology and design methodology is complicated by the role of generalized research *in* design, which is to say that designers often conduct many types of project-driven research *while designing.* When this research is conducted on exterior material, it is

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[45] I think I walked a tightrope on vocabulary there. But just think of it: 'art methodologies' as polymorphic inheritors of an abstract 'methodology' class from which we are instantiating objects called 'personal art methodologies.' A perfect computer science metaphor for describing an art thing! Beautiful!

simply called *research*. But when the designer's research leads to her actively 'upgrading' her design strategies, we can refer to this research as 'reflection-in-action' or as a sign of a 'reflective practitioner' or 'practitioner-researcher', all of which lie within the realm of practice-led research (Gray and Malins, Visualizing Research 22-23).

To facilitate understanding, this paper will endeavor to minimize unwarranted, overlapping terminology between 'research methodology' and 'design methodology',[46] although some complexity is to be expected.

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[46] This should hopefully help prevent an unlimited telescoping of Russian stacking dolls: I'm researching how to design how to research how to design how to design research design for researching design…

2. Scaffolding and Skeletons

2.1. Overview

2.1.1. The Research Question Asked for Scaffolding and Skeletons

Scaffolding is a temporary structure built to assist construction teams—a supportive outer shell. Skeletons are the frames which hold structures and vertebrates together, and from which one can deduce an overall shape and function.

These are useful metaphors because this research paper perceives no authoritative example for what game design methodologies ought to look like (Bura; Press), much less personal methodologies which fit a specific, three-tiered paradigm set forth by a single author faced with a specific set of challenges who chose 'three' because of an inspiration by Simon Sinek. This paper will therefore leverage examples available in the arts and humanities to infer and flesh out one valid form of game design methodology, without necessarily suggesting anything about its optimization (Herold), so as to start *somewhere* and return with new example blueprints, new mortar for discussion, and at least one tin shanty of new knowledge.[47]

2.1.2. Some Allies and Some Rough Expectations

Having established the existence of our community, we can rough out a list of potential allies in our quest to research game design, and jot down any expectations towards them—naïve or

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[47] I specifically avoided using 'a brick' here as my metaphor. A 'lean-to,' 'temporary shelter,' or 'hut' is a more appropriate analogy.

otherwise—so as not to lose track of what hurdles and biases we might encounter whilst swimming through massive Venn diagrams[48] of multidisciplinary information. A partial list could be as follows:

- **Artists, writers, and performers discussing creative philosophy and personal methodology.** Expected weaknesses: May not be working for a client, have design constraints, or have a target audience.
- **Architects, directors, designers, and commercial artists who understand design constraints.** Expected weaknesses: May not address the interactive element.
- **Interaction or experiential designers.** Expected weaknesses: May address their work as engineers more than as artists. May also use different terminology and tone from artists.
- **Game-design bloggers and writers.** Expected weaknesses: May lack peer review and therefore may not conform to any standard.
- **Game-design researchers and academics, often all with experience from the industry.** Expected weaknesses: In short supply, and often are not writing specifically about methodology.
- **Visitors to game design from the arts or humanities, who wish to use games as the medium for serious purposes and are therefore quite concerned with methodology.** Expected weaknesses: May under-value the medium and over-value the content.

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[48] Though, come to think of it, I think Venn diagrams are strictly two-dimensional. What is an n-dimensional diagram called?

One can discover a growing collection of books on game design in many a local library, from authors such as Chris Crawford to Richard Rouse III, who each focus on their individual specialties, personal experience, and views of the industry. This suggests a sharing of many different design approaches. Still, game design literature often takes the approach of describing game design 'methodology-in-the-singular', as opposed to 'methodology-as-personal', a difference which will be sorted out at length in the ***Contextual Review.***

To narrow down its search space, this paper will sieve out game-design authors who have trail-blazed a similar path to its own by writing out their methodologies, establishing a belief, and acknowledging their work as personal instead of framing it solely as best-practices.[49]

2.2. Looking for a Good Look[50]

2.2.1. Loose Collection of Talks and Essays

The thing always happens that you really believe in; and that belief in the thing makes it happen.

- Frank Lloyd Wright

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[49] This, ironically, was facilitated not by the arrogance and posturing we found significant in previous allies, but in the humility of shy game-design bloggers who at times blatantly employ conflict-avoidance strategies (Stout).

[50] Silly repetition of simple vocabulary makes me sound cuter and less aggressive, which is useful in the early stages of building interpersonal relationships.

"Form and function should be one, joined in a spiritual union," coined Frank Lloyd Wright, who was recognized in 1991 by the American Institute of Architects as "the greatest American architect of all time" (Falling Water - Western Pennsylvania Conservancy). There seems little shame in giving such a spectacular designer the benefit of the doubt, so we should most likely take a look at what *shape* design methodologies are often written into, so as to ensure ours can adequately perform its function.

First, we can look a little closer at Wright himself, who was the founding father of *Organic Architecture,* a design methodology which can be distilled into three basic tenets (Taliesin Preservation, Inc.):

- **Nature of the Site:** To respect and respond to the landscape.
- **Nature of the Client:** To respect their needs.
- **Nature of the Materials:** To respect the tools which one has available, and their capabilities.

And perhaps that summary alone would give us a template for how to communicate a design methodology if not for the fact that Wright himself was a verbose and prolific writer:

> *"Site, structure, furnishing—decoration too, planting as well—all these become as one in organic architecture. What was once called 'decorating'—landscaping, lighting, etc.—and modern gadgetry (mechanical fixtures like air conditioning) all are within the building structure as features of the building itself. Therefore, all are elements of this synthesis of features of habitation and harmonious with environment. This is what posterity will call 'modern architecture'" (The New Architecture: Principles).*

He spoke as an artist, and is almost as infamous for his abuse of the engineering and material arts as he is famous for his creative application of them (Guggenheim). He was part architect, engineer, surveyor, artist, writer, and interior designer, with a holistic and peculiar sense for natural space (Taliesin Preservation, Inc.), and a drive to use nature to impact how people lived (F. L. Wright, In the Cause of Architecture).[51]

From his example, we can see how one can frame a suite of ideas with narrative: Wright's methodology was driven by passion, summarized in a hierarchy of numbered certainties, flanked by detailed suggestions and philosophies, and filled with a thick meat of discussion over numerous articles. He wrote verbosely, and on a great deal of once-unrelated topics, but with a sharp course and an admirable sureness.

2.2.2. Tightly Structured Posture

The medium is the message.

- Marshall McLuhan[52]

In contrast to Wright, Mary Flanagan, the founder of *Tiltfactor* and author of *Critical Play,* goes for formal structure in her "A Game Design Methodology to Incorporate Social Activist Themes" with Helen Nissenbaum. The paper's authors fit into our ally list as visitors from another

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[51] To be honest, he just had a phenomenal grasp of his own methodology and philosophy in general. I don't even have to glue pieces together here or make conjectures.

[52] I am absolutely being tongue-in-cheek. Read on!

discipline—Media Studies and Culture & Communication, respectively—and they are writing in the vein of game design (Flanagan and Nissenbaum).

Immediately we can see how the game design methodology they proposed has a strong format. The IEEE style is immediately familiar to technologists (IEEE), carries an aura of computational veracity about it, and reads as something of a mission debriefing; it looks very different from the MLA, Harvard, Chicago, and APA styles which are common in the arts and humanities and which easily facilitate the essay form.

This style, while stately with its double columns and clear sectioning, reflects the wrong posture for our personal design methodology, as our time spent in defining 'Methodology' revealed that we are more interested in producing a narrative-driven case study to encourage multitudes of constructivist interpretations of design, and not on establishing a singular scientific truth or straightforward procedure. Therefore, we will not be writing our methodology to resemble an IEEE-styled document.

As we begin with an analysis of the authors' introduction, we quickly run into their feelings about negative social implications in modern games, including examples such as *The Sims* and *Grand Theft Auto* (Flanagan and Nissenbaum 182). Respectfully, we defer to a study conducted by Dr. Cheryl K. Olson and funded by the Office of Juvenile Justice and Delinquency Prevention, US. Department of Justice (Olson),[53] which we believe adequately rebuts these claims, and establish that

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[53] Make a note: I refuse any feminist discourse that is so pessimistic as to somehow find something wrong with *The Sims.* Honestly, Mary, sheesh. You can't just run about finding evil in *everything.*

we believe there is more art to a game than its subtext (Ochalla). However, we will leave further commentary on the matter to another paper.

Flanagan and Nissenbaum write their methodology to 'embed human values into video games' (Flanagan and Nissenbaum). This is not strictly personal, but it does follow a pattern of abstracting *what* into *how* and *why.* They name their methodology 'Values at Play', and fill its toolbox with ingredients such as 'creative expression', 'privacy', gender equity', and 'cooperation'. Most importantly they do not simply dictate *how* games should be designed, but also list three nouns-which-cold-be-verbs, which they call 'activities', to help designers carry out and maintain this philosophy.

These nouns are:

- **Discovery:** Identify values relevant to project.
- **Translation:** Find out how those values can fit into the game medium.
- **Verification:** Determine the desire outcomes have been met.

While very different in lens, facing, and scope from Frank Lloyd *Wright's Organic Architecture,* we can see that the authors are again dividing their methodology into tenets, which are then each fleshed out by explanation, discussion, terminology, example, and auxiliary information (Flanagan and Nissenbaum 183 - 187).

The authors shy neither from a discussion of their belief system nor the context of the project which brought them to this methodology (Flanagan and Nissenbaum 187- 188). They are also keen to examine the constraints and trade-offs of the design labor, and they give treatment to intuitive

leaps of faith and, subsequently, reflection. They identify key hardships of the design process relative to their methodology, and define values and strategies for moving forward or reiterating design work.

2.2.3. Starting with a Metaphor

Veteran game designer Mike Stout calls his game design methodology '*Trinity*'. He begins a series of articles by telling us he is documenting the manner in which he designs games, and then uses single-sentence metaphor to anchor together his complex belief system: "A game is fundamentally a conversation between designers and players" (Stout). The reason he calls the design methodology *'Trinity'* is because he divides all aspects of game design into three categories: [54]

- **Questions:** Design work that governs interactivity.
- **Context:** Design work that governs the game world and its limitations.
- **Theatrics:** Design work that governs communication.

In his opening paragraphs, Stout fulfills many of the demands we've made on personal design methodologies thus far. Surprisingly, he does not focus on subtext like Flanagan and Nissenbaum, or on aesthetic or narrative matters as we might have expected; Mike Stout discusses instead his personalized approach for designing game mechanics—which initially seem the *most* likely attributes to be mustered in an argument for how game design is *not* art but rather a matter of systems engineering.

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[54] By some mystical and unspoken agreement, it looks like a 'trinity' is the manner in which all design methodologies have ended up expressed. Alternatively, humans just generally like the number 'three.'

Yet, through mechanics, Stout addresses interactivity and immersion, inadvertently reminding us that games share attributes with rarer art mediums such as installation art and participatory art (Heinrich). Stout works with algorithms and affordances not only as a solver-of-problems but as a maker-of-meaning.

Stout is a 'reflective practitioner' (Gray and Malins, Visualizing Research 22-24), and though he never once calls himself an artist, the methods by which he has collected, synthesized, documented, and generated evidence to demonstrate the validity of his view on building games is a sign that informal design research has transpired (30). His example not only provides a template upon which to build our own personal design methodologies,[55] but also provides confidence in the validity of applying multiple different types of thinking to game design: art and engineering, the qualified and the quantified, all included.

When it comes to laying out the structure of his methodology, Stout leaves room for improvement. He either did not or *has yet to* complete the series, perhaps having bitten off more than he could chew. His parting 'Next Time' section suggests that the unfinished material would have left him describing only *one* of Trinity's three components in any detail: 'Questions'. His work on Trinity is currently broken up into nine lengthy blog posts, which have no clear organization schema.

Stout began the piece by saying that he would move from specifics to abstracts, and perhaps in that lies some clue that we might wish to work in the opposite direction.

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[55] And our research methodologies, for that matter.

2.2.4. Presented with a Topic of Enormous Breadth, Simply Commit to the Time Required to Document Everything in a Long and Detailed Manner, Guided by the Organizational Power of Strongly Plotted Narrative[56]

If you want to make an apple pie from scratch, you must first invent the universe.

- Carl Sagan

Jesse Schell's *The Art of Game Design: A Book of Lenses* surrounds all game-design problems with a holistic approach,[57] by which he asks as many questions coming from as many vantage points as he can name a lens for. This allows him to triangulate good answers to incredibly complicated design problems. It follows in the tradition of dividing mental labors in the fashion of Edward de Bono's *Six Thinking Hats,* but at a more targeted level.

Schell wrote this book to teach game design to students, and so he speaks from a position of authority on the matter, regardless of his cute and humble demeanor (Schell xxi - xxv). There are times when he strongly likens game design principles to a science (xxv - xxvii), but then he turns about and leaves us with a potent reminder that we all build our personal maps of the subject (xxviii – xxix), and that the passion and drive for making our own decisions must be built internally from a deep personal sense of purpose (459 - 461). He spends a tremendous amount of time emphasizing the personal power, understanding, and emotional state of the designer (1 – 7, 14-19), and his first

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[56] I cannot tell if I have violated or exemplified the principles of 'Show, Don't Tell.' One thing's for sure: It's going to make for one heck of an ugly entry on the Table of Contents.

[57] Make a note: Thesis paper appears fond of the word 'holistic,' in general.

true chapters on understanding games are a discussion of how games are not products but rather vehicles for an experience (8-38).

In circumspect, Schell appears to treat game design as a space between engineering's best practices and art's personal constructions of knowledge, which seems a pleasant enough neighborhood to lay out a foundation. Unlike Stout, Schell manages to finish his magnum opus, which in his acknowledgements he admits took over twice as long to write as he might have hoped.

He writes in a narrative manner, like a fond librarian telling a story, and organizes his discussions well, around sequential keywords italicized in chapter headers that progress the 'plot' of the narrative forward one concept at a time. Collected together, his chapter headers would read as a paragraph that summarized the book, and comprise an introduction, body, and conclusion. Structurally, his work may have benefited from having its thirty-three chapters divided into units according to his narrative's main 'story arcs' such as 'mechanics', 'story', 'aesthetics', 'technology', and/or 'context'.

Schell instructs us to practice our art to gain experience (xxx, 1 - 2), but does not offer suggestions on how we might know when that experience has been achieved, or when and how to begin trusting in it.[58] He foots a great deal of the grunt work required in laying out a large variety of *methods,* both psychological and pragmatic, which personal design methodologies can build from.

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[58] Except, perhaps, *always,* which is sweet of him to say up until we realize we do not have to wait passively by for intuition to get bludgeoned into shape. Then it's cruel.

Despite this, his book's strong, explanatory tone leaves the meat of it quite different from a discussion of personal artistic or design methodology.[59]

The Art of Game Design, like Salen and Zimmerman's *Rules of Play,* can then be seen as leaving a powerful impact crater, but one which exposes strong bedrock and creates plenty of room around itself for a plethora of other discussions to nest.[60]

2.3. Summary and Decisions Heading Forward

Learn from others who have walked the path before you, but be smart enough to know when to cut your own trail.

- Narciso Rodriguez

Leveraging lessons learned in the sample pool chosen above, we can piece together a template upon which to flesh out personal design methodologies. From this, we infer a personal design methodology should meet the following criteria:

- It is named.
- It is united by a statement or metaphor.
- It clearly establishes its terminology.
- It is assembled from the bottom-up through experience, but discussed from the bottom-down for clarity.
- It is divided into about three tenets.

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[59] As might be deduced from how all these citations are from his introduction and conclusion.

[60] Not to be confused with whatever wiped out the dinosaurs.

- Its first concern is with how to *think* as opposed to how to *apply.*

The tenets should meet the following criteria:

- They are further subdivided to better establish their meaning and domain of applicability.
- They are supported and elaborated on by narrative, discussion, beliefs, and logical arguments.
- They are to be equally substantial, like load-bearing pillars balancing the weight of the methodology.
- They are to tackle different domains of problems so that not one is extraneous, nor can any be combined with another without hamstringing the methodology's ability to perform its function.
- They exhibit interplay.

From our readings on Schell, we interpret the following concerning the design methodology:

- It references back to established ideas and methods, both in its own domain and in others, first as a set of training wheels and later as an infinite world of tools and inspirations.

From our readings into the work of Frank Lloyd Wright, we interpret the following criterion for a mature methodology that goes above and beyond other methodologies, which our methodology—in its youth—may not yet be capable of reaching:

- It is anchored by a firm, broad belief about life, nature, and art, such that it can be infinitely elaborated on, grown, and transformed as it eventually comes to touch and incorporate disciplines far outside its original origin space in a novel way.

3. The Self as a Context

3.1. Overview

3.1.1. Me. Alternatively, You.

I must now talk about *me.* Of course, I could just as easily have chosen to talk about *you,* with the lone caveat being that I may not know you, and in any case, I am likely unqualified to give lengthy exposition and analysis concerning the cogs and currents which give rise to creative life within the deepest trenches of your soul.[61] That said, you can and most probably should talk about yourself, and see how differently or similarly the conversation winds up.

Writing a 'personal design methodology' is by its very nature a matter of tales, and so I shall give mine its due narrative. This section will therefore temporarily dispense of the royal we, and I will leverage the literature available to *me* in order to contemplate, identify, and organize my manner of design. In this manner, I become the design's context. The information gathered or generated at this stage will then be used to search for designers who exhibit similar traits, and, eventually, to compose the sought-after personal design methodology.

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[61] I regret that my psychic powers are lackluster when compared with the rest of the women on my mother's side of the family. I haven't even seen a ghost since I was a toddler, and can be beaten soundly by just about anyone in cards.

3.2. Methods

3.2.1. A Problem of Induction

Mike Stout writes that his personal game design methodology, *Trinity,* is a manifestation of how he does things, and that while he is supplying documentation of it for our benefit, he is quite happy to admit that other successful designers might, can, and will design quite differently (Stout part 1).

What Stout doesn't say is where 'the way he designs games' was born. Presuming I want to create a 'way' to design games, just as he has, where should I—or anyone else—begin? Haphazardly? [63]

One possible answer to this very important question is: I have already begun (Schell 1-7). Rather than drifting off into the ether after complex quandaries, I can take Stout and Schell's lead and suppose I know *something,* whether good or ill, and use reflective-practice to identify that 'something' so it can be written down for analysis. I can then study what visualization methods and creative problem-solving strategies came naturally to me, and then engage with peers in the industry to further develop this information and deduce what new tactics might work best for me.

But the thesis itself is demanding, and begs me to question the behind-the-scenes mechanics governing how designers sift through, select, and develop their personal pools of methods—how

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[63] This line of questioning easily grows too philosophical for the scope of this paper: How should one solve problems? Where does creativity come from? What differentiates you from me? How do people *make choices?* Philosophically, I mean. Not when they are being *Predictably Irrational* (Ariely).

their very artistic intuition can be trained to their liking, and *why* they do things the way they do. The question of how one can break down a review of design methodology into a review of the self is not one the thesis will permit me to hand-wave.[64] This is to say that while reflective-practice is one tool for generating evidence and useful materials for self-research, it is not enough without some type of *theory* on which to ground it.

3.2.2. Modeling the Universe at an Atomic Level[65]

a. That Which Cannot Be Divided

When Leucippus and Democritus first theorized the world might be built of indivisible particles, 'atomos', it was over four centuries before the birth of Christ, and certainly no one could predict that we'd be eighteen-hundred years into Anno Domini[66] when John Dalton would finally manage to generate the necessary evidence for atomic theory. Afterwards, we all learned more about molecules, and that atoms were divisible and made of finer stuff, but 'atomos' still represented the smallest possible quantity of an *element.*

The word 'element' might conjure up any number of mental images: periodic tables, Chinese zodiacs, mind-numbing molar mass calculations at four in the morning before test day, Wiccan herbalism lore, etc.; but what these all share is the good sense to try to explain the universe by

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[64] These are not the ~~droids~~ questions you are looking for.

[65] Inspired by the wisdom of my standard-issue INTJ, who is certain the world will remain devoid of genuinely good games until this criterion is finally met.

[66] I have no idea why one capitalizes 'Anno Domini' instead of italicizing it like *in vivo* or *ad hominem*. It might be because 'Domini' is 'God,' which is a proper noun, and 'anno Domini' looked lopsided.

breaking complex systems down into fundamental ingredients based on some matter of sorting criteria.

b. Adding Self to Atomic Theory

Where are personal methodologies *born,* and from what elements? In what unique ways can one join those elements together to guess at new beneficial strategies for improvement? How can one infer the way their methodologies will be similar to or different from other personal methodologies, such as Stout's?

The answer to these questions should provide a second point of data in conjunction with any practice-led reflection, allowing for at least a linear projection of where any person's individual design methodology might best travel in the future. It should also—if the metaphor holds—assist designers in experimentation with new methods.

In order to work with finer personal particles than methods or historical precedent, I will need to turn to the realm of psychology.

3.2.3. Tapping Psychology

a. A Brief History of How Much This Topic Has Interested Us—Because It Really, *Really* Has[67]

To understand that humans are individually different from one another takes no more than a glance at our languages, at words for character attributes such as 'brave' and 'charismatic'. And

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[67] Any time one uses 'personality typing' in the near vicinity of science, one automatically becomes obligated to prove that one is not doing so frivolously.

history has no few examples of how badly we have wished for tools with which to discuss and make use of different personality types. This entire struggle is at least as old as the practice of formalized divination; the urge to bring structure to the universe, whether it be to predict rains or determine the compatibility of potential marriage candidates as per personality type, is manifested in ancient zodiacs and spirit animals, and remains compelling enough that horoscopes, star charts, and elemental almanacs remain popular to this day.

One of the oldest *biological* explanations for personality is owed to Greek physician Hippocrates' work in defining the four humors which, when out of balance on axes of hot/cold and dry/wet supposedly led to four temperaments: sanguine, choleric, melancholic, and phlegmatic. These are closer to a classification schema than to tools for divination, which makes them interesting. However, the relevancy of the humors, such as black and yellow bile, was disproven with the advent of modern medicine. In East Asian medicine, a similar and surviving classification scheme for bodily and personality conditions uses five elements, animal signs, and yin/yang.[68]

Closer to the present, the pseudo-science of phrenology was popular in the early nineteenth century, and suggested that a person's character could be assessed from the bumps and contours of the human scalp, which would divulge information about the brain's 'organs', each of which governed a trait such as acquisitiveness (greed), benevolence, secretiveness, tune, etc. (van Wyhe).

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[68] Both the Chinese zodiac and various tarot readings agree that I am classified according to the fiery party of earth (the earth snake in the zodiac, and the Knight of Disks in tarot). This is funny, because I am essentially a literal *polar opposite* of the descriptions associated the fiery part of earth. Good thing I didn't pick either system to base this thesis on, eh?

However, none of this was based on evidence, and the art was closer to tarot-reading than to a genuine science.

b. Getting Scientific

Sigmund Freud's ideas were instrumental in founding the discipline of psychology.[69] He argued the personality existed in the warzone between parts of the brain he named the id, the ego, and the superego (Boundless). However, as with many of his theories, these ideas were later criticized as mere speculations, ill-supported by evidence.

It is only when we get to Carl Jung, whose studies are usually better substantiated, better remembered, and certainly less psychosexual, that a classification schema for personalities tied neither to medical illness nor divination of the stars finally began to emerge: Jung proposed that people were divided based on how they *preferred* to use their mental capacities, and by whether they were energized from without or from within. These divisions were: Judging versus Perceiving, and Extraverted versus Introverted.

Isabel Myers and her mother Katharine Briggs had also been spending a great deal of time researching personality types, if more informally than Jung, and when introduced to Jung's work they became certain that he was onto something and that much human conflict was owed to misunderstandings between personality types (The Myers & Briggs Foundation).[70] Together, they

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[69] Of course we all only really remember him for his weird preoccupation with sex.

[70] Although, for some reason, Introverted Intuitives just use it as a way of explaining how Extraverted Sensors constitute everything wrong with their lives, and everyone seems unusually convinced they're a 'Thinker'.

refined their work in the fashion of Jung and, decades later, they penned the Myers-Briggs Type Indicator®, commonly abbreviated as MBTI®, which divides individuals into sixteen types based on four dominant metrics.

c. Picking Our 'Periodic Table of Elements'[71]

Whether or not Myers' and Briggs' classification of different personality types is *accurate* is hard to judge,[72] given the very nature of psychological frameworks and limitations of even modern neuroscience technologies in discussing complex human phenomena (Gonzalez and Berman). However, Myers-Briggs tests are highly popular, enjoys widespread use even after seventy years of development, and resonates with enough communities and on enough levels of society to suggest it suffices as valuable tool for self-identification and mutual understanding, just as its creators hoped (OPP, Ltd.).

The Myers-Briggs framework also has an important attribute which enhances its relevance towards personal design methodologies in particular: none of its axes are skewed to place 'good' traits on one side and 'bad' ones on the other, a problem which plagues other modern personality evaluation systems such as OCEAN, which divides conscientiousness from selfishness (SAPA Project). Myers and Briggs were more interested in identifying differences in thinking patterns—and

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[71] Earth, water, plutonium, aether, Milla Jovovich, wood, acid, surprise, iron III, and—oh no, wait, I don't think that's what I meant. The last one's an isotope, anyway.

[72] Perhaps we can try *perceiving* it instead.

hopefully, for this thesis, differences in creative approach—than in circumscribing character deficiencies or pointing out what is 'wrong' with someone (The Myers & Briggs Foundation).

Together, these various attributes led me to adopt Myers-Briggs instruments as important tools for analyzing *The Self as a Context,* giving me a system by which I can divvy up and discuss attributes of personality that I believe contribute to my creative process.

d. Selecting a Mode of Evaluation

Myers-Briggs personality types can be explained through one of two strategies. Both abbreviate their results with acronyms such as 'ENTP' or 'ISFJ', to refer to one of sixteen total personality types (The Myers & Briggs Foundation).

The first method of explaining the types is simplistic but has a more obvious link with the letter abbreviations. It identifies which of four dichotomous attributes best represent a person—Extraverted vs. Introverted, Judging vs. Perceiving, Thinking vs. Feeling, and Intuitive vs. Sensing—and resembles Jung's original concept of personality attributes (Humanmetrics, Inc.).

The second method digs deeper into Myers' and Briggs' work on preferences, functions, and interplay of functions, which together are called 'type dynamics' (The Myers & Briggs Foundation), and focuses on identifying which of four mental functions dominate a person's manner of thinking: Intuition, Sensing, Thinking, or Feeling. A function with an 'Extraverted' polarity governs how the person interacts with the world, and a function with an 'Introverted' polarity governs how they reflect upon or model the world. Using these functions and polarities, a person may be loosely classified as 'Extraverted' or 'Introverted', with a degree of disposition towards ambiversion. Certain combinations of functions result in 'Judging' or 'Perceiving' inclinations.

I have chosen to focus on type dynamics because undue focus on the 'letter-method' forces strange choices such as picking out whether one is a 'Feeler' or a 'Thinker', the former of which carries the negative connotation of being illogical. By contrast, the 'function method' assigns every person both a 'Thinking' and 'Feeling' function, and emphasis is placed on function order and function polarity to assess strengths and weaknesses in each area.

The psychological experience of labeling oneself a 'Thinker' is quite different from the psychological experience of placing an Extraverted Feeling function into one's fourth personality slot, and realizing this means that one struggles in connecting to others and has no emotional reasoning skills that might help one handle failure, loss, or other genuinely unsettling experiences.

e. Using Tests vs. Self-Compositing

A person's Myers-Briggs personality type can be determined individually, analyzed by a counselor, or guessed at with the assistance of online tests. These 'tests' are usually web-based forms, not computationally complex or psychological deep, and they display results on sliding scales between the eight 'letters' regardless of whether they appreciate the functions (Truity Psychometrics, LLC.; Vaida). [73]

Owed to these limitations, the Myers-Briggs instrument lends itself better as a metaphorical chest of building blocks, or a box of fabric, from which it is possible to model and investigate one's

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[73] For me, the most easy-to-recognize sign of a binary/letter-driven approach is an implicit assumption that all extraverts are socially outgoing, or a failure of the questions to distinguish between informational, emotional, and social reasoning skills.

own personality. Each suite of four functions can be built up and tried on like a garment to see if it fits and to understand its unique attributes, before putting it away and constructing another garment to determine if it is a better fit.

To find a starting point, I sifted through available online tests and discarded ones that blatantly questioned whether 'hard data' or 'peoples' feelings' are more important. These questions are immature and risk tremendous reporting bias in light of the fact that Myers and Briggs *intended* their metric to make people more open-minded. I discarded tools where 'contextual vagueness' left one waffling between extreme endpoints of an answer, potentially corrupting results. I also avoided tools that included their own metrics, such as 'turbulent vs. assertive' (NERIS Analytics Limited).

In using myself as the test subject, we must acknowledge that I am familiar with testing instruments and that this familiarity will skew results all test results.[74] Yet it should be recalled again that the Myers-Briggs approach is a framework, not a tool for divination. A designer gains qualitative data about herself by experimenting with personality lenses to gain perspective.

3.2.4. Tapping Career Development

One potential criticism of MBTI® is that it is limiting in how it restricts function combinations to only one of sixteen configurations. To provide a qualitative contrast to this method, we can borrow the concept of a 'personal SWOT analysis' from the business and career development

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[74] Ironically, I now test *less* consistently than before I knew much about MBTI. I suppose that is a side-effect of new appreciation for alternative points of view, or a side-effect of how much this thesis itself has required me to exercise new muscles.

worlds to supplement our Myers-Briggs instrument with self-chosen labels.[75] The SWOT analysis is credited to Albert Humphrey, and stands for 'Strengths, Weaknesses, Opportunities, and Threats', and its general usage is for analyzing a project or business venture. A *personal* SWOT analysis is when a potential employee talks about herself in the same light as a potential project.

3.3. Data

3.3.1. Method: Myers-Briggs

Through the use of information available from The Myers & Briggs Foundation, and a sampling of personality assessment tools which survived my vetting process (Vaida; Heiss), I am able to state with reasonable confidence that my personality type is the 'ENFP'. [76] Metrics which focused too strongly on the 'letter approach' often rated me as ambiverted, which can be attributed to the primary cognitive function of the ENFP, Extraverted Intuition, and rated me at the Thinker/Feeler borderline. The ENFP's cognitive functions, in order of dominant, auxiliary, tertiary, and inferior, are as follows according to The Meyers & Briggs Foundation:

- **Extraverted Intuition:** "Sees possibilities in the external world. Trusts flashes from the unconscious, which then can be shared with others." Interpretation in dominant position:

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[75] Somehow it is ironic that we turned to 'business' in order to better express ourselves…

[76] I never suspected any of this until I was introduced to Introverted Feeling as a sense of self-identity and internal reasoning, and learned that lower-order 'Thinking' functions by no means suggested an irrational mind.

The personality's mind contains a giant, infinitely expanding, hyper-energized, rainbow-colored web of interconnected information.[77]

- **Introverted Feeling:** "Seeks harmony of action and thoughts with personal values. May not always articulate those values." Interpretation in auxiliary position: The personality's primary means of understanding the world is by relating information back to what it values, enjoys, and remembers. The personality acts in accordance with its principles and beliefs, even 'against the flow'.
- **Extraverted Thinking:** "Seeks logic and consistency in the outside world. Concern for external laws and rules." Interpretation in tertiary position: The personality has to roll up its sleeves and commit to a goal if it hopes to get work completed.
- **Introverted Sensing:** "Compared present facts and experiences to past experience. Trusts the past. Stores sensory data for future use." Interpretation in inferior position: The personality has a good memory and adheres to rituals and some structure to reduce stress.

It may also be relevant to ascertain the 'shadow functions' of the ENFP, which is a name given to the functions an ENFP does *not* have and must compensate for. The 'eighth function' represents the greatest weakness of the ENFP, which she will have the hardest time compensating for:

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[77] Initially I was only describing how Extraverted Intuition *feels*. Then I saw Dario Nardi's work on the *Neuroscience of Personality* and realized an Ne-dominated brain actually *does* light up like a rainbow-colored Christmas tree.

- **Extraverted Sensing:** "Acts on concrete data from here and now. Trusts the present, then lets it go." Interpretation as eighth-order function: The personality is likely to neglect present physical concerns like bodily health, and can be overwhelmed by raw data that seems to lack a theoretical basis.

3.3.2. Method: SWOT

After considering my natural and gut reactions to various environments and situations, I have listed statements outlining my personal strengths, weaknesses, opportunities, and threats. This data is naturally more subjective and open to interpretation than the MBTI data, but still provides a valuable point of contrast.

- **Strengths**: Seeing many angles simultaneously. Being able to set up conditions to plan for multiple cases and scenarios. Adaptive and robust. Being able to see problems at the micro and macro level. Having great communication techniques across a wide variety of disciplines.
- **Weaknesses:** Overthinking everything, all at the same time. Getting too preoccupied with the details of a single area. Lining up too much foundational work before the first playable build. Forgetting to communicate.
- **Opportunities:** Consistently identifying and tackling unforeseen problems with gusto. If it is new and no one knows anything about it, is on the case. Responding well to project management software suites, and documenting everything.
- **Threats:** Easily startled by poor results when personally invested. May lose visionary ability and become disheartened and obsessed with starting from scratch, even when doing so is no

longer feasible. May also lose ability to see value in work already done, and has trouble determining how to make fewest edits possible to ready it for delivery.

4. Learning from Others

4.1. Trusting Extraverted Intuition (Ne)

4.1.1. Capturing It

My ideas have been manifesting in webbed clouds of interwoven nodes for as long as I can remember, connecting possibilities and innovating with fresh ideas. When I sit down to design, my mind is already exploding with colorful interconnected webs. These webs could at times grow out of control, leaving me to feel I'd taken on projects too large for myself, and so never finished anything.

These webs represent the strength and weaknesses of Extraverted Intuition perfectly. Through exploration of personality typing, I discovered that I share my networked, holistic, and slightly messy approach to ideas with others, and that my relationships with distraction and scope only needed to be *managed,* not taken as signs that my webby approach need be rejected.

This liberated me to analyze what I soon understood to be my most important design processes: nonlinear organization and documentation of ideas.

4.1.2. Will Wright

Upon reaching the halfway point of Will Wright's talk, *Triangulation: A Schizophrenic Approach to Game Design,* one realizes he is never going to touch on any element of his title, nor even address the themes proposed by it. That is part of Wright's charm. He looks a bit like a weasel, but the ideas flying through his head are a glorious tangle of interconnected perspectives, dreams, and goalposts befitting some type of excitable woodland fay. Whether he is an ENFP or ENTP, I cannot be the judge, but his study at Montessori School certainly encouraged a wild Extraverted Intuition

capable of gigantic products that target never-before-imagined needs of his fellow human beings by linking together widely disparate ideas—like the interfaces of space ships (W. Wright). Will Wright is the legendary creator of *Sim City* and *The Sims*, the latter of which redefined gaming for women in its day. He is and deserves to be an inspiration to game designers everywhere, but his advice is doubly applicable for the holistic approach of minds that enjoy joining possibilities together.

4.1.3. Jane McGonigal

The winding length of McGonigal's 'game design' thesis, and its elaborate coverage of the topic, can leave little doubt that she is as well-equipped to tackle gargantuan projects with the same holistic eyes as Will Wright (McGonigal, This Might Be a Game: Ubiquitous Play and Performance at the Turn of the Twenty-First Century). What Wright lacks and McGonigal has, however, is a defining personal injury that left her unable to think straight as months stretched into years. McGonigal got into games from film and media studies, and chiefly concerns herself with social issues, but the way she designed her game *Superbetter* to break tremendous challenges and complex problems down into minute steps—some of which dealt only with the day-to-day activities of self-care—demonstrates not only amazing willpower but an ability to fight back against the perils and pitfalls of Extraverted Intuition (McGonigal, SuperBetter).

4.2. Imagining with Introverted Feeling (Fi)

4.2.1. Hayao Miyazaki

Introverted Feeling is such a natural and slightly narcissistic cognitive function—an understanding of and trust in oneself and one's propensity for being used as a stepping stone from which to understand the entire universe—that it was initially difficult for me to say if I idolized

anyone at all. It seemed to occur so *internally* that I should always have a strong sense of self; how could I marvel at anyone on the *outside?*

I thought of all the people I admired most in the world, and whose work had stood out to me as deeply meaningful, and I suddenly realized that there was one Introverted Feeler whom I had an almost reverent awe of: Hayao Miyazaki. Miyazaki's films are detailed to an excruciating level, and filled with characters, symbolism, interactions, and movements that each carry deeper and deeper levels of increasingly subtle information. He works with great passion, a chronic failure to delegate, and almost always against the clock, but he has a vision of the final result which he cannot release until it has been fully realized. Miyazaki *knows* what Miyazaki is making, and the idea of it fills him like a demon.

4.3. Educating Extraverted Thinking (Te)

4.3.1. Imposing Order

Extraverted Thinking is perhaps the quietest of all four personality functions. It is neither one of the two 'lead' functions, nor is it the fourth function such that its attributes surge up during stressful times like the tantrums of an ill-attended three-year-old. Yet Extraverted Thinking is a powerful and important tool for compensating for any gaps and weaknesses between the other functions. It is geared towards establishing plans and following through with them, which allows this function to hunt down rules, suggestions, and much-needed pieces of data in order to rein in Extraverted Intuition and Introverted Feeling and make sense of all they've produced and gathered.

4.3.2. Inspiration

I first learned about the idea of a 'design methodology' while combating project fatigue. Therefore, ***Managing Large Solution Spaces*** was the first subsection of my design methodology which I was able to clearly identify, document, and expand on.

Two people strongly influenced this stage of my design methodology. The first was Frank Gehry, a Canadian architect.

I was reading about the design of his *OPUS HONG KONG* when I learned that Gehry has a fairly interesting design process, in which one of his crucial steps is to build numerous little towers of colored, wooden blocks (Field). This was my introduction to the idea of a 'design process', and to the realization that I might want a design process of my own.

Armed with extensive—but somewhat shapeless—information on my thesis topic and the desire to create my own design methodology, I started looking for inspiration in how other designers handled large and unwieldy topics. This exploration led me to the realm of information architecture.

The second person to strongly influence my design methodology was Richard Saul Wurman.

4.4. Reassuring Introverted Sensing (Si)

4.4.1. Capturing the Journey

I enjoy putting words to paper. All my life I have written down a great many things, some of which I never reviewed. Yet the mechanical act of *taking* these notes, as opposed to reviewing them, seemed to have been the important part when it came to remembering or understanding them later. This was true whether I was using a pen, or tapping on a keyboard.

I have often heard it suggested that a person suffering stress or *dis*tress should try to put their thoughts to paper, not necessarily because they wish to share them, but because the act of composing verbal thoughts helps to clarify ideas which once were amorphous.

The act of composing ideas in a verbal or pictorial form, particularly when documenting for lengthy game designs, thus helps to elucidate the design. The chief beneficiary of this elucidation is not even an outsider, but rather the designer herself.

In this section, I will be drawing design tools out from my positive sentiments towards documentation. I will also touch lightly on the role of documentation with regards to communication.

4.4.2. Maintaining Personal Rituals

Whether it is Frank Gehry building block towers or Steve Jobs making pilgrimage to Buddhist temples, everyone seems to have a few strange rites or rituals that help them channel their creative juices. As Quentin Tarantino puts it:

> *"I'm not superstitious in my normal life, but I kind of get superstitious about the methods of writing… it's the way I started doing it, so that becomes the way. My rituals are that I don't use a typewriter or a computer. I write by hand, and what I'll do—it's a ceremony, actually—I go to a stationery store and I buy a notebook. Then, I'll buy a bunch of red and black felt pens. And I'm like, 'These are the pens that I'm going to write Kill Bill with!'"*

Tarantino is not the only one. J. K. Rowling allegedly wrote chapters of *Harry Potter* on napkins just to get the work *down somewhere,* and this thesis will also take a closer look at the role that paper has to play in assisting *its* sample personality.

Paper serves a number of interesting functions for designers outside of the traditional brainstorming framework we're accustomed to. If a designer is denied access to a keyboard, for example, paper slows down the speed at which she can create new ideas, and therefore forces her mind to spend more time kneading and molding each thought.[78] This process can help a designer express difficult solutions or concerns which were clogging up her creative pathways.[79]

If the designer is temporarily deprived of internet access and research materials, the brain comes to rely on its memory and logical-reasoning skills. These are 'Si' and 'Te', respectively. With regards to our sample personality, we are less concerned about *distractions,* which can sometimes be problematic but at other junctures prove fortuitous for an Extraverted Intuitive. We are more concerned with occasionally limiting the bulk of outside stimuli and the possibility of being overwhelmed by the infinite universe, which together represent data which 'Se' and 'Ti' would have an easier time parsing.[80]

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[78] Like 'Play-doh!'

[79] Ew, or maybe more like 'constipation'…

[80] This is a very straightforward example of using self-reflection to leverage what you *have* in order to compensate for what you absolutely do not have, so as to proactively avoid ruts. Points added for successfully engaging 'Si', as it's an ill-appreciated function that needs love from its owner, lest it take up unsavory pastimes like paranoia, defeatism, or frantically shuffling about papers in a terrified frenzy, like an

Each and every morning, I must go to a tea shop, order eggs, hot milk tea, and toast with marmalade, and sit for one to two hours writing by hand in lined journals on whatever topic suits my fancy. If I am stuck on a difficult design or programming problem, I then choose to write out the design or code by hand and to the best of my ability. This process gives structure and sense to what was once insurmountable. At other times, I work on hobbies and side projects.

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over-caffeinated accountant who hasn't slept in three days, halfway through a mid-life crisis, when they cannot find where they've put the phone they're presently calling you on, and meanwhile a dog is barking in the background.

Synthesis

IV. One Personal Game Design Methodology

An artist is not paid for his labor but for his vision.

- James Whistler[81]

As I explored my research question, I realized that I had taken on a project of immense scope, for which there would always be countless unanswered questions and new avenues for exploration. My problem space was nearly infinite.

For a short while, this stumped me.

Then I began to ask myself about the *way* in which I approached complex problems: "What *methodology* can I develop which will help me manage large problem spaces, employ my artistic intuition, and allow me to answer design questions for this sub-genre, while relying both on my research and my personal expertise? How can I solve difficult game design problems—not only for games serving women with depression, but for all projects I see fit to take on?"

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[81] Admittedly there is irony in quoting Whistler, a fierce proponent not only of "L'art pour l'art," but who also believed the self had no place in art. My only justification is that he has spectacularly sassy quotes.

The path by which I engineered this methodology, I then realized, was more important to document than any singular list of design principles which it would be capable of producing. This methodology became my equipment for tackling all large problems. Capturing it made my approach organic, sharable, mutable, and extensible. Through it, I learned how to alloy art and engineering into design.

1. 'Cartographical Designing'

1.1. Recapping

To develop a complete mind: Study the science of art; study the art of science. Learn how to see. Realize that everything connects to everything else.

- Leonardo da Vinci[82]

This section presents a personal game design methodology as an artistic production, forged from the tactics and information established in all previous sections. Based on the decisions made in ***Scaffolding and Skeletons***, we have given ourselves the tremendous luxury of a blueprint for the basic structure the design methodology must follow.

Through both a targeted exploration of ***The Self as a Context*** and the project context provided by the ***Background Narrative***, we were able to inspect one designer's complex humanity in a systematic way, identifying core personality attributes and establishing deeply rooted feelings. This allowed us to examine each personal facet's relationship to a more universal context.

Through the writing of ***Working with Vocabulary***, we constrained our search space for ideas to a manageable size, and blazed the way to finding idols and instructors over the course of ***Learning from Others.***

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[82] While there are many historical artists I am fond of, the one I most identify with is Leonardo da Vinci. He is as famous for his curiosity as he was notorious for starting enormous quantities of work he then never completed. To me, his quotes both validate my strengths and caution me as to my weaknesses.

Even now, with so much work behind us, the penning of the personal game design methodology is still wholly within the intimate realm of its designer, yet sense, companionship, and *rules* have been brought in to support an activity which otherwise might have turned amorphous and bland.

1.2. Introducing the Methodology

The methodology introduced herein is titled the 'Cartographical-Styled Game Design Methodology', or 'Cartographical Design' for short.[83] It is named such to draw attention to the designer's primary MBTI function, 'Extraverted Intuition', which is described as visualizing the world as a great 'mind map'.

Its three tenets and their brief descriptions are as follows:

- ***Creating Networks of Idea Nodes.*** To constantly grow networks of ideas inspired by widely disparate sources, and to endlessly draw connections between those ideas.
- ***Documenting.*** To record everything to a high degree of utility and clarity, as if working with a team, for the benefit of one's future self. To engage in the act of writing as a means of meditating on ideas.
- ***Managing Large Solution Spaces.*** To gather tips and techniques for making choices amid uncertainty, to cut down on overgrown design networks in time of fatigue, and to renew projects with new energy.

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[83] The author takes perverse pleasure in referring to the phrase 'Cartographical Design' as short.

1.3. Making Tenets Actionable

1.3.1. Roles, Hats, and Lenses

This paper breaks its tenets down further into 'roles', 'hats', or 'lenses', each of which governs a different point of view or mental process. These roles are typically grouped under larger categories of roles.

The large number of roles attempts to tackle a broad, Extraverted-Intuition-driven view of game design, by helping a designer break down and consider all aspect of an issue. They also allow designers to understand, moderate, and justify the underlying forces which factor into their decision-making processes.[84]

One of the earliest works to divide mental processes into hats was *The Six Thinking Hats* (de Bono), which hoped to help structure creative thinking, particularly for the purpose of group discussion. By using these hats, a group could give each type of thinking its due weight and also restrict it to the portions of the discussion where it was most appropriate. Emotional concerns and gut feelings, for example, could be given their allocated space for airing, analysis, and application; without permitting them to derail other important components of the discussion.[85]

However, the most influential work for this part of the methodology was *The Art of Game Design – A Book of Lenses* (Schell). Schell tackled game design in a multi-dimensional way that

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[84] "Quick! Do we change the target market, or change the platform and engine!?"

[85] de Bono's writing is spectacular for us, because he validates our approach of uniting art and engineering in one brain and under one methodology.

appeared incredibly holistic, if more down-to-earth and considerably less interested in *why.* His work breaks game design down into lenses ranging from 'The Lens of Simplicity and Transcendence' to 'The Lens of the Character Web' to 'The Lens of Profit'.

1.3.2. Rules of Thumb

As the design methodology progresses from one tenet to another, it moves from the space of more natural design activities governed by preferred and dominant mental functions into the spaces governed by tertiary and inferior functions, until at last it arrives at a space that compensates for the designer's natural weaknesses.

Here, because it is more difficult for any designer to 'see' problems through lenses alien to her personality, the paper begins to abandon the role of the metaphor and to rely on a more case-by-case, instructive, and methodical approach that attempts to reengage the personality's four functions and compensate for its weaknesses.[86]

The format for each rule varies depending on its purpose, and each rule's origins range from personal observations, to psychological papers, to evaluations of simple games, to the works of information architects.

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[86] The discussion here involves mulling over these 'alien' ideas at great length to make sense of them, and then follows a pattern of, "Problem A was challenging for Reason X → The eventual application of Method 1 helped in resolving it."

2. Creating Networks of Idea Nodes

2.1. Overview

2.1.1. Purpose

All things are interrelated and interdependent; nothing exists in isolation. The entire universe is one ecosystem, similar to a spider web—if one part is touched, the entire net shimmers.

- Carl Sagan

Creating Networks of Idea Nodes is the first of the three tenets laid out under ***'Cartographical Designing'.*** As outlined under ***The Self as a Context,*** thinking in terms of networked nodes is the natural mode of operation for this game design methodology. Therefore, this section reverse-engineers the Extraverted Intuitive thought process so that we can critically evaluate each node.

This part of the methodology delves into the origins of enthusiasm, inspiration, and curious delight. It captures the process of stumbling upon ideas, connecting them, and visualizing possibilities.

Furthermore, it illustrates its own natural weaknesses, such as a predisposition for feature creep, which can hamstring further creative efforts and which require the other tenets in order to manage effectively.

2.1.2. Ideas as Nodes

Here, the word 'idea' is used synonymously with 'node' in a large network of idea nodes. The word 'idea' is also used to mean a number of interconnected nodes, which together have meaning that is greater than the mere sum of its parts, and therefore can function as a larger node. There are four different types of idea node, which will be summarized in ***Layout*** and documented in full later in the section.

2.1.3. Design Processes as Working with Nodes

In this section, newly introduced design processes are a means of working with, organizing, altering, introducing, or culling modes from the project's network of ideas. Each type of node is understood according to a type of definition, and allows the designer to mentally divide labors of one type from another to better understand the influences at play between her conflicting interests. The design processes laid out in this section will be divided according to idea node type.

2.1.4. Layout

This section contains four different kinds of idea nodes. They are categorized firstly with their relationship to other ideas, and secondly with respect to the means by which the designer slips into different roles through the design process.

The first type of idea is the inspiration, which is separated from the other types in that it is naturally somewhat *'autotelic'* (Salen and Zimmerman 332; Csikszentmihalyi 67-69, 149). That is, it comes to the designer bundled with the motivation and interest necessary to further explore it. Inspirations are accompanied by *feelings* internal to the designer, whether those are feelings of

empathy, disappointment, joy, wonder, or injustice. Inspirations are born in reaction to stimuli, but their source should be seen as internalized to the designer.

The second type of idea is the problem, which can be described according to its point of origins. Problems represent the universe of unanswered questions, unfinished tasks, and unexplored avenues that a designer has been made aware of. Problems can be internal or external, and may easily be entangled with the designer's inspirations. They may be big or small, and range from international political problems to minor optimization techniques for a small patch of unused code.

The third type of idea is the solution, which can be described according to the tools, techniques, and skillsets required to implement them. Solutions may not have problems yet, just as problems may not have solutions. They may also be easily entangled with the designer's inspirations, and represent the world of possibilities and interests which the designer is aware can be used to resolve problems.

The final type of idea is the detail, which is an important but often detached node which is difficult to track, and which needs to be carefully preserved so as not to lose its desired impact on the final design.

2.2. Inspiration Nodes

2.2.1. An Inspiration

Ideas come from everything.

- Alfred Hitchcock

An inspiration is a feeling internal to a designer. It comes with sensations of interest, motivation and excitement, and can be a fascination with a problem, an eagerness to employ a new solution, or excitement brought about by uniting problems with solutions to create new products.

There is some overlap between inspirations and the other categories, but here inspirations are allotted their own space, because an inspiration comes with *energy* for its own application. Inspirations are pleasurable for designers to have, presuming that they have the means to execute on those inspirations. An inspired designer is not simply brainstorming or solving problems, but is being actively engaged by the project. When brainstorming periods end or designs become overgrown with conflicting ideas, it also becomes very important to understand where different inspirations come from.

Inspirations can occur almost anywhere. They may happen at the beginning of a project or while solving for nuanced details. They are often generated through free association and turn up at bizarre times or during unrelated hobbies, giving rise to why game designers tend to agree they all need to know about topics of interest outside of video games (Duffy), (Urustar S.r.l.). They also come with an emotional attachment that can make them difficult or disheartening to abandon if they prove ill-suited to a project in the long run.

When describing inspirations, one of the key distinctions between inspirations and problems is that inspirations are framed relative to forces in the designer's internal ecosystem, whereas problems are described based on the external noun that raises them to the designer's attention. While inspirations *do* arise in reaction to external stimuli, their personal origins define them.

I have therefore categorized inspirations according to a series of 'Idea Gal' roles that the designer takes. By understanding where inspirations come from, I intend to empower a designer to more accurately reflect on their validity.

2.2.2. Role Category: The Idea Gal

> *You know the type. It's the "this thing is going to be Facebook meets Flickr, but for dogs! If we can just get 1% of the online dog market, we'll be rich!" spiel. All idea, usually no money, and hardly any functional skills that'll help build or launch the damn thing.*
>
> *- David Hansson*[87]

The term 'idea guy', and the people labeled such, take a lot of flak in the programming community. "An idea is a dime a dozen." Everyone has ideas. The ideas of any unskilled, unfinanced, and uninformed person are therefore perceived as valueless by this community. Ideas gain value when coupled with the ability to execute on that idea.

Programmers aren't the only one who have noticed it is easy to be a thinker but hard to be a doer. John Freisinger, speaking on the topic of whether 'idea people' are entrepreneurs, has this to say in an article in the journal *Innovation:* "The transition from idea to entrepreneurial endeavor begins

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[87] This quote comes from the creator of Ruby on Rails, a web application framework, in his short article, "There's no room for The Idea Guy" (Hansson). As an aside, if this topic interests you, I have included references to a number of discussions on it, from over-the-top rants ("I'm an Idea Guy"), to a tame explanation of the phenomenon (Domanski), to an excellent article on how game development is more than having ideas (Walker).

when the inventor recognizes that the world is full of lifeless ideas. Ideas, in and of themselves, are useless without someone to put them into action" (Freisinger).

Yet the term 'idea guy' was not originally intended to carry a negative connotation. After all, some ideas are better than others. Labor is meaningless without an objective, and that objective was originally someone's *idea,* and the labor is more likely to be valuable if said idea was a good idea. Indeed, 'idea man' is formally defined as "a person with an unusual capacity for visualizing and formulating new techniques, approaches, and products" (Merriam-Webster).

The Idea Gal role, we then see, is incredibly valuable once paired with some other role that can actualize ideas. Therefore, it is worth paying close attention to see where inspirations come from, and determine how to evaluate their worth.

In order to better catalog inspirations, the Idea Gal role is divided in several 'hats' or sub-roles, each of which covers a different sphere of inspiration: The Fixer, The Entrepreneur, The Tinkerer, and The Dreamer. This allows a designer to track where inspirations originate from, so as to better understand their relationship to the project.

Managing a wide variety of inspirations can be difficult for a designer wearing an Idea Gal hat. She may treat her ideas like favorite children, and fall in love with them. To help mitigate this, she must learn to recall that a genuinely good idea may nevertheless be inappropriate for a specific application, that good ideas are interchangeable, and that there is seldom a single perfect answer to any problem.

a. Role: The Fixer

The ideas of The Fixer stem from the social state of the world around her. She mixes my curiosity and bibliophile tendencies with my empathy and solution-hunter approach to problems in life.

Everyone has identifiable problems, and The Fixer can concoct a scheme for addressing them. Fixers research the (non-computer) sciences, arts, and humanities; they are also excellent at soliciting and crunching data.

A Fixer is good at discovering problems and opportunities. She has a good sense for how games can provide heightened engagement, and can tell where this might help people reach milestones or resolve problems. She is the inspiration for all serious games, and excellent at gathering and relating seemingly unrelated nodes of the world's data to highlight completed pictures of the state of affairs.

The Fixer often hand-waves over technological details, which means she needs a Tinkerer hat to keep her ideas founded in reality. She is more aware that games are experience-driven, but she requires a Dreamer to determine precisely what that experience will be.

The Fixer's anchor in world events means that she is able to inspire socially-aware games that have tremendous potential for enacting cultural change. Perhaps ironically, The Fixer is also close to the Entrepreneur hat in the sense that she is more interested in the game's context than its matter, and can acquire extensive knowledge about her target market and its needs.

The Fixer hat continues to be useful down the line with matters of gathering marketing data and performing quality assurance. She knows what the measurable goal of her game is with regards

to target market and the greater culture, and can conduct the research necessary to determine whether everything is on-track for success.

b. Role: The Entrepreneur

The Entrepreneur is keenly aware at all times that projects must be financed if they are to ever achieve the execution phase. She represents the understanding of how meaningful cultural change can be realized through changing what people buy.

As it belongs to a video game designer, and as it is an originator of *new* ideas, the Entrepreneur hat has a healthy understanding of how technology and engagement can be used to make incredibly valuable commercial products, philanthropic pieces, and works of art.

The Entrepreneur stumbles upon new ideas with her keen eye for sources of financing. She may not have the experiential communication skills of The Dreamer, the keen logistics knowhow of The Tinkerer, or all of the contextual information of The Fixer, but her tremendous power comes from her ability to pin down, communicate, and creatively solve for *scope.*

The Entrepreneur finds opportunities, assesses their value, establishes their scope, envisions a matching solution, and can communicate effectively and enthusiastically with laymen. They conceive of plans for games more than of games themselves, but their skill in focusing on the client means they are often the only hat that can bring a project to life.

Like all of the Idea Gal hats, The Entrepreneur relies on her siblings to make up for her weaknesses. She requires The Tinkerer to keep her claims achievable, The Dreamer to lend her emotional power, and The Fixer to make sure her clients' and users' needs will be met by the means employed.

c. Role: The Tinkerer

What I cannot create, I do not understand.

- Richard Feynman[88]

The Tinkerer is the hat of a magpie; she sees interesting things, gravitates towards them, plays with them, and then tries to think of a use for them. She represents a tendency to mess around with the limitations of new technology, both software and hardware.

Ideas generated by The Tinkerer often have tremendous novelty, though they can lack in staying power and contextual awareness, and fail tremendously as products without help from other roles. The Tinkerer knows why things are interesting or useful, but she lacks the ability to ascertain market value or sell, and she is not much good with appearances.

Developing and drawing on the Tinkerer hat is important for a game designer, as she may be entrusted with important decisions concerning the availability of game engines, the features of up-and-coming consoles, the emergence of new technologies in computer vision, and so forth. Without a Tinkerer hat, a game designer cannot explore new tools in the games medium, and will find innovation or adaption to be difficult.

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[88] Digression, incoming: Richard Feynman and Einstein have the following quote misattributed to both them: "If you can't explain something to a six-year-old (in some variants, 'your grandmother' is used), you really don't understand it yourself." The origin of this adage appears to actually be Ernest Rutherford's, "An alleged scientific discovery has no merit unless it can be explained to a barmaid."

Furthermore, Tinkerer hats are usually valuable further down the line of the development process, where they conceive of ways to prototype and test out risky ideas without jeopardizing or derailing the larger project.

d. Role: The Dreamer

Art is not a handicraft; it is the transmission of feeling the artist has experienced.

- Leo Tolstoy[89]

The term 'Dreamer' evokes no better a connotation than 'Idea Gal' at first glance, but there is a potency to this hat which each and every other hat ought to be envious of. Games are works of art that express themselves as experiences, and Dreamers are the ones who originally envision how that artistic experience will *feel* to its audience. The Dreamer is named for the incredibly vivid, awe-inspiring, surrealist landscapes of dreams. Despite its nebulous name, it can be leveraged to maintain a constant vision throughout the whole of a design and development process.

Dreamer-hat-wearing is no easy task. Dreamers must not only recognize emotional experiences as valuable when they occur, but also successfully digest those experiences into tangible materials. After that, they must somehow use those materials to successfully convey that original experience to other people, so that the experience can be reproduced in a game format. The two stages, capture and reproduction, are equally important.

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[89] After obtaining a better understanding of the fact that I am naturally drawn to broad project scopes and thus dispositioned to answer all questions in an equally broad format, to find myself quoting the author of *War and Peace* comes with a beautiful sense of artistic validation.

Explaining an emotional experience is no easy task, and so Dreamers make use of a wide variety of capture tools, including voice recordings, color palettes, magazine clippings, narrative, and storyboarding. Communicating their meaning often entails the designer develop skills in other mediums, such as writing, drawing, or painting.

When successfully captured and implemented, the ideas of Dreamers can take an audience's breath away. Dreamers are the ones who find ideas that can move people to tears, or overwhelm them with wonder.

Sometimes The Dreamer gets her ideas from experiences of dissatisfaction and disappointment. A Dreamer hat may feel let-down upon encountering certain scenes or limitations of a piece of media, which break their immersion in a fictional world. By employing self-reflection and critical analysis, Dreamers can often recapture and verbalize the sensations they originally craved and received from the piece, and explain where it was lost.

The Dreamer's weaknesses lie in reconstructing experiences through technological means. If a designer relies on the Dreamer hat too exclusively, the narrative and art of a project will be beautiful but the gameplay will suffer tremendously, and The Dreamer herself will feel disappointment on review of the product because there is no proper experience.

Dreamers can articulate the sort of experience they want gameplay to convey, but breaking those experiences into discrete steps—or determining whether discrete steps are even possible for the desired experience—is the work of another hat.

2.2.3. Motivating a Project

One of the major psychological purposes of an inspiration is to provide energy and excitement to the designer. The designer's excitement can then be utilized for project morale, which leads to further inspiration, which—if properly nurtured—leads to greater morale. Humans are not cogs in a machine, and morale and inspiration are important creativity tools for designers, programmers, and artists alike. Through these inspirations, Cartographical Designers express their artistic meaning and alleviate the need to loose their creative energies.

It is also important for the designer to keep a mental model of which inspirations are subservient to which systems requirements and problem nodes. When a problem is discarded, the designer must be prepared to identify the emotional inspirations which went along with that problem, and to package them away for later use at a later date. It is also important that the designer maintain a loose mental hierarchy of her inspirations, so that she can pick between ideas at cull time and preserve the core vision of the project when inspirations clash.

2.3. Problem Nodes

2.3.1. A Problem

Problems are only opportunities in work clothes.

- Henry J. Kaiser[90]

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[90] Despite being an industrialist and ship builder, Kaiser is remembered for quotes surprisingly applicable to artists and designers. My present favorite is, "When your work speaks for itself, don't interrupt."

To the Cartographical Designer, problems are a type of idea node. A problem is defined by its beneficiary, which is the person or objective any proposed solution is intended to directly benefit. Problems are distinct from inspirations and from their proposed solutions. They may originate from within or without, but they themselves are not experiences. Problems are scenarios, equations, or mysteries which need to be resolved, and their resolution is intended to achieve some form of result on behalf of its beneficiary.

Problems are inherently infinite in number, both breadth-wise and depth-wise. Any part of life, from philosophy, to ecology, to the simple task of making breakfast in the morning, poses problems. Furthermore, all of these problems may be broken up into infinitely smaller problems, or lead to related 'auxiliary problems'.

Not all problems need to be solved, which is fortunate, given that they are infinite in number and so can *never* all be solved. A great deal of life optimization, therefore, comes from knowing which problems to solve, and which problems to leave alone.

When she has the opportunity to pick out new projects to work on, the Cartographical Designer can be expected to have amassed a wide spread of interesting problems which she believes she might enjoy solving. She obtains knowledge of these problems through sheer curiosity, and it is likely that many of them have already inspired her.

Whether she wishes to help a client, change society, contribute to a greater body of work, or make a new game entirely for herself, the Cartographical Designer's varied interests give her the ability to work on many problems and help many potential beneficiaries, and so it is from this point that most of the Cartographical Designer's new projects are born.

Once a header problem has been selected or specified by a figure of authority, it of course leads to a slew of depth-oriented sub-problems and auxiliary problems. Again, these problems will actually be infinite in number. As only so many problems can be resolved over the course of a project, and as the designer is limited by factors such as time, objectives and budget, identifying which problems to tackle, and how to tackle them, remains a key design skill.

Some of this 'preening of problems' can be conducted using conventional work or time-management techniques, such as the Eisenhower Decision Matrix described by Stephen Covey in his book *First Things First,* and so fall out of scope of this paper under the more general header of self-help. Yet in order to use the Eisenhower Method or any other time-management technique, a Cartographical Designer must identify her own internal heuristics for categorizing her problems and discerning their value.

2.3.2. Role Category: The Benefactor

The designer assumes the hat of the 'Benefactor' in order to turn a closer eye on the origins of the problems she is facing. She thinks of any scenario as a function of its problems, as opposed to as a function of its solutions: of objectives to achieve, instead of as a conglomeration of work to be done. Unmarried to any ideas, the Benefactor role exists to help the designer step back and make sure she has thought out the *why* behind her actions.

The Benefactor does not ask the vague and unanswerable, "Are we solving the problem *correctly?*" as this would simply stymie a project.

Instead, she asks, "Do we have a clear picture of what our goal is? Are we going to achieve our mission by continuing in this direction, or do we need to make adjustments? At each step along

the way, are we sure that our solution matches our motivation? What motivation *are* we currently operating under? Will those objectives help us reach our ultimate end goal?"

The Benefactor role takes on a somewhat different character depending on whom a project ultimately serves, and so therefore I have broken the role down into individual hats based on its beneficiary.

Over a personal project, the Benefactor's actions are likely to be different than throughout a client-driven project, as she must get to the root of two entirely different sets of concerns. And when it comes to picking up largescale problems with the hopes of benefiting society, identifying proposed problems and solutions that merely serve the designer's own ego becomes a vital personal management and design skill.

a. Role: Serving Oneself

Deciding to dedicate project time in service to oneself sounds like it ought to be the easiest of design tasks, and certainly the most emotionally rewarding. Ironically, this is often the polar opposite of reality. Acting in service to oneself opens up an extraordinary and infinite horizon of possible problems for the designer to work on, and even more solutions to choose from. By making the problem space so subjective from moment to moment, attempts by the designer to work on her own projects can easily be foiled by insecurity, doubt, boredom, or feelings of being overwhelmed.

Some of these issues, which are common to most open-ended endeavors, are dealt with later under ***Managing Large Solution Spaces.***

Sometimes it is the designer's responsibility to understand that they have a great deal of inspiration within themselves, but that they don't yet have a compelling goal to reach or problem which they want to solve, and so they have no real quest to embark on.

It is also important that the designer recognize when she has tackled problems for her own gratification during the course of a large project, such as in service to a client. This is not necessarily so that the designer eradicates attention to her own problems, as often they will serve as vehicles of creativity and inspiration that ultimately help the project. However, it is important to be able to divide self-service from the servicing of other objectives, particularly in the face of crucial decisions concerning work load and project direction.

b. Role: Serving Others

The trouble—and delight—with donning the hat of Service to Others, is that the designer is inclined to try and give people what she feels is *best* for them as opposed to whatever it is those people actually need or want. Sometimes the designer is right about what is best for people (and right about how to sell them on the product). At other times, the designer conflates her ego with the fundamental problem, and eventually must detangle the two.

Although there is no surefire way for the designer to determine whether her hunch about another person's needs is right or wrong, there are techniques for her to lower the risk of making big mistakes. These techniques involve different types of market research, and so it is highly important that the designer learn to respect, use, and even produce market research. Such literatures help her better inform her decisions.

This is especially true when the designer wishes to introduce innovative solutions to a pre-existing problem space, as existing market research may not support any new solutions, and the designer's gut instincts are highly susceptible to personal bias. The ability of the designer to reach out to and touch her intended beneficiary, to learn information about that beneficiary's needs and wants, and to transform that information into a supportive foundation for her designs allows her to bring new life to previously dead spaces.

c. Role: Serving Clients

There are bound to be times when the designer works for a supervisor, client, or patron instead of solely for her own interests or the good of humanity. This is because most game designers must eat. But then there are times when said designer has more autonomy, in which she could benefit from *pretending* she had a client so as to avoid the directionless frustration and biased interpretations of the previous two hats.

Working for some type of 'client' seems as if it should be analogous to wearing a choke collar; the average designer might expect her creative vision will be curtailed and that she will be trapped working on projects that do not motivate her. Yet the Cartographical Designer is curious about almost everything, and certainly has the ability to become interested in solving whatever problem plagues her selected patron.

It is true that some work environments and some clients are unsalvageable. Yet there exist a great many books and theories for how a designer may determine when she is being mistreated and ought to move out in search of greener pastures, and so that is not the focus of this design methodology.

The truth is that decent management provides constraints and direction, and that these two forces can be a great motivator and stress reducer. After looking at how the Cartographical Designer thinks, we can see that she approaches all projects while interested in and aware of a wide spread of interrelated possibilities, possibilities which can often leave her distracted, overwhelmed, and even bored.

Constraints are parameters which help the designer narrow her attention to a smaller realm of possibilities. Direction helps her evaluate the value of those possibilities based on objective criteria. Both help focus her immense explorative capabilities over a small area of highly relevant territory, giving her much higher efficiency and confidence with her solutions.

Sometimes, the stated objective is not the actual objective. For instance, the stated objective may be to create an interactive website that engages customers, but the *genuine* objective may be to help the client position themselves as more professional and high-tech. The designer will always be well-served by taking the time to determine the client's objective, as this will increase project efficiency and reduce opportunities for miscommunication and frustration.

These lessons are invaluable to the designer whether she is serving clients or serving her own interests. By donning the hat of Service to Clients while working on a personal project, the designer can see how she might benefit from giving herself constraints and direction early on in the project.

In this manner, the designer can also see how dialogs between two people with different objectives are used to keep the labor on-track and the project vision untainted. Although the designer is her own supervisor, she may take steps to try and set up a dialog between herself and, well, *herself,* with each 'side' of the discussion wearing a different hat, in an attempt to motivate

herself and make difficult decisions. This may involve empowering a trusted peer to act as a facilitator or devil's advocate.

Whatever technique the designer chooses, this hat becomes a potent component of the design process because it reminds the designer to put their beneficiary's chosen objective first, and to seek information about what, precisely, that objective actually is.

d. Role: Serving Others through Clients

The customer is always right.

- Marshall Field[91]

With a few bizarre exceptions, all games and interactive projects will be put into the hands of an end user. The client's end goals typically exist in relation to these users, which make up a target market. In these instances, should we say that the game designer is acting in service to her client or to her client's target market? If we go one step farther and assume that the vision for the product was set by someone other than the designer's immediate supervisor, should it be the supervisor, the target, or the vision which the designer is most loyal to?

The answers to these questions pose a sort of moral dilemma at times, in which the game designer is left weighing whether she should do what is best for a wallet, for an idea, for her own sanity, for a person, or for a group of people. In truth, tackling such dilemmas and answering such

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[91] This slogan or idiom came to characterize a period of retail history in which retailers first began strongly prioritizing customer satisfaction. Field also invented or at least popularized slogans such as, "Give the lady what she wants."

questions travels beyond the scope of this thesis, and heads out into the fields of business ethics, company politics and vigilante heroes.

Yet it seems fair to suggest that there are many instances in which a client may provide negotiable feedback, and this feedback can come in dramatic contrast to what the designer believes to be best. Before the designer begins questioning her own loyalties, building convincing arguments, ignoring the client, or yielding to them, there is merit in raising the question of whether the designer is even *right* in the first place.

By donning the hat of Services to Others through Clients, a designer agrees to keep in mind that her intuition is at once both powerful and yet inherently biased. In order to make the best decisions, she must be able to tell which factor is currently reigning strongest in her design: intuition or bias.

To get a more objective viewpoint on the matter, the designer can commit to an investigation, and one of the most valuable tools in the designer's arsenal at this stage is market research. Whether it is conducted by the designer herself or by an outside entity, market research can supply valuable data for helping the designer support or discard her solutions.

Market research is its own discipline. As with all research methods, market research should be respected for its rules, its potential for abuse, and its capacity to mislead. Market research must be conducted with a clear purpose, appropriate questions, the right market, and a reliable researcher who will not lead respondents into specific answers. The art of conducting high-quality market research may be beyond the scope of this paper, but its potential for informing design decisions is not.

By gathering information about a game's target market, the designer can hope to spot errors in her reasoning, or else compile together a well-supported case through which to convince her 'client' to trust her judgement.

It should be noted that all market research, even if carried out in a laudable fashion, is still subject to bias when interpreted, whether by the designer or client. The designer may read the information as favorable because she is passionate about her idea, or both the designer and client may read the information as unfavorable simply because the designer has proposed something new and which the target market is still unable to visualize.

Owed to this, market research should be taken as a tool or cautionary flag, and not as an authority. Steve Jobs famously said, "A lot of times, people don't know what they want until you show it to them," at which point presumably they make commentary on it.

However, this is not to say the designer may ignore her target in favor of her own approach simply because she is trying to do things differently. In these instances, designers will want to employ additional tactics in parallel with market research to make useful judgements, such as the creation of mockups and prototypes.

On personal or philanthropic projects, a designer can still don the hat of Service to Others through Clients. She can again imagine herself as two distinct entities, as she did while wearing the hat of Service to Clients, so as to pit her internal objectives against one another, question her underlying assumptions, allay her doubts, and support her judgements. This hat reminds the designer to use elements of user experience design and product design even when she is working

alone, and to use prototypes, market research, and other tactics in order to give herself a strong foundation of core ideas to work from.

e. Role: Serving with Empathy

When the designer is 'Serving with Empathy', this means she is attempting to design a useful game for a beneficiary who cannot easily tell the designer about their needs, wants, and desires. This could be because the designer is designing a game for animals, for babies, or for people in a distant and developing country. These sorts of games may be private projects to raise awareness or teach basic skills.

Serving with Empathy is difficult owed to the inherent bias of both the designer and the society surrounding the designer. Sometimes, the designer's expectations concerning the audience's needs are a close match, and the product is successful. Sometimes, the designer makes terribly incorrect assumptions about both the beneficiary's capabilities and context, and the product becomes patronizing, out of touch, and essentially useless.

Serving with Empathy should only be done if the designer is willing to spend a great deal of energy researching their target audience via whatever means they can hunt down. The designer must still collect market data, form conjectures, support conjectures, build prototypes, and test those prototypes. She must get ahold of her audience—or a near-match with warning flags raised about skewed test results—by any convoluted means possible.

Serving with Empathy is the hat the designer must don whenever it is important to remember that what is *best* for a beneficiary is not always what we would presume to give them.

2.3.3. Finding Problems

A problem is a chance for you to do your best.

- Edward Kennedy "Duke" Ellington

Each of the Cartographical Designer's projects begins with some kind of spark: an itch, a need, an inspiration, or an objective. This spark typically occurs in reaction to an external stimulus, whether that stimulus is a garden of roses or a potential client's formal request for proposal (RFP). This spark, in turn, goes on to catalyze a chain reaction of countless other sparks, both within the designer and perhaps across her team, if applicable. Yet when the stimulus which provokes the inspiration leads to actual work, we can say the designer has a *problem,* and that her *problem* now needs her to solve it.

Problems inspire the designer to ask more questions and seek out answers that satisfy her high standards of curiosity. They send the designer on a quest to learn more, and are necessary for the start of a project.

a. Problems Lead to More Problems

A project, in addition, is a tree of problems.

For example: A chief executive officer realizes her team is suited to meeting an opportunity with a game. She explains it to the chief of technology, whose mind brightens with all the technological possibilities, and to the creative director, who immediately begins considering the layout and character design. As each role scrambles to solve a network of problems, the project might as well be described as a firework show of sparks, inspirations, needs, and *problems:* questions which need answers and lead to other questions.

2.3.4. Categories of Problems

For the Cartographical Designer, and with respect to inspiration, there are two basic ways to divide problems. These are the claimed from the unclaimed, and the obliged from the voluntary. Each exist on a sort of spectrum, with varying stages of gray in between.

a. Claimed and Unclaimed

To decide where a problem is claimed or unclaimed is to determine whether or not the Cartographical Designer is currently trying to solve it. A claimed problem is a quest they've embarked on, a set of questions they are looking to answer, or the necessary children of another claimed problem which must be satisfied so that the parent may be resolved.

An unclaimed problem is one the Cartographical Designer finds compelling—as they are wont to find most anything compelling—but that exists in an inactivated state in which the designer is not currently seeking out solutions. A Cartographical Designer may still end up conducting research about unclaimed problems in her spare time, but it is important that she draw mental boundaries around her claimed problems so that she can differentiate the two. Otherwise, she might back up to find her claimed problems has bled off into the infinite, and that she has not found answers which string together into a useful design.

The designer must, as will be described in ***Managing Large Solution Spaces,*** constrain the number of problems she permits herself to solve.

b. Obliged and Voluntary

Some problems are bestowed upon the designer by schedules, clients, and supervisors. These are the type of quests that come with clear, exterior rewards, and arrive pre-claimed by the person

who receives them. Obviously these problems cannot wait around for answers to drift into them, and so the designer must prioritize these problems so that they can be solved to some standard of satisfaction in time for deadlines. The designer will find herself combatting the urge to solve the problem perfectly, and anxious about the solutions she believes to be poor matches.

The majority of all problems the Cartographical Designer encounters, however, have nothing whatsoever to do with her current project and do not necessarily even require solving or claiming. Some she will explore casually, and some she will not. They crop up everywhere, and only some of them mature to the point where the Cartographical Designer should consider taking them on as quests.

As the Cartographical Designer has tremendous capacity for picking up odd skills and delving down rabbit holes, it may sometimes be frustrating to her that she cannot be learning and accomplishing everything she is capable of all at once. Discerning what problems really are obligatory, and being careful to filter and constrict the number of problems which she voluntarily claims, is key to maintaining the designer's personal balance.

2.3.5. New Problems Lead to Inspiration

When we face a problem, we may not know its solution, but we have insight, increasing knowledge, and an inkling of what we are looking for.

- Noam Chomsky

For a Cartographical Designer, a strong source of new inspirations is her own curiosity. A part of the designer's mind is always curious, and is constantly drawing inspiration from everything

around her, whether she is watching the history channel, strolling through daisies, or browsing internet news, new ideas are constantly flowing in.

Such a designer jumps through and collects new 'problem' nodes and possible 'answers' so rapidly and so constantly that her biggest problem is recording and keeping track of her ideas so that she can continue to revisit and leverage the arsenal she is amassing. Without a means of cataloging her ideas, a Cartographical Designer would be forced to live primarily in the present, limited by weaknesses of memory, and to constantly feel distressed because it seems as if she has lost information. Some of these cataloging techniques take the form of cultivating good habits in documentation. Others come naturally through storytelling. Often, a designer's ideas join into loose narratives which assist her in remembering her discoveries.

a. They Take the Form of Quests

To have a problem is to have a quest. The problem in itself implies the reason for which it must be solved, and if it did not, then we most probably could not call it a problem. This is significant, because Cartographical Designers need a wide range of differently scoped feedback loops in order to maintain their enthusiasm and curiosity. Their lives are best lives as stories, with countless interwoven plot points.

Cartographical Designers resolve problems through a process of investigation, collection, writing, logical problem-solving, and creation. Cartographical Designers can create very thorough solutions to problems, but they must always be careful of *over-solving* problems. Particularly stressful to this designer is a situation where the weight of her current problem is unknown, as it makes it

difficult for her to determine where and when to put the problem down. Cartographical Designers need clear problems and clear constraints in order to work safely.

As the Cartographical Designer prides herself on curiosity, and on being able to find connections to draw between anything, problems are her lifeblood. Without complicated or compelling problems, such a designer is miserably bored. At times, Cartographical Designers can even benefit from their natural quest-seeking tendencies to frame more boring or intimidating pursuits as difficult problems in need of solving.

For example: The designer may wish to imagine technical writing, physical, programming, artistic, drafting, spread sheeting, and proposal-writing labors as adversaries to be conquered, and reward herself with praise for a job well done once the work is accomplished.

b. They Give Goals Amid Adversity

There are times when problems come with constraints that prevent a designer from solving the problem in the most straightforward way. At times, this is a cause to rethink one's current project or perhaps one's employment options.

At most times, however, the constraints of a problem add complexity and challenge to it, and it is remarkably simple to become curious about the difficulties of the augmented problem. Cartographical Designers are talented at discerning when project constraints might sabotage goals later on. They are also phenomenal at working at problems under adverse conditions which would bottleneck other designers. A Cartographical Designer can write algorithms to balance the economic model of a game which not only doesn't exist, but for which the core gameplay elements have not yet been officially settled upon.

2.3.6. New Problems Stem from Inspiration

At most times, a Cartographical Designer's mental network is filled with problem nodes, and so she remains aware of various problems which could serve as the spark of inspiration for a new project.

If a Cartographical Designer were asked what sort of project she would like to work on next, a typical reaction would be for her to list ten to twenty possibilities. If she has narrowed down her interests to one, then, mentally speaking, she has *already* claimed a new problem and begun work upon it.

a. They Must Be Chosen Carefully

Nearly any problem a Cartographical Designer runs into is interesting, because, as we have stated, she is naturally curious. However, her explorations will lead her to thousands of problems, each magnificent in scope, so that we can easily see it is neither healthy nor even remotely possible for the Cartographical Designer to try and address all of them. Many, she will never even do much expansion on.

Instead, these problems remain in storage inside the Cartographical Designer's internal network, like cards waiting patiently for matching pair cards to show up, but otherwise gathering dust. This is a perfectly appropriate and safe place to leave them: labeled and archived, but out of sight.

A designer who thinks in terms of maps can easily become distracted or stretch herself too thin trying to solve too many of the world's problems simultaneously. On the other hand, she will also be disheartened by watching 'sparks' of inspiration float by without acknowledging them. The

Cartographical Designer therefore has to cultivate the ability to gather and store her compelling problems, while at the same time constraining herself to only working on a few key representatives at a time.

This is true regardless of whether or not her problems stem from obligatory roots. An obligatory problem may have served as the root of an investigation, but the designer must break these problems into smaller problems and into tangential avenues of exploration. The Cartographical Designer may be able to brainstorm thousands of ways to solve the root problem, but of those thousand problems she must select only a scant few to expand on. Assessing which tangents to indulge in and which to avoid thus becomes a crucial design task.

2.3.7. Repealing a Problem

a. Game Designs Grow and Adapt

With the basic definition and function of problems established, the most important reason to differentiate between different problems, different kinds of problems, and different problem beneficiaries, is that eventually all creative problem-solvers end up solving problems which did not need to be solved. This is owed both to human error, and to the naturally iterative and mutable process of game design.

b. Tracing Inspirations Back to Problems

There are, however, plenty of good reasons for a Cartographical Designer to be aware of where her many inspirations come from.

She may wish to clean out a bloated project, discarding old ideas that have become inapplicable to the present. Understanding what problems these ideas served and whom or what they

were intended to benefit can help alleviate the pressure behind discerning what remains valid and what is better discarded or saved for another occasion. Tracing inspirations back to their problems helps the designer learn to make acute judgement calls.

c. Reevaluating Work Done

At any phase of a project, different perplexing questions may seem to hold a synergistic relationship, whereby solving one auxiliary problem looks as if it will most certainly aid in the solving of a more important, primary problem. Yet as the design phase progresses, and as new information, constraints, and relationships become apparent, these synergistic relationships may vanish or even turn antagonistic to one another.

The designer may find that she has spent a great deal of time, for instance, setting up an Art Bible for a project on the presumption that a game would be three-dimensional, only to learn halfway through the design phase that technological limitations and target audience would strongly favor a two-dimensional game. Or she may learn that the core technology on which the game was expected to be founded will not serve the needs of her client.

From a managerial perspective, this is the best time for such problems to be caught, as the cost of labor wasted at the design phase is low. Yet, to the designer—who has already built an internal mental model of how the game will look and feel—having this structure suddenly torn out from underneath her can lead to a great deal of disorientation on a project. Once *one* aspect of the game has been called into question, it leads the designer to wonder what other elements of the game should also be reexamined—a task which can be difficult if the designer has been at work for quite some time and does not recall with certain clarity why the choices seemed ideal in the first place.

The designer could, of course, finish her original design plan, which is nearly complete. Yet in recalling that her original problem was to satisfy her client, or her target audience, *not* to make the best three-dimensional Design Bible for a game, the designer must conclude that her present task is no longer a problem worth solving.

In other scenarios, she might find that while her existing work might not be her preferred route for solving the newly adjusted problem, it nevertheless will serve her client admirably and she should continue with as few tweaks as possible.

d. Problem Beneficiaries as Motivations

By thinking of her game as a network of problems, the designer tasks herself with remembering the *motivation* for which her choices are being made, rather than simply working on whatever task presents itself. By keeping track of her problems, the designer can remember *who* or *what* her actions ought to ultimately serve, and she can evaluate whether her current material will be able to serve that goal or not.

e. Unanswerable Problems

Sometimes questions are more important than answers.

- Nancy Willard

Some problems seem to be important to the overall project, but, for whatever reason, are outside of the designer's ability to answer. This might be because her resources are limited, or because she is trying to forecast the unknowable future. In either event, it is important to make a note of these problems, 'flagging' them so that the designer or teammates farther down the production line can come back to assess them at a later date. Reference ***Detail Nodes***.

2.4. Solution Nodes

2.4.1. A Solution

To the Cartographical Designer, solutions are another type of idea node. If a given solution is agreeable, the designer hopes to match it to a compelling problem.

A solution is a proposed subset of tools, time, knowledge, and labor. Solutions are infinite in number, and many are unsuitable for implementation. An interesting video game technology, if inapplicable to any of the designer's projects, is an example of a problem-less solution. A curious Cartographical Designer continuously investigates new technologies and resources, and so keeps her mental network well-stocked with interesting solutions.

A solution can take any number of forms; it may be a character, gameplay mechanic, engine, marketing campaign, programming technique, or so forth. Solutions may be small and obvious, or large and requiring of intricate planning. Larger solutions may incorporate many smaller ones.

Each solution node represents a technique by which a problem might be solved; each node is an awareness of what can be done. Such nodes are expansions of the Cartographical Designer's horizons and her familiarization with possibilities, and it is by applying these possibilities that she makes decisions, does work, and crafts designs.

2.4.2. Role Category: The Artisan

To conceive an idea is noble. To execute the work is servile.

- Leonardo da Vinci[92]

Where an idea is "a formulated thought or opinion", a design is "a preliminary sketch or outline showing the main features of something to be executed" (Merriam-Webster), (Merriam-Webster). In understanding that designs must be executed upon, it becomes clearer that a designer must develop a cursory understanding of methods of execution. Cartographical Designers are more than fonts of ideas because game development requires them to be more; they are artistic producers and engineers of workable plans. Thus they cultivate game production skills in order to better understand what they are asking of their resources and of themselves.

Some of these skills are in areas truly native to the game designer, such as in experiential design and interactive writing. Others can be learned from dabbling in art and computer science. It is the sum of these skills and experiences—traveling from inspirations, through problem beneficiaries, through multi-dimensional solutions—that lends the Cartographical Designer's products a dollop of something special, a 'special sauce'. Through it, the designer marries components as disparate as music composition and electrical engineering into a powerful and holistic design.

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[92] I am fond of using this quote to bolster the confidence of anyone who feels as if they never are capable of finishing anything. I use it here in a somewhat wry fashion, as this section of the design methodology is entirely about refining the work well enough to the point that one could execute it—without, necessarily, executing it.

When it comes time to hammer in the new game's details, and to use a bottom-up approach in order to investigate new techniques, the Cartographical Designer must tap into her inner artisan. The Artisan is excellent at investigating tightly scoped problems and building solutions up from any available blocks. She employs technical, practical, and hardware know-how, driving to the heart of how to structure the design.

By operating at a fine level of detail, the Artisan role and the Artisan hats allow a designer to magnify issues and notice where their designs are fuzzy and incomplete. While vulnerable to the caveats of perfectionism, this role should nevertheless be employed early on to investigate areas of high uncertainty so it can draw attention to any large flaws in the game's overarching conceptualization or else bolster confidence in the viability of novel gameplay or technological components.

a. Role: The Ludologist

The word 'Ludology' comes from the Latin word for 'play'. It was popularized by the work *Homo Ludens* (Huizinga). After studying chess and other games, philosopher Johan Huizinga theorized that play might be integral to higher-functioning animals and thus might be an indispensable part of what it means to be human.

Ludology typically refers to the wider study of play, games, and rituals. Its purpose is to define games as distinct from 'texts', which in the cultural or art historical context implies that they are artifacts which can be 'read' to determine their meaning. Here, the Ludologist hat is used to frame a lens in which the game designer is focusing strictly upon gameplay.

Gameplay lies at the heart of game experiences. It is a collection of voluntary actions and experiences available to the player. A game designer cannot directly design any experience and so cannot design gameplay, just as she cannot tap directly into her player's brains. However, she is capable of designing rules of play, called game mechanics, which weave together to stimulate the desired gameplay.

As a Ludologist, the game designer launches herself into the indirect design of gameplay. She still channels a multidisciplinary arsenal of tools to approach this task, but finds herself borrowing from specific disciplines dealing with human experience such as systems engineering, human-computer interaction, psychology, and sociology.

While crowned with this hat, the designer is likely to feel that she is sitting in the heart of her domain. She is a designer of active and participatory experiences; her only peers are installation and performance artists, and her work will have some of the highest potential for longevity amongst them.

b. Role: The Narratologist

The Ludology vs. Narratology debates concern themselves with whether or not games should be primarily studied by new metrics, as a function of the experiences they create, or by older metaphors which treat them as 'texts' which are then 'read' by their players. In some studies of game design, this is simplified down to an argument between whether gameplay or stories are more integral to a game. This is not strictly accurate, and it is possible to treat any game as an artistic 'text' just as it is possible to treat traditional abstract artworks as 'texts'. Much of the story, in this sense, is the story of the game's context.

Thus it is also while wearing the hat of the Narratologist that the game designer may feel closest to the heart of her domain. As a writer of some of her era's most complex texts, texts that may morph and change with each play-through, she can see a tremendous potential for games to reflect upon or alter culture.

The Cartographical Designer dons the hat of the Narratologist when she wishes to focus on the greater story that her project will tell, regardless of whether the game itself contains a narrative. She seeks to hone the dramatic plotting of a stage director, the wordsmithing of a novelist, the romanticism of a fool, the charisma of a snake-oil salesman, and the observational skills of a world-class people-watcher.

When her project requires a narrative, it is the designer who will determine whether that story is linear, branching, or emergent. If she is the character designer, she will need to use and break storytelling tropes to engineer simple or complex narratives as her project requires of her. If screenwriting is needed, she will need to be aware of the advantages and limitations posed by the game technology and animations, and she will also need to know enough about sequential art and storyboarding such that the dialog can be delivered in a concise and compelling manner.

c. Role: The Visualist

The hat of the Visualist embodies skill in concept art, information design, graphic design, light and shadow, and overall aesthetic judgement. The designer dons this hat as a means not only of improving the game's looks, but also as a vital communication tool. A narrative alone is often insufficient to explain a full game design.

When the designer is wearing the Visualist hat, her most important objective is to set, maintain, and explain an aesthetic vision. To do this, she must hone the ability to translate ideas into images, and to use those images for research, prototyping, documentation, and communication. These images may be mockups, diagrams for programming purposes, or art concerning the characters and settings of the game.

The designer may or may not have artistic talent, but to supplement any weaknesses, she will work on developing an eye for visual styles. She may keep a living database of textures, concept images, or photographs, so as to better explain her ideas. These tools will help her explore artistic possibilities for new projects, and later to document her intentions with Art Bibles.

The designer calls on her Visualist hat in order to pitch and test projects, to explain ideas to laymen, to bridge the gap between gameplay and story, and to communicate with artists. Her images also help give personality and form to the project, and so can serve as morale boosters.

Regardless of who her audience is, the designer must be able to communicate succinctly and effectively with her images whether she is pitching a project, creating finalized assets, drawing a UML diagram, or highlighting a color palette. To do this, she must employ organizational skills native to disciplines like information architecture, and learn to let go of absolute perfectionism or accuracy by doing exactly the work required to achieve optimal outcomes.

When working within the specific context of game art, the designer dons the Visualist hat while designing game assets such as characters, settings, and items, and when choosing the point of view, art technique, user interface, and coloring. These decisions are tied up with the technological

limitations of the available tools, the mode of gameplay, the presentation of the narrative, and with the expectations of the audience, but the Visualist plays a hand in the design of all of them.

d. Role: The Technologist

To be a Technologist means to be one who specializes in technology, but when she dons the hat of the Technologist, a game designer hasn't enough time to become pedantic. Instead, she explores and researches to track down a small pool of likely candidate technologies for her current project, and then investigates each to a reasonable level of satisfaction in an attempt to select the optimal choice. Her soft skills lie in logic and communication, her knowledge body is a loose memory of algorithms she can look up on the fly, and her hard skills take the form of scripting, programming, and software engineering.

She is a bottom-up thinker, and works to percolate ideas from her investigations in deep rabbit holes. When a project is in the works, the Technologist hat lets the designer translate ideas into digital prototypes. Her need for practical models of behavior helps her to validate the design's viability at all stages, and report back to another hat if troubles crop up.

The designer is a planner, and seldom needs to code projects by her lonesome, so her Technologist hat is not meant to equal a specialized programmer. In most instances, she wants to be able to understand technology specialists, evaluate the importance and veracity of their claims, and then help implement her designs through a high-end scripting language or level editor. Yet all good planning requires at least a cursory understand of the nuts and bolts by which constructions are held together.

The Technologist hat also plays a valuable role in helping the designer regulate the scope of her project. By laying out a design in rough algorithms or plans for algorithms, the Technologist can help the head of technology develop an idea of how much code the project will take to bring to fruition. The designer can then determine whether the design is at an implementable stage, whether crucial ideas are still vague, or whether the project has grown too large for its budget.

In these ways, the hat helps restrict the project to a 'non-infinite workload of programming', an idea which will be described later in ***Managing Large Solution Spaces.*** By demystifying technological issues, clearing up vagueness, and dividing a project into algorithms and data, the Technologist can control the ambition of a project and help to shut unnecessarily open doors of thought.

2.4.3. When All One Has Is a Solution

I suppose it is tempting, if the only tool you have is a hammer, to treat everything as if it were a nail.

– Abraham Maslow[93]

If one is desperate for a problem to one's solution, one might forcibly use that solution to resolve problems that could be better serviced by a different solution. It is thus often considered bad form to start with a solution and migrate towards finding a problem. A designer may then end up shoving a square solution-peg into a round problem-hole.

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[93] Aren't you glad you finally know who said this?

For this reason, it is important for the designer to understand the distinction between problems, inspirations, and solutions. Although a designer may be excited about a new technology, she should recall the technology is but one of many potential solutions she might employ, and that her focus typically ought to be bound by the problem she is attempting to resolve. A solution that initially seemed ideal may later prove insufficient to meet the problem's resolution criteria, and so should be discarded.

On the other hand, sometimes the solution *is* the problem. Designers may be tasked by clients with quests to make use of predetermined solutions in a gambit to increase the popularity of those solutions. To do this, designers must find a problem or set of problems which the solution can be tweaked or repositioned to resolve. These solutions may be an existing technology, a game mechanic, or a piece of intellectual property. So it is that a designer may often find herself implementing a solution for which the problem is poorly defined.

This is not only true in a workplace setting. When working on personal projects, a designer may fall in love with a particular solution. Whether this solution is a new gaming headset, a virtual-reality implementation, or a man-sized robot, her greatest trial will be the same: she will have little success in developing her chosen solution if she is unable to find an appropriately matched problem.

2.5. Detail Nodes

A 'detail node' is not, as its name might unintentionally suggest, a smaller division or auxiliary explanation of some of the above-mentioned nodes. Rather, if we visualize a network of idea nodes as a mind map or concept map, a 'detail node' is a parentless, unattached, floating node, or a node whose categorical tree is empty but for itself.

The foremost characteristics of a detail node is that it represents an idea that a) Is probably important and, b) Does not quite look to fit neatly anywhere with the other nodes such that it will be easy to remember.

A 'red flag' encountered in the pre-production phase of a design likely constitutes a detail node, especially if it can only be addressed later on once a full team of developers is available. An example of a very large red flag might be an ethnical concern, e.g.: the fear that compromised data integrity could lead to greater risk of suicide in a target market composed primarily of depressed persons. If this flag is raised in the early stages of brainstorming, the designer cannot simply take for granted that it will be remembered later on. The flag must be embodied in a detail node, and care must be taken to ensure it survives into the later stages of user interface and systems design.

Detail nodes do not always have to be so dramatic. An example of a small but frustrating-to-retain detail node might be the exact dimensions and formatting conditions each piece of artwork must meet in order to be usable by the game engine.

When it comes to detail nodes, the designer's chief concerns should be that they are adequately documented, frequently reviewed, and made visible to the parties and processes they concern at relevant times. A detail node from the art team that affects the computer team must reach them not just once, but every time they require it.

This 'monitoring' requirement puts the bulk of detail node handling into the realm of project management, but it is also likely that the game designer will need to raise or respect a number of detail nodes in all design and development phases. This segues our discussion into the second tenet of Cartographical Game Design: ***Documenting***.

3. Documenting

3.1. Overview

3.1.1. Purpose

The palest ink is better than the best memory.

- Chinese Proverb[94]

Documenting is the second tenet as laid out under ***Cartographical Designing.*** The creation of documentation is a fundamental labor of game designers, and is their chief engagement during the preproduction phase of game development.

Whilst 'documenting' is one of the more straightforward of the tenants of Cartographical Designing, and therefore less demanding of explanation than some of its siblings, it is still necessary to touch on the whys and wherefores of the Cartographical Designer documentation practices, so as to provide an element of clarification.

In this discussion, 'documenting' is also the art of leaving oneself a paper trail over the course of the design and production processes, so that successes can be reproduced, decisions can be reevaluated, and steps either backwards or forwards are always easier to plan. In this way, the

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[94] Although I cannot be sure where it originated from, I was at least able to track this proverb, "廣記不如淡墨也," back to the third scroll of a work called 政学录, 'Record of Political Science,' by 尹会一, Yin Huiyi.

Cartographical Designer is interested both in direct documentation and in secondary, auxiliary, and meta-documentation.

3.1.2. Documentation as Thinking Externally

The Cartographical Designer is an external thinker. Not only does she gather idea nodes from all facets of her experience, but she also must externalize her thoughts into pictures, algorithms, and written words; doing so keeps her in control of all the information she contains. Her pattern of osmosis, synthesis externalization and crystallization of thoughts is an important part of nearly every big task she takes to.

Even when the designer is documented in a programming or management context, her documentation still represents a detailed journal, and serves both as an important artifact and as a tool for tracking large networks of inspirations, problems, and solutions.

3.1.3. Layout

Documenting is a means of communicating ideas both to oneself at future milestones, and to one's team and allies.

In the context of this thesis, we will take more time describing documentation as a form of external thinking and self-communication than as a resource for interacting with others.

After briefly discussing ***Documentation as Communication,*** we will go into describing the different documenter roles under the header of ***Our Medium.*** These roles are divided into the following categories, based on the substance of their documentation:

- For the development of meta-level design processes.
- For game-design work during preproduction.

- For content creation during production.
- For postproduction and postmortems.

All four of these lenses may overlap during the game development process, and so their division makes it easier to allocate time appropriately to suit the present, dominant documentation needs of the designer.

3.2. Documentation as Communication

3.2.1. Communication with Teams

This thesis's scope is constrained with respect to its sample works, which are designed and developed by the same person. Discussions of design methodology, genre, and sample works will remain tightly coupled. A detailed discussion of leadership, teamwork, communication, and project management is thus outside the scope of this paper. This is not to say that design methodologies should lack for detailed approaches to collaboration or opinions on auteur theory, but merely that such topics will not receive a deep treatment in this thesis.

3.2.2. Communication When Alone

If it is not documented, it doesn't exist. As long as information is retained in someone's head, it is vulnerable to loss.

- Louis Fried[95]

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[95] Fried was speaking on project management as an expert on information technology, but I honestly feel it's applicable to everyone: like the housewife who knows it's best to keep a grocery list on the refrigerator, or anyone who's ever fallen in love with 'sticky notes' or their daily planner…

Documentation allows for the designer to communicate with future iterations of herself. When engaged in the design or development process, the designer will have to don many different hats, each of which will be exploring trains of thought in very different directions. Documentation keeps information from being lost when switching from hat to hat, and reduces the burden of memory on the designer by 'saving' and 'loading' relevant information to and from external resources. It is particularly useful in large or long-running projects where a holistic approach to design will surely dig up a very large web of interrelated problem and solution nodes.

3.2.3. Communication for Pitches and Marketing

A pitch is a request for support for a project, whether that support comes in the form of solidarity, advice, attention, or funding. Depending on team size, project, and personal charisma, a designer may have a key role to play in pitching her game. To participate in a pitch, a designer should have decent spoken communication skills. She must have a clear vision, a crisp understanding of what variables can be negotiated, and the ability to answer any possible questions about her game design which are not covered by a partner, including questions about finances and target market. She should be able to deliver her pitch on the fly and without visual aids, so that she is ready to snag opportunities as they arise.

Because many factors of a good pitch rest outside of a designer's main areas of expertise, researching to produce correct documentation for these factors is highly important. A designer may not have a business degree, but she is capable of researching sufficiently to put together a draft budget for her project. Thorough documentation and practice can then permit her to defend her numbers in real time, as well as equip her for making appropriate requests of potential investors.

No one affiliated with the game should know the game better than the designer does; when working with a team, the designer should work with her peers to prepare herself for pitches and marketing.

3.3. Our Medium

Game designers *write.*

The video game is the game designer's end medium of expression, but she interacts with it more like a film director or architect than like a painter or sculptor. That is to say that she interacts with it more *indirectly,* by leading the project, and that her end result emerges as a synergistic sum of both her work and the work of others.

Of course, when working alone, the game designer gives birth to games in their entirety, but in these situations, much of her labor is devoted to disciplines other than game design because she is filling in for an entire production team. This can be compared to a film student starring in and shooting her own movie, or an architect electing to build a new veranda for herself. In this section, I wish to focus strictly upon the medium of games as a function of game design.

Fortunately, if we look to auteur theory, we can rest assured the game designer does not have to be alone in order to realize an artistic vision. Auteur theory maintains that a film director's style can be felt even at the end of a long production process involving many different contributors (Ryan). A Guillermo del Toro film therefore *feels* like a Guillermo del Toro film, and so too can we propose that a Sid Meier game feels like a Sid Meier game.

This leads us to examining what activities the game designer engages with directly, which then have such a powerful impact on the final game, such as research, experimentation, planning and

documentation. These activities share a common medium: the written word. So it is that the game designer directly operates upon documents through the medium of the written word in order to indirectly 'paint' her game.

Whether the game designer is working with a team or alone, there exist loose boundaries not only around the greater discipline of game design, but also around the different subcategories of game design such as level design, interactive story design, character design, systems design, user interface design, and so forth (Duffy). Many of these disciplines require a designer to dabble in other forms of craftsmanship such as scripting, statistics, or art (Urustar S.r.l.). Sometimes, 'game design' is even defined as 'content creator' (Ask a Game Dev). Yet a designer operating in any of these sub-disciplines creates, interacts with, communicates using, and alters documentation, especially in the preproduction phase of game development.

The role of documenting in game design cannot be overstated.

3.3.1. Role Category: The Eternal Student

Game design, technology, and culture change from year to year, ensuring that there is an endless stream of new information to absorb about games and their worldly context.

The game designer's first labor, before preproduction has even properly begun, is to amalgamate and synthesize a collection of raw idea nodes into a concept document (Urustar S.r.l.). This concept document often has more bullet-points than adjectives. It states the general idea, and specifies the needed production resources including time, technology, and funding.

To gather ideas for the initial concept and then hone them into something feasible, the designer will need to engage in both structured and unstructured forms of exploration. Once the

concept is finished, and even as production begins, the designer should expect to run into many challenging problems that require some degree of wandering and study.

Both forms of exploration facilitate the game designer's most important abstract job: the establishment and maintenance of a clear and overarching vision for the project.

So it is that designer must frequently enter into the role of the Eternal Student, and its subordinate hats, ensuring that she mentally allocates appropriate time for the task of learning, and so that she can differentiate between this time and the time she spends implementing ideas.

a. Role: The Journaling Wanderer

Documentation can serve to illuminate the thinking […].

- Julianne Wurm[96]

The initial exploration of a project is littered with research fragments and idea nodes, some of which will wind up relevant to the design process and many of which will need to be left unclaimed. In order to track these ideas, particularly in an unfamiliar or ill-defined solution space, the designer will benefit from documenting the path she has taken and the assumptions and inspirations which led her from point to point. Her documentation begins with a detailed research journal, through note-taking and the collection of bookmarks.

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[96] Here the topic is pedagogical documentation (Wein, Guyevskey and Berdoussis), yet I feel it is strangely applicable to a designer who is documenting her own learning progress. The idea that a designer must 'learn' her own game and design her learning experience for doing so is one I explore further in ***Managing Large Solution Spaces.***

To later game design roles, this journal is an artifact. It will need to be picked through and summarized into a more concise directory of ideas to enhance its usability, but it itself carries the narrative of the road the designer traveled.

At times, the designer's muse will gift her with a clear idea, and so she will move directly from the exploration stage into the planning stage. At other times, the designer will need to walk through the early stages of the design process more thoroughly, or return to them later, after an idea hits a wall. These early stages involve a great deal of learning and therefore, a great deal of refinement of documentation. Exploration will, therefore, occur in staggered intervals in between experimentation and other forms of documentation.

It is important to divide the role of the wanderer from more goal-driven roles for this reason, to ensure that enough time is allocated to both non-linear distraction and more linear learning and synthesis labors.

b. Role: The Articulating Learner

The designer must review her trail of documentation while it is still relatively fresh and while the first traces of inspiration and illumination are working their way into her mind. Documentation left in its raw format for too long becomes like fresh research again and overtaxes the mind. By summarizing the work, condensing information into a bullet-point format, and reducing the number of dog-eared books and bookmarked webpages, the designer is taking the time to digest her research and further learn the space in which she is designing. The designer should also go through a process of 'slicing' the data she's found to make greater sense of it, as described by Richard Saul Wurman in *Information Anxiety 2,* which will be discussed at length in ***Managing Large Solution Spaces.***

As her inspirations grow stronger, the designer must set about to articulating them and explaining what parts of her research will form the foundation of her design. At this point, she may not be certain what the end game will be, but she has employed her Idea Gal hats and is ready to make sense of her many inspirations.

By imposing structure upon her inspirations, she gives them life. The act of articulating her ideas forces her to put them into meaningful patterns and create new information where previously there was only murky contemplation, and her composition will shed light on what direction she should take.

Once the designer is able to communicate fluidly about her ideas, she will be ready to compose her thoughts into the game concept document and list what its end attributes will be. At this point, she is ready to stand back and set clear objectives for future research and to begin composing a concise, overarching vision which will guide the project.

c. Role: The Commenting Coder

There are times when the designer will need to dive into the nuts and bolts of her project and perform some low-level programming. This could be during the production phase, because she is working alone, or during the explorative and preproduction phases, because she is researching a new technology. Without these coded investigations, it would be impossible for her to predict the structure and complexity of her code, which could throw a wrench into any plans created with the hat of the Systems Engineer.

Programs are documents in and of themselves, even as they are executable. Their text-based nature makes them easier to organize, explain, and track than other assets. Taking advantage of this,

the designer should take care to produce code documents in a legible fashion. They should adhere to a standard for formatting code, preferably whatever used throughout the rest of the project. Comments within the code typically must be edited in several passes: the first, for the benefit of the designer's understanding; the second, for educational purposes; and the third, for the automated generation of final code documentation.

3.3.2. Role Category: The Plan-Maker

We originally discussed the difference between an idea and a design in ***Cartographical Designing,*** under ***Inspiration Nodes*** and ***Solution Nodes*** respectively, where a design differs from an idea by being an executable plan. In this sense, the designer can divide her labors in preproduction between explorative activities in which ideas are collected, and design activities in which executable plans are built.

In the Plan-Maker role, the game designer will produce the keystone documentation with which she shares her name: the game design document. And while it's the designer's job to make *many* choices over the course of game development, these documents are her physical deliverables. This continued light shed on the designer's relationship with the written word further clarifies why ***Documenting*** deserves its place as a core tenant of Cartographical Design.

Over the course of producing her plans, the game designer will end up making, synthesizing, and compiling many of the most important decisions facing her project.

a. Role: The Writer of the GDD

The game design document (GDD) is the game designer's core deliverable for the preproduction phase of any project.

It is the medium through which she will assemble, refine, and communicate the heart of her design. This design may emerge all in one sitting as a result of a benevolent muse on smaller projects, or it may creep up out of her research in a series of incremental building processes and layers of thoroughly mashed idea-mortar. More often than not, the game design becomes a living document that adapts to meet the needs and constraints of its implementation team and the acid tests of reality. Its information may be broken up and disseminated across databases, wikis, and pitch documents.

During the production phase, it will be important to ensure that design and project management work hand-in-hand, so that any changes or requests for changes are communicated successfully from one end of the production pipeline to the other. When working alone, the game designer will find that verbal articulation of technical problems will help her narrow down relevant artistic solutions, and vice versa, helping to eliminate sudden bouts of uncertainty that might otherwise creep up during production.

b. Role: The Systems Engineer

In order to bring about her desired gameplay mechanics, it will be beneficial for the designer to adopt tools for structuring the transition between idea and production, formulating her mechanics, and smoothing out practical hurdles along the way. Ideally, the designer needs to produce documentation that plans out, divides up, and optimizes programming and content-creation labor. One of the most valuable lenses for creating such documentation is systems theory (Schreiber).[97]

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[97] Shrieber here is discussing the use of games in teaching systems analysis.

It is important to first establish that there are a large number of interdisciplinary disciplines which implement systems theory, and which bleed over into one another and into other disciplines, all of which are prefaced with the word *systems.*

Systems theory amounts to a hefty toolbox of practical tools, useful for analyzing and breaking down a wide variety of things which can be expressed as 'systems'. Here, 'systems' are sets of interacting elements that together form an integrated whole (Salen and Zimmerman 50). Systems are so integral to the structure of a game, systems design makes up most of the *Rules* in the foundational *Rules of Play,*[98] and discussions of how to apply systems design to game design is common among game designers (Fullerton 111- 145, 134) (Achterman).

Systems analysis also plays an important role in game testing and balancing, providing tools for the tweaking of numbers and the recommendation of content.

Systems engineering, which—despite overlapping with systems design—has its own locus of specialty, brings in tools from software engineering. The designer will construct use cases for her game, build lists of requirements, and craft entity-relationship models for describing its components. These patterns of thinking and documenting help a designer reposition her frame of reference for designing a discrete and logical system. By taking on the hat of the Systems Engineer, and modeling her game at conceptual, logical, and physical levels, the designer can not only render the technological facet of her game more robustly, but greatly improve user experience for her players.

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[98] Of particular interest to this theses is their treatment of games as emergent systems (Salen and Zimmerman 150-171).

c. Role: The Creative Director

The Creative Director hat represents the part of the mind that must set, justify, and hold consistent the art style. Wearing this hat, the designer may also handle branding, packaging, and promotional material, the responsibilities of which might be significantly different from the art interior to the game itself.

It can be difficult for the designer to balance marketing data with pure stylistic intuition or inspiration. Some decisions, after all, must be made by a designer's internal painter or graphic designer. Yet, the Creative Director takes responsibility for these difficult decisions by justifying them partially with data and partially after the fashion of a professional wine taster. There are times she may be wrong, but her principles are stated clearly on paper and she can reexamine them as needed in case there is a problem.

The Creative Director compiles an Art Bible for the project, even if she is working in a team of one. It is important that the designer's Artisan-hat time is spent focusing on the minute details of their individual creative labors, and not constantly questioning the entire visual style. The Creative Director hat keeps the top-level decisions divided from the bottom-level ones, a properly which is never so clearly as important as when dealing with art and experience.

When one must employ one's aesthetic judgement to make decisions amid uncertainty, the fact that the Creative Director restricts the possible solutions to a more tangible number helps to greatly reduce uncertainty and increase confidence.

In a team, the Creative Director hat should either create a number of keystone pieces for guiding the artistic direction, or else work closely with the artist who will be creating such imagery, to ensure communication lines do not break down.

The Creative Director should keep tabs on the Dreamer hat, and can channel The Dreamer's ideas into an achievable format. The Creative Director often communicates in highly visual presentations, so may wish to collect relevant products, images, and sketches to aid in explaining those ideas.

In order to set the feel and tone of the game, the game designer can adopt tools for the organization and communication of aesthetic information. On a macro level, this will entail compiling Art Bibles with references for character design, tone, color palettes, and other stylistic choices. Art Bibles can be filled with the game designer's own art, or with online images and magazine clippings.

The process of creating Art Bibles entails researching the target demographic and studying the aesthetic choices of similar products or other media. It is not always able to see the distinction between what is best for a target audience and what the designer *personally* wishes was best. The designer engages in a form of anthropological investigation called 'participant observation' (Sommer). She immerses herself in products catering to her target demographic, learns to appreciate their benefits and strengths from the point of view of her target, and then steps back to compile rules of thumb that explain the differentiations between successful and unsuccessful products.

Within the framework of this context—the target market's context—the designer will then need to employ her personal aesthetic judgement, previous experience, and gut instinct to make

creative decisions. Innovation may often require breaking rules in all settings, but here the designer first must know which rules are being broken, and must be able to explain *why.* A game designer who cannot understand her market's attraction to certain products will be trapped in either designing products for herself, or else in recreating lifeless clones of preexisting work.

It may also be difficult for some designers to pin down, compose, and then communicate an artistic design that is both personally intuitive and well-researched. By taking the time to write out her thoughts, gather visual references, and compile the material or future reference, the designer ensures she faces all important aesthetic questions, resolves them, and establishes the justification behind her choices. Her commitment to documentation ensures that she does not take any assumptions for granted, and also that she does not leave any major gaps neglected.

3.3.3. Role Category: The Document Manager

The Cartographical Designer's natural curiosity implies that she may need to hop back and forward between radically different tasks during the design and production processes, especially when struck by sudden new inspirations, problems, or solutions.

By creating a record of her tasks completed, choices made, reasons justified, and information discovered, she gives herself a tool for swinging from context to context and maintaining a grasp not only of each micro environment, but also of the entire project on a macro scale.

In order to ensure this documentation will be useful to her at a later date, the designer will need to make sure it is organized, efficient to update and maintain, and easily accessible at all times. This is where the role category of the Document Manager comes in, as a set of mindsets that help the designer step back and keep track of her project's many components.

Documentation that is embedded deep in uncatalogued journals will only sour the designer's somewhat sporadic design process. Complex or difficult documentation tasks will inevitably be abandoned in the designer's haste to jot down new ideas on napkins. However, overly primitive means of tracking ideas will soon lead to disorganization and information overload as the burden on the designer's memory becomes too great.

The Document Manager is therefore the most likely to enjoy the use of technological solutions to documentation.

a. Role: The Archivist

The designer will need to find a way to keep her documentation and living and breathing, and to quickly archive new choices and box away antiquated material. As an external thinker, she must strive to reduce the burden of memory on herself while at the same time ensuring her external memory banks remain clear and up to date.

In these respects, she will likely benefit from using digital documentation technologies. These may include hyperlinked encyclopedias ('wikis'), social coding hubs, programming documentation generators, error trackers, bookmark collectors, citation collectors, cloud storage of important reference materials, or project-management suites. While many if not most of these technologies are intended for use by teams, their streamlined ease-of-use and accessibility makes them invaluable aids for the Cartographical Designer's holistic hat-hopping. This is because they keep the record-keeping process from becoming cumbersome.

Should the designer elect to use a more linear media as her primary archiving technology, such as electronic text documents or written journals, she will benefit tremendously from numbering

her pages and making use of headers, bookmarks, checklists, sticky notes, highlighters, table of contents, and indices for her own personal use. At the very least, she must dog-ear pages of great importance so as to find them more easily at a later date, and checkmark pages that have already contributed their full usefulness.

b. Role: The Issue-Tracker

While having visions and plans certainly helps the designer apply her energy more efficiently, there is hardly any project under the sun that has been entirely straightforward from start to finish for which all the steps have been easy to remember and simple to execute. This is where the hat of the Issue-Tracker come in handy. With this hat comes the knowledge that well-maintained lists can dramatically reduce the burden of memory on a designer, and can facilitate any attempt to solve alternative problems until a key bottleneck has been resolved.

The Issue-Tracker, named after a key functionality of most project management software suites, keeps a concise repository of issues facing the project, key observations, needed resources, and expected steps to result—which can also resemble the requirements set forth by the Systems Engineer hat. These issues can be sorted by priority and dependencies, and can often be categorized into different headers. Comments can be made on any issue, including hyperlinks and images, and the designer can use them for everything from asset-planning, to bug-squashing, to raising key design questions that have yet to be answered.

The Issue-Tracker hat is likely to interact and make use of information provided by The Archivist, The Commenting Coder, and any plans or journal entries left behind by the other hats.

3.3.4. Role: Postmortician

In any experimental endeavor, there comes a time to evaluate results, draw conclusions, and suggest modifications to existing design patterns. This holds true in game design. After a product has been launched and begun to age, the game designer should reflect upon the product's success and articulate any lessons learned, particularly those which may help her grow personal design processes. This document is the postmortem. It is written with the benefit of hindsight, and can reveal the unexpected boons and plagues which affected the game's success. Depending on whether she is working with the team, her documentation may have two versions: one strictly for her own self-improvement, and one for the benefit of her team and company.

It is important that postmortems cover both what went right and what went wrong with the final execution, as valuable lessons are to be learned from the act of reviewing, articulating, and documenting each.

3.4. Personal Rituals

A designer should write some of her work on paper. She should engage in the act of writing work on paper every day, even if ideas fail to come and she is reduced to doodling, playing with her erasers, and penning out a stream of consciousness. She should write as if it were a ritual bordering on the religious, or at least the neurotic. In order to prepare for times of stress or lack of inspiration, she should always allow herself to feel her morning work was valuable.

The designer should write with tea or with coffee, and in a safe or interesting place outside of her normal compositional domain, such as a breakfast restaurant, park, or house or office window. If possible, she should accompany this ritualized writing activity with readying herself for the day's

activities, food consumption, and mild exercise. It should not be necessary that the designer speak to anyone for the bulk of this ritual, and so she may wish to conduct it alone and without the company of others from her household.

The purpose of this activity is to provide stability and comfort, and structure each day in the event that the designer should encounter a period of high stress, and to help the designer 'meditate' alone on a single idea at a time without interference.

4. Managing Large Solution Spaces

4.1. Overview

4.1.1. Purpose

You can't wait for inspiration. You have to go after it with a club.

- Jack London

This section is a toolset for empowering a game designer amid abstruse and multi-faceted problems in a complex medium. Whenever marketing research and design sensibilities have combined to generate far more questions than they have answers, the ideas behind ***Managing Large Solution Spaces*** help regain control of a project by managing all the information the designer has gathered and all the ideas she's toyed with. It discusses problems from the point of view of designer experience and personal narrative, investigates them through stream of consciousness, recalls reflection-in-action, and then documents remedies in a series of lessons, rules, and lenses for analysis, and is more instructional than the other sections because it comes less naturally. This tenet is less freely written, and instead is deeply tied to the work of Richard Saul Wurman. Wurman is the father of Information Design, and his pedagogical leanings make him an excellent source of meta-level 'tools' for mitigating the weaknesses specifically inherent to Extraverted Intuition.

4.1.2. Layout

The description of the tenet is broken into these sub-headings:

- Concepts
- Goal and Technique

- Rules of Thumb

Concepts describes how this stage of the design methodology emerged, and how preparing a mental environment in which to make creative choices can be likened to cleaning up a physical workspace. It employs personal narrative.

Goal and Technique describes the mental processes involved with *Managing Large Solution Spaces,* by relating the task to information architecture. It employs reflection.

Rules of Thumb details ways of recognizing stumbling blocks or distractions throughout a design process, such as brainstorming during a production phase and introducing feature creep, and to either eliminate them or at least make them manageable.

4.2. Concepts

4.2.1. Design Processes as Arbitrators

Exposure to Gehry's design process came at a time in which I had been inundated with new information and potential research avenues for my thesis. The sheer scope of my solution space had begun to stagger me, and I'd begun feeling exhausted and overwhelmed by the impossibility of making so many interdependent choices *correctly.*

When I saw images of Frank Gehry playing with wood blocks, his methodology became my storm beacon.

His blocks could obviously generate no perfect solutions or yield empirical truths about the universe. Gehry was a *designer,* as I reminded myself, and his wood-block process helped him make high-quality decisions amid large solution spaces.

My difficult choices were also, I then realized, *design* decisions. To make them, I needed to eschew my pursuit of perfect answers and instead develop a design process through which to hone my personal judgement. This process would then become my tool for melding research and aesthetic sensibilities, and for learning how to make high-quality solutions in a large solution space.

4.2.2. Design Processes as Boundaries

When it occurred to me to develop a design process, I realized that I'd been trying to evaluate the value of *every possible* solution to *every conceivable* question before making any decisions. This had been impossible, and had contributed greatly to my sensations of being overwhelmed.

By employing a design process—his blocks—Frank Gehry places constraints on the number of ideas he needed to evaluate at any given point. These constraints serve to focus his efforts on creative problem-solving, in the same fashion as a headset might cancel out undesirable noise.

My design process needed to help me do something similar: it needed to help me make decisions by constraining my solution space to a sane and useful size. This would keep me from being overwhelmed by infinities, and keep my attention on creative problem-solving.

4.2.3. Design Processes as Guides

Richard Saul Wurman is an author and pioneer of the discipline of information architecture. He is best known for his books and infographics, and he is interested in how a designer can make tremendous quantities of information intelligible (Wurman).

When I sat down to lay out my design methodology, it was clear that my research had strained my ability to keep my thoughts ordered. As I mentioned previously, I had felt *overwhelmed.*

But as I read Wurman's works, I realized the techniques he employs in designing infographics might be repurposed for organizing a designer's research.

I decided to use information architecture to build a clear mental 'infographic' for understanding and developing my work.

4.2.4. Design Processes as Anchors

In his *Information Anxiety* books, Wurman goes into detail about how large quantities of information induce stress. He writes about how to reduce stress and facilitate learning in his audience, and although he presumed a pre-existing body of information with which a designer would be working, Wurman's tactics were remarkably useful from the point of view of *creating* or *finding* complex information, as well.

The biggest thing I drew from Wurman's work were tactics for combating my perfectionist tendencies. Rather than seeking to make *perfect* choices, my design methodology is now heavily tailored toward freeing me to make reasonably justifiable decisions intuitively, through an ever-maturing process.

4.3. Goal and Technique

4.3.1. Working with Emergent Behavior

The contextual birthplace of Cartographical Design, as originally mentioned in ***Background Narrative***, involved a digital pet game and 'conversation engine' reliant on emergent behavior.[99] In

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[99] This means I was attempting to define discrete rules that yielded larger experiences, which is something of a game of hit-and-miss until the intuition has developed a knack for it.

this context, 'emergent gameplay' is defined as complex situations which arise as a result of the interaction of simpler game mechanics (Salen and Zimmerman 163-168).

In the game of chess, the movement rules for each chess piece are simply defined, but the tactical scenarios that arise across the game board can become incredibly complex. The relationships between the pieces are emergent behaviors, and therefore chess is a game which features emergent gameplay (Salen and Zimmerman 158-168).

4.3.2. Manage 'Information Anxiety'

In his *Information Anxiety 2,* Wurman describes a form of stress that occurs when people attempt to comprehend large, complex bodies of information. The inability to 'learn' the information then causes anxiety, which makes further learning difficult.

In applying this idea of 'information anxiety' to the discipline of video game design, it becomes obvious that working with large and complex topics, vaguely defined mechanics, or a large number of unknowns, can make designing games both impossible and stressful. Indeed, by comparing Wurman's approach to organizing and displaying complex systems of information, like the taxonomy of interrelated dog breeds or the layout of subway systems, to emergent system, it becomes clear games can be visualized as information systems.

Emergent gameplay is abstract and can only be designed *indirectly,* like a taxonomy or subway system, as a function of creating its more concrete parts, like dog breeds or train stations. Designing emergent gameplay therefore requires a designer to visualize, create, understand, and manage a complex, interrelated body of information, just as a graphic designer must do with information architecture.

This design methodology uses information design techniques as a suite tools for managing information anxiety and mitigating weaknesses, not only while designing emergent systems for video games, but also while immersed in more meta-level research and brainstorming processes.

4.3.3. Learn, Slice, and Impose Structure

Wurman is interested in how information can be made clearer to his audience, but in discussing his approach to creating infographics, he also provides techniques through which designers can tackle and organize confusing, vague, and interrelated data for their own mental use.

He explains that designers must 'learn' data before they can work with it (Wurman). By going through this learning process, a designer's goal is to understand how all of her ideas relate to one another. Learning the data of the game design is an example of ***Design Processes as Arbitrators,*** in which the designer develops tools for making good judgement calls on a project.

In order to work on learning a project, Wurman suggests using techniques to 'slice' the data up. Slicing is intended to narrow a designer's focus to a limited spread of information which is related on only one or two variables, so that useful conclusions can be made from it without the interference of other data as 'noise'. Slicing helps to prune unnecessary information, and to both find and answer difficult questions on a specific topic.

Wurman's slicing process relates to ***Design Processes as Boundaries.*** In addition to 'slicing' data, Wurman also applies 'structure' to it, which fits under ***Design Processes as Guides.*** For contrast, the different techniques for slicing data help interpolate and extrapolate conclusions, where imposing structure on data allows one to keep a bird's eye view.

When managing a large project, and once the majority of ideas are already partially developed, applying structure to an existing information enables a designer to zoom out to a macro level. The designer becomes more aware of what subsystems of information are either missing or extraneous, and she can keep tabs on what work needs to be done next.

These are three major themes Wurman has to teach the Cartographical Designer about managing difficult problems: learning, slicing, and imposing structure upon data. These are also the primary inspirations for most of the ***Rules of Thumb.***

4.3.4. Avoid Seeking Answers before Knowing Questions

In his TED Talk, *Start With Why,* Simon Sinek describes how most companies can tell you *what* they do, and competent companies can tell you *how* they do it, but only truly innovative and inspirational companies can explain *why* (Sinek, Start with Why). This is just as applicable to designers as it ever could be to entrepreneurs. Wurman laments how designers tend to start with the *how* (Wurman).

When in the throes of the design process, it can sometimes be difficult to identify where each question, 'why', 'how', and 'what', stops and another begins. Some of my ***Rules of Thumb,*** therefore, are tools, tips, and tricks I've picked up for recognizing when I've gotten stuck in a *how* or a *what* before I've sufficiently understood the *why.*

I have therefore found it incredibly important to keep track of the questions I was asking in the design process, and their relationship both to one another and to my overarching design. In this manner, I was capable of cutting down on the amount of backtracking I conducted, as well as keeping the project's size from artificially inflating.

4.4. Rules of Thumb

These ***Rules of Thumb*** follow from the ***Goal and Technique.*** While designing emergent behavior, I frequently found myself working with large, increasingly vague bodies of information which were difficult to keep track of.

These ***Rules of Thumb*** were derived from my exploration of topics in information architecture, systems design, artistic expression, and creative thinking. I created them to deal with problems which had grown unwieldy in size and scope. They helped me to streamline my workflow while designing complex systems, and, as such, they often revolve around determining which paths to walk down, which to dally with, and which to leave behind.

4.4.1. Learn Despite Incomplete Information

The Cartographical Designer's largest hurdle for altering a nearly-finished game design is that the design itself begins as a wealth of incomplete information. Before a decision is made, there are multiple ways to reach a goal. If several of these unmade decisions are interrelated, it can quickly become difficult to decide *where* to start solving new problems or repealing old solutions.

Incomplete information exists about content, mechanics, philosophy, objective, target audience, the relationships between components, and both the direct and indirect effects of every single decision. When choices appear arbitrary, I find it is difficult to move forward with the design process at all. This subsection of ***Rules of Thumb*** is dedicated to tackling issues of incomplete information.

a. Arbitrary Decisions (Sudoku)

One can compare the 'incomplete information' problem with doing a Sudoku puzzle. Examining any one square in a Sudoku puzzle usually yields no singular solution. It is possible to answer arbitrarily, but this arbitrary choice may easily be a mistake, a mistake that might not be discovered until the puzzle is nearly completed.

Wurman puts it best when he explains that decisions should never be made arbitrarily, because an arbitrary decision has no meaning and yields constant doubt and anxiety. These decisions should be avoided, and answered indirectly through other approaches (Wurman).

b. Finding Ways to Predict or Track Impact (Chess)

One of the reasons for *accidental* arbitrary decisions is that humans can only see so many 'steps' into the future. For the average human being, these steps may be as few as one or two. For a whiz chess player, seeing nine steps into the future with a loose accuracy is considered impressive.

The reason for this predictive difficulty is a matter of mathematics. As one looks into the future, the number of possible futures increases exponentially. Each piece on a game board and each move that the piece can make creates another potential future.

Chess boards are discrete and finite; a thesis, game, or sub-genre is analog and infinite.

However, once a decision's impact can be reasonably understood, the decision no longer feels so arbitrary. Documenting key options and their feared or expected impacts can make it easier to choose—as does the security of knowing we can easily trace down mistakes at later dates.

c. Solve for Obvious Solutions (Sudoku)

It took a revelation to realize that this was one of the keystone ***Rules of Thumb*** for Cartographical Design: Whenever it is possible to ask a question or pose a problem, the inability to accept an arbitrary decision means that the only acceptable solution ought to be an *obvious* one.

Therefore, when applying techniques to solve a complicated problem, the goal of each exercise is to narrow down the problem-set to meaningful questions with obvious solutions. Each obvious solution creates more information which can be used to solve the rest of the problem-set.

The titular analogy to Sudoku is that we comb over the puzzle looking for a square that has only a single possible solution. By filling in that solution, we alter a horizontal line, a vertical line, and a box, all of which amounts to new information for solving the rest of the puzzle.

In a design scenario, there are an infinite number of questions we could answer about the universe, so slicing becomes a matter of either reducing information, or of discovering relationships, which can make solutions obvious. The core of solving for incomplete information therefore lies in the power of uncovering and applying obvious solutions, which then causes other solutions to also become obvious.

4.4.2. Separate Form from Function

Over the course of my work, many of my designs came to feature extensive conversations with digital characters. I studied the strengths and weaknesses of voice-to-text systems, techniques for parsing natural language, and the means by which players might enter emotions and tones of voice by touch screen and keyboard.

None of this was harmful to my design process until I tried to design a comprehensive and fairly *realistic* model for dealing with human emotions. The struggle to represent nuanced emotions *perfectly* ended up distracting me from more fundamental designs questions, like whether my gameplay loop even warranted such conversations, or whether players would stop to input such complicated emotional data. Some of my tests featured elaborate interfaces, but no motive for my player to use them.

I stepped back to figure out what had gone wrong.

a. If the Interface Is Not Obvious, Neither Is the Gameplay

Creating a user interface for a project through the lenses of HCI and systems design can help to highlight some fundamental and gaps in a game design document, particularly when it comes to vague verbs that are easy to conceive of as algorithms but difficult to channel into a coherent gameplay session. This can help interrupt situations where a designer is too quick to answer technological questions without understanding *why* they are important or how to appropriately manage their gamification.

Owed to the interrelation between form and function, a vagueness on one side can be a clue to hidden misconceptions on the other. If serious brainstorming of the form yields no meaningful results, it may imply that the designer still ill-understands the function and gameplay she is trying to produce. Prototyping and testing an interface as quickly as possible, not with any hope of designing useful art assets, but rather to assess where one's understanding of the function is incomplete, is therefore a 'trick' to recognizing gaps in a design and misconceptions about the user's relationship to the game.

b. Use-Cases Are Information

A use-case model is a diagram used in systems architecture or systems design which describes every step of how a user can and will interact with a system. It can be used to reveal the same type of information as the interface design specified in the previous section. Here is the contextual example of this paper's background:

- The existence of evidence demonstrating the target player wished to converse with a digital character.
- A design for technology representing a conversation between a person and a computer character.
- A prototyped user interface for conducting the conversation.

Only at the playtesting stage did it become clear that the project had not yet addressed the player's motivation for interacting with the game at all. This indicates the use-case was never fully designed.

Brainstorming in use-cases is useful for iteratively brainstorming 'chicken-and-egg' style problems. By slowly increasing the capabilities represented by the use-cases, one can establish a working model of an emergent system even as one designs the technology supporting the system and experiments with its capabilities.

In order to 'learn' what a use-case system—or any system—truly ought to entail, this rule of thumb insists the designer must surrender to the fact that she does not yet understand it. Wurman then advises the designer to accept her (existing) data on the topic so she can begin to see the innate

structure underlying it and come to understand it. Only after the designer has 'learned' the information and understand is she then qualified to create 'tools' on its behalf (Wurman).

c. Learn Before Teaching

Wurman would say that a user interface is a means of teaching players a system of information (how and why to interact with the game), and he reminds us all that we must learn a system prior to attempting to teach it.

Wurman also recommends that information must always be understood from one's own point of view and one's own interests before it can be translated to another's. He stresses the importance of understanding why the information exists, what needs it must satisfy, and why it will be meaningful to its users—all before we can interpret it in such a way as that our end target audience will be able to make optimal use of it.

4.4.3. Restrict Permutation (Chess)

Permutation means, 'to go through every option'. Permutation is exhausting and potentially very dangerous. Mathematically speaking, it is a linear function, and when it comes to branching possibilities, it is the very definition of why computers are so bad at chess and predicting the future.

The human brain is excellent at pattern-matching and can quickly eliminate huge bodies of possible futures on any subject. It might not do the job perfectly, but it can do it well and *fast.* This is the reason abductive inference has a remarkable success rate. Computer intelligences, however, must permute through each and every last potential future to evaluate its potential, which leaves them incapable of ever solving the problem. One supposes in one light this means computers are cursed with largely unattainable perfectionism.

Trying to solve a problem by permutation is attempting to solve it by brute force for fear of missing a possibility. Because the human mind cannot hold the entire problem space in their head at once, and the outcomes of each decision cannot be foreseen, permutation can very rapidly lead to exhaustion. Therefore, it can be very dangerous to continue permuting through 'all conceivably interesting possible solutions' once the initial project brainstorming phase has been completed, such as trying to 'think of everything one might have missed.'

Permutation pitfalls are numerous. They can happen, for instance, when trying to generate complete monster tables for a game where no structure for any units has been defined. Permutation should never be done with an incomplete structure or without clear markers, milestones, and objectives.

a. Permuting Obvious Solutions[100]

At some point, permutation will become necessary for anyone generating data, modes, characters, or options: eventually the designer will be confronted with something like 'types of abilities', and they will need to decide on a large number of likely abilities and then organize this information into categories. Those categories will need headers. If done confidently and with swift judgement, creating and organizing these abilities will be simplistic and fairly obvious and will lend structure to the game. But if done with uncertainty and with an unclear idea of the abilities' application, this list will be a long, painful nightmare of nuances, as explained below.

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[100] Arguably, 'combinations' are equally treacherous in large numbers, but that word doesn't immediately reference discrete mathematics in the same fashion as 'permutations.'

b. Infinite Solution Space

My father once told an interesting parable in which my baby brother wanted a bedtime snack. My father showed my brother every cereal, yogurt, and other edible object available throughout the kitchen, but after several rounds of questioning my brother still could not decide what he wanted to eat. My father became exasperated and my brother began to tear up in hunger, exhaustion, and frustration. Realizing that he was going about things the wrong way, my father asked him, "Do you want Lucky Charms, or Cheerios?" My brother answered immediately, "Cheerios!"

Sometimes when we have too many options and intertwined goals, it becomes impossible to make decisions. This is because when the potential solutions are infinite, it is always the case that there are solutions we have not yet evaluated. Since we want to make the best decision, we are left with a lingering nervousness that we somehow failed to consider a crucial possibility. In order to combat this intense form of anxiety, it necessary to constrain the solution space.[101]

c. Eliminate and Reduce

Consider an attempt to file game topics under two discrete categories, for example: a situation where the two categories are Movement and Transportation. Movement could contain directional motion on the board while walking, lifting a gun, moving the mouse, and so forth. Transportation could mean anything from city maps, to vehicular transportation, to boats, to directional movement on the board. Which category is best for a topic called 'Directional Movement' be filed?

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[101] Orson Welles' quote again comes to mind.

And what about other words for movement? Motion? Dynamics? Kinetics? What if these were all topics or, worse, category headers? How many words can one brainstorm before it feels like 'enough' topics have been filed under each category, or each category is significantly distinct?

As Wurman points out, accuracy of the model does not imply understanding of it, nor does quantity of information enhance understanding. Information can be evaluated to an infinitely fine granularity of detail, but its accuracy is uninteresting; its *understandability* is interesting. We often create real information not by gathering more but by stripping away to less.

Setting bounds, writing short descriptions, drawing circles to represent domains, and highlighting some key outliers that either do or do not have to be represented, can all help define where permutation should start, where it should end, and how finely granulated concepts should be.

However, often what is absent and most needed is a sufficient understanding of the problem the answers are to be generated for. Answers should not be generated for questions for which the *'why'* has not been resolved.

d. Close Doors

Often times, we are faced with a situation where we only know what part of an answer is. For instance, we may know that unit abilities exist in a game: abilities which allow for personal augmentation, healing, damage, passive effects, and toggled effects. However, as we stretch our brain, we consider that there could be terrain-modifying abilities, or plant-growing abilities. Quoting Wurman once more, he observes that we often are unable to make choices because we are too scared of dismissing ideas and closing doors (Wurman). However, in this instance, closing doors is exactly what we need to do.

Consider this scenario:

There are, no doubt, a potentially infinite amount of effects an in-game ability could have, including 'normal' effects like launching a fire ball, or 'strange' effects like crashing the game to desktop. A designer does not have to leave all of those doors open on every conceivable issue. Initial brainstorming should be able to identify the project's core needs, and should be kept separate from the actual design (permutation) labor.

Dramatic and costly additions brainstormed long after the brainstorming phase must be set aside with the understanding that the design work must be completed on time, and that additions should be reserved for a second addition or sequel of the project.

Even during initial brainstorming, when trying to conceptualize an entire system for the first time, unnecessary details can clutter a designer's mental work space and make it difficult to keep hold of the problem space. Instead, most doors should be temporarily closed so as to focus on the design's central pillars.

4.4.4. Slice and Structure, Reduce and Connect

When employing his 'slicing' process, Wurman looks at a single characteristic or set of characteristics which can be weighed on some straightforward numeric graph. By slicing away all the information above and below, a designer can look unobstructed at one aspect of the data and come to better understand it, both on its own and later in its context. When structuring, he looks to create new information about the relationships between the component parts. Together, these methods reduce information and strength its coherent interdependence.

Wurman advises to examine problems through many lenses, slices, structures, and opposites. Each 'view' is to be appreciated, understood, and then compared and contrasted with other views (Wurman).

a. Slicing to Reduce Choices (Sudoku)

By examining interdependent squares in Sudoku, one might see a loop. That is, Square A can 'only' be solved if one knows the answer to Square B, which can only be solved if one knows the answer to Square C, which can only be solved if one knows the answer to Square A.

There are times when making design decisions can feel like looking at a loop of numerous interrelated Sudoku squares, in which a designer is left stressed and wondering which square they ought to make their best guess in.

Will Wright often addresses this when describing his ruts, suggesting that the solution is usually to come at the problem from an entirely new angle or to turn the problem 'upside down' (W. Wright). Wurman describes a more pragmatic-sounding but functionally similar approach, where suggests imposing different structures on the information to make *new*—and hopefully more valuable—informatio (Wurman) n.

Wurman mentions that the point people get in trouble at is when they try to structure information on too many variables at once, juggling too much in their heads. Like going around and around in a Sudoku loop, the stress of being unable to start at any square makes the problem more and more difficult to solve. The goal, he stresses, is to study only one variable at a time. McGonigal's *Superbetter* tackles the breakdown of very difficult objectives into similar baby-steps and dimensional perspectives (McGonigal, SuperBetter).

Problems become more complex when a designer is actually and actively creating new information about the game with every new decision, unlike the comparatively static sets of information Wurman has to work with. If the designer makes a mistake, how much information have they made which then will have to be 'un-learned' and discarded?

Yet we can slice to reduce design information and look for obvious solutions about our incomplete information. By imposing various lenses and filters over the data (slicing it), a designer can see where information or attributes (for example, variables in programming) are clearly missing and must be added.

For example, consider the scenario:

We may know that we have a game with units, and that units have abilities, but we don't know how these abilities are learned, researched, or even correspond to unit type. By clearing away all that excess information and focusing on how units move and attack one another, we might see that abilities are definable by quantitative characteristics like 'range' and qualitative ones like 'healing'. By adding this data to our pool, we have found some obvious solutions and possibly implied solutions to other previously looped problems.

b. Imposing Structure to Find Gaps (Sudoku)

Although this methodology divides slicing from imposing structure in the same fashion as Wurman, the two complement one another when slicing is used to reduce information, and structure is used to arrange it.

In Sudoku, slicing equates tolooking at horizontal lines, vertical lines, boxes, interrelated components, and loops. Although a Sudoku puzzle may seem to contain nothing *but* loops,

comparing one slice of data to another (a set of horizontals to a box) may reveal the answer to a single square.

Imposing structure means uncovering the various dependencies of the squares, relating the potential answers of one square to another. Imposing a structure unveils gaps into which base-case solutions can be placed and percolated out to help make other decisions; it creates more complete meta-information about the problem set which can then be used to resolve other problems.

Exposing an empty space by imposing structure may make it obvious what new elements need to be put into the structure. Exposing a number of known and unknown pockets with disconnected, vague elements may suddenly make their boundaries and relationships clearer.

c. Laying the Obvious Underpainting

Incomplete information can manifest as something of a 'mental fog,' where it is difficult to see what questions have been answered, what paths lead off on wild-goose chases, and what vital components are missing. In order to find gaps in our understanding of the problem, there are many times when it is unnecessary to fill in details one at a time, and when the general shape of surprisingly large solutions is fairly obvious. Blocking out these larger solution shapes is akin to laying an underpainting over which more specific solutions can be inscribed later.

This process assists in finding and quickly dispelling mysteries through the most obvious means available. It stems from searching for a 'base case', as outlined in *Goal and Technique.*

For example, consider the scenario:

A game has no defined interface, but has a clearly defined suite of mechanics. Here, a large number of questions fit for obvious solutions can be exposed just by asking, "What highly important

gameplay mechanics should be visible to the player at all times?" Likewise, comparing slices of gameplay mechanics and larger dynamics may reveal a vaguely understood relationship that can be clarified immediately by drawing a few simple lines and a single equation through which the mechanics combine to form dynamics.

Slicing the problem by imposing the right query may reveal a brand new problem-set with a very large and obvious set of solutions. Upon discovering a missing dynamic or relationship between game mechanics, an underpainting might be applied by lining up the mechanics and drawing arrows between them.

For example, consider the scenario:

Compared slices and structures might reveal the need for a 'tech tree' hierarchy, a 'combat menu' hierarchy, a combat menu interface, the code to animate the combat menu interface, and the code so that each hierarchy can access information from a 'pool' of abilities. Each of these large space can be blocked in as a silhouette, black box, or *underpainting*.

Resolution

V. Wrapping Up

I'm a perfectionist. Sometimes I have to remind myself that it's okay if there are flaws here and there.

- Tyra Banks[102]

We have hit every activity and sightseeing stop highlighted on our ambitious ***Roadmap,*** from 'research' to 'synthesis'. Our GPS coordinates specify we've reached our destination, and that our journey is done for the time being.

It helps to have such clear-cut criteria by which to consider a work 'completed'; many a designer or other creative professional struggles in letting go of objectively finished works. There will always be another pathway to explore, paper to read, comma to negotiate, or complete-and-utter rewrite to contemplate. Yet the negative symptoms of perfectionism must be pushed aside, so that the positive impacts of that perfectionism can finally see the light of day.

Here, as we near the paper's final pages, we reflect upon the completed work and discuss its applications.

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[102] Or, why game companies need to stick to a launch date, even if that often means launching long before ironing out every bug.

1. Looking Back

Here we have arrived at the end.

In the beginning, we introduced ourselves to a *need* for self-guidance that afflicted a single designer, and realized that this need might be a sign of a larger problem afflicting designers everywhere. We took the bold stance that this problem needed more light shed upon it, and so we set out with a series of questions and built a roadmap of activities to investigate it, knowing from the start there was a great deal to learn before we could even structure a decent outline for whatever it was we wanted to find or build.

The *Contextual Review* took us on an etymological tour of 'Methodology', explaining how the tool we were all missing might have gotten lost as three domains warred over the relevance of efficiency, knowledge, and aesthetic expression. It showed us we might need to walk a tightrope with a sky-high vantage point to find everything we needed. This lens brought us to meditate on the strengths and weaknesses of methodology writers from several disciplines, and we found an architect who seemed capable of expressing what we needed—not because architects know anything at all about interactivity per se, but because they are loquacious—from a well-established discipline, and yet still understand the dichotomous pull between the client and the creative ego.

With the goal of three tenets and a narrative discussion in mind, we headed onward to determine how one might dissect a personality to pull out some relevant properties and character attributes to design methodologies on. We found some established standards with which to do this, and then looked outward to creative and design professionals across a wide spread of film, literature,

games, information architecture, and systems design in order to find idols for championing each personality trait we'd extracted—even idols to help us fill in personal weaknesses.

By the time we got to creating a sample design methodology from all this information, we were well within the court of the personal, but we could see how research, structural elements, character, and inspirations had all come together through a sane, replicable, and modifiable battle plan which existed *only* to create design methodologies for the needy.

As the sample methodology unfolded into a three-tenet suite of tools that catered to the personality's strengths, empowered its weaker virtues, and compensated for what it lacked, it became clearer how this methodology was not arbitrary, and how it could be shared with similar personalities to powerful effect. It also became clear how radically different minds could construct methodologies using a similar pathway, and achieve radically different but equally defensible tenets. In the end, implied differences from one 'personal design methodology' to another highlighted how different one professional can sometimes be from another, and how our differences can synergize together.

Now, here in our conclusion, it is left for us to discuss. To argue. To take issue with one metric or another, to question the sturdiness of the bricks and mortar upon which all of these ideas were founded, and to question the value of the research methodology. For those whose personalities resemble that of the sample methodology, an argument over priorities and manifestations is surely deserved. For those whose personalities are quite different, an argument over bias is needed. If this methodologically manufactured methodology is deserving of mention in any pedagogical setting, then surely we must question that assumption that designers *naturally design,* and that we need not tackle the issue of first inspiration.

In short, there is no small supply of questions for us to take issue with at this point, and that, to be frank, is beautiful. If we can accept the fundamental assumption justifying this paper's mere existence—that 'Interactive Design and Game Development' is a fine art deserving of mastery—then we have hopefully now provided a much-needed arena into which we can field our struggle to reconcile objective templates with subjective sense. This paper can then stand as one of many steps in helping game design build the rhetoric that designers require to trust, respect, understand, grow, and share themselves and their ideas.

Indeed, at this juncture, the only negative outcome for this paper would be to land quietly and to elicit no reaction whatsoever—even vehement disagreement—from its greater community. To offer a stepping-stone to no one. In conclusion, the most important aspect of this paper is now the mind and eyes of its present reader, and in the volume of her or his questions.

2. Looking Forward

The amount of happiness that you have depends on the amount of freedom you have in your heart.

- Thich Nhat Hanh

Alas, we *have* arrived at the end.

On one hand, a work I labored over for five years is finally completed, which is exciting. On the other hand, there are thousands and thousands of questions I had to leave unanswered, avenues that went unexplored, islands that remain unchanged, and oceans that have not been traversed.

But where would I go with one more minute, or one more hour? Would I study other personality typing schema such as the DISC assessment or the Enneagram? Or the impact of birth cohort and generation grouping on thinking styles? Would I go two steps farther, and show how methodologies lead to lower-level design methods and genre principles, and eventually translate into finished games? Would I make a case for new artistic ontologies?[103]

Research is an infinite and multitudinous marathon, with each 'runner' lighting her or his own torch from the torches of the runners who came before. Each new flame is a curiosity, a *need* to know, a vigorous surge of energy and effort that hopefully unveils greater truth about the universe. Even when we are writing about one subjective instance of an idea, we write in the hopes that one instance can spark two, then four, then sixteen.

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[103] Perhaps I would sit and listens for hours and hours to the peculiar and glorious energy of Will Wright's intuition-driven and tangent-filled seminars…

My hope was to construct a 'tin shanty' of knowledge in an uncharted space, a hovel made of spare parts used to provide shelter as designers tackled the problems of what might make for a proper brick, a proper floor, or proper siding.[104]

On a more intimate level, I hoped this 'shelter' would help designers find comfort, confidence, and solidarity in their efforts to balance their gut instincts against the cold demands of commercial product development. No one, after all, openly pursues a career in *game design* without deep-down wanting to make *awesome stuff.* Training ourselves to be successful and reliable producers-of-awesome while maintaining a close eye on key issues like our clients' needs—yes, learning to operate happily while *outside* of a vacuum—that was what I hoped to provide a bastion for.

Future works necessary to 'complete' this project stretch on into the horizon. In the near vicinity, we obviously have paragon, personal design methodologies for alternative personalities to investigate. Our shared research methodologies and contextual reviews would all greatly benefit from a companion that took a closer look at the methods of renown industry professionals, and broke down successful game designs into the *sorts of thinking* that originally produced them. I'd like to take fine-toothed comb through all my past and present works, including my journals, and produce an anthology to support the link between myself and Cartographical-Styled Game Design, which I'd then use to explicitly demonstrate how a methodology can help a designer navigate her way from

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[104] Metaphor note: Tin is actually very economically and ecologically friendly roofing material, if installed properly!

top-level *why*-thinking all the way to answering ground-level *what* questions—but, then again, that's probably a topic for a book or two.

To all of you who took this journey with me, to all of you who set sail before me and all of you who might get a boost from my raft in the future, thank you, goodluck, and *bon voyage!*

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