Everted Sanctuaries: Increments of Silence

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This thesis titled
Everted Sanctuaries: Increments of Silence

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ABSTRACT

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Everted Sanctuaries: Increments of Silence

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Eversion is a biological term for the ability of an organism to turn itself inside out. For example, a sea cucumber can eject its internal organs to distract attacking predators. The sea cucumber sacrifices some vital functions for ultimate survival. Similarly, many introverts have become adept at temporarily everting their personalities to function in extroverted contexts. This masquerade often puts great stress on an individual. Cultural, educational, and professional environments do not often provide introverts the intervals of sanctuary necessary to revitalize themselves.

_Everted Sanctuaries_ communicates about the complex needs of introverts. The author explored introversion through sketching, object transformation, kinetic sculpture, material, and sound. In _Everted Sanctuaries_, transformed objects become metaphors to exhibit the often uncomfortable and stressful process of becoming uncharacteristically extroverted. These essays establish the importance of sanctuary for introverts and ask viewers to consider the depth and vulnerability concealed beneath their silent surfaces.
To Alissa, Amelia, and Peter.
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CHAPTER 1: INTRODUCTION

Eversion is a biological term for the ability of an organism to turn itself inside out. For example, a sea cucumber can eject its internal organs to distract attacking predators. The sea cucumber sacrifices these vital functions for the possibility of escape. However, this incurs a cost of the time and energy required to regrow those vital functions. Eversion, though seemingly counterproductive, is deployed at critical moments to allow the sea cucumber to achieve its highest priority—survival.

Many introverts have become adept at temporarily everting their personalities to function in extroverted contexts within U.S. culture. This masquerade often puts great stress on the individual. Cultural, educational, and professional environments do not often provide introverts the intervals of sanctuary necessary to revitalize themselves. But extroversion is not the worldwide status quo. The comparatively introverted cultures of East Asia contrast with the more extroverted cultures of many Western countries such as the United States. These introverted cultures often emphasize careful thought and reflection before speech.

This research is a quest for understanding: for an introvert to understand himself more thoroughly, be cognizant of his strengths, admit to his struggles, and live confidently within his own skin. This work also invites others to understand introverts and be more aware of their potential than their limitations. This work seeks to release introverts from stigmatized expectations, from forgetting their true nature, and from overlooking their valuable potential.
Isabel Briggs Myers spent her life measuring and studying human personality. She was led to research personality because she saw the need for greater understanding.

Yet we cannot safely assume that other people’s minds work on the same principles as our own. All too often, others with whom we come in contact do not reason as we reason, or do not value the things we value, or are not interested in what interests us. (Myers, 1993, p. 1)

Myers was aware that misunderstanding among people can often take root in and be intensified by differences in personality. She believed understanding these differences would help achieve greater harmony in diverse communities.

Visual communication has often functioned as a voice for the underserved and underrepresented. Visual communication methods have been deployed by numerous social movements and causes to connect with and inform new audiences. One advantage of design as a voice is that, though it often harnesses the power of written words, it does not rely exclusively on those words. Its palette is trans-disciplinary. Visual methods can educate and inform to encourage understanding. Greater understanding can eliminate stereotypes and emphasize strengths. Art therapist Vija Berghs Lusebrink wrote about the potential of visual methods in expressing and understanding human emotions.

The centering, transformative, and spiritual aspects of art emerged as I sought out art in times of personal turmoil. ... Later I discovered ... that many times we express more through visual means than we are consciously aware of doing. (1990, p. vii)
Images as a means of expression and representation have a sequence of cognitive levels and depth of the emotional experience. (1990, p. viii).

Visual expression is an outward extension of the complex human emotions. Visual expression is connected with the mind because it is often created intuitively through fluid, tactile processes. Though still connected to the mind, these results are often somewhat disconnected from verbal expression. This distance allows visual expression to be somewhat removed from the curated expressions of speech. Deep, complex feelings are often more succinctly and honestly stated through visual means.

This research explored design as a vehicle for promoting greater understanding between personality types. It has tested design as a mechanism to raise awareness. It invites the viewer to develop individual, qualitative knowledge through the interpretive potential of the imagination. The resulting collection of visual essays promotes a greater understanding of introversion in order to encourage further consideration of its personal, cultural, professional, and educational benefits. This increased understanding can encourage empathy.
CHAPTER 2: LITERATURE REVIEW

This review was conducted to reach a greater understanding of introversion in many contexts from several points of view. This review is not meant to be comprehensive, but rather to give a representative sampling of research on the topic. As personality affects every aspect of human existence, it was important to study not only quantitative data surrounding personality but also how it affects our shared cultural narrative. Works cited come from a variety of areas including psychology, biology, popular culture, education, architecture, and visual arts disciplines. This review has been organized thematically around various aspects of introversion.

Origins

The terms *introversion* and *extraversion* (also spelled *extroversion*) were introduced by German psychologist Carl Jung as part of his personality type theory (Jung & Baynes, 1946). Jung identified common dimensions of personality that he considered to be “typical distinctions” (Jung & Banes, 1946, p. 9). These typical distinctions are benchmarks for understanding the diverse array of human personalities. Using these distinctions Jung created four dichotomous scales. Contrasting preferences for a distinction are placed at either end of the four scales (See Fig. 1). An individual’s personality is described by identifying one preference for each of the four scales. This
results in a sixteen square matrix of possible personality types. Each type consists of four letters that represent an individual’s preference on each of the four scales.

Figure 1. Type table (Myers & Myers, 1993, p. 29).

Introversion and extraversion are at opposite ends of the first of these scales. Therefore, the introversion or extraversion preference is identified by the letters I or E at the beginning of each four letter personality type. Jung was the first psychologist to describe introversion and extraversion.

We see how the destinies of one individual [an extrovert] are conditioned more by the objects of his [or her] interest, while in [an introvert] they are conditioned more by his own inner self, by subject.” (Jung & Baynes, 1946, p. 9).

According to Jung, an individual tends to place their emphasis on either the outer self or the inner self. The extrovert is focused on the objective outward view of the world, while
the introvert is focused on a more subjective, inward view of their internal world. Isabel
Briggs Myers summarized her understanding of the introvert / extravert dichotomy as:

The introvert’s main interests are in the inner world of concepts and ideas, while
the extravert is more involved with the outer world of people and things” (Myers
& Myers, 1980, p. 7)

Kiersy and Bates have described introversion and extroversion pertaining to
where a person derives their energy:

The person who chooses people as a source of energy probably prefers
extraversion, while the person who prefers solitude to recover energy may tend
toward introversion. (1984, p. 14)

Susan Cain provides a general survey of the social and cultural issues surrounding
introversion in her recent book, *Quiet*. While referring to Jung’s work, Cain also
describes introversion and extroversion in terms of energy.

Introverts focus on the meaning they make of the events swirling around them;
extraverts plunge into the events themselves. Introverts recharge their batteries by
being alone; extraverts need to recharge when they don’t socialize enough. (Cain,
2012, p. 10)

**Strength in Silence**

On a personal scale, internal focus has many advantages. Introverts are known for
their ability to focus intently on their work (Meyers & Meyers, 2012). “Introverts are
comfortable with their own company; they can concentrate on a solitary task without seeking distraction” (Lloyd, 2012, p. 31).

Introverts are generally more interested in tending to intimate personal relationships than juggling multiple casual acquaintances. Though introverts are often seen as reserved in public, they are usually talkative around those who know them well. Introverts also tend to be good listeners (Cain, 2012).

Introversion is frequently confused with shyness. Shyness is a “tendency to withdraw from people—particularly unfamiliar people” (Stein, M. B., & Walker, J. R. (2001) p. 3). Shyness is often associated with “fear of social disapproval or humiliation” (Cain, 2012). Shyness can be considered problematic if it is accompanied by extreme anxiety that prevents a person from functioning comfortably in a social context. However, introversion is a preference for relatively low amounts of social stimulation—not a fear of socializing.

Many notable and successful people are introverts. Notable introverts include Rosa Parks, Gandhi, Albert Einstein, Frederic Chopin, George Orwell, Dr. Seuss, Charles Schultz, Steven Spielberg, and many others. On the role his own introversion played in his success, Gandhi said:

I must say that, beyond occasionally exposing me to laughter, my constitutional shyness has been no disadvantage whatever. In fact I can see that, on the contrary, it has been all to my advantage. My hesitancy in speech, which was once an annoyance, is now a pleasure. Its greatest benefit has been that it has taught me
the economy of words. I have naturally formed the habit of restraining my thoughts. And now I can give myself the certificate that a thoughtless word hardly ever escapes my tongue or pen. I do not recollect ever having had to regret anything in my speech or writing. I have thus been spared many a mishap and waste of time. (Gandhi, 1993, p. 45)

Sensitivity

Introversion has also been linked to the sensitivity of the nervous system. One study by developmental psychologist Jerome Kagen subjected 4-month-old infants to several new auditory, visual, and olfactory stimuli and documented their reactions. About 20 percent of the infants reacted with great activity. They flapped their arms and legs wildly when exposed to the stimuli. These infants were termed “highly reactive.” About 40 percent of the infants had the opposite reaction. These infants viewed the unfamiliar stimuli quite placidly. Kagen tested the same group of subjects later in life as teenagers. He found that those that were classified as highly reactive as infants were much more likely to be introverted as teenagers. The “low reactive” babies were much more likely to be extroverted teenagers. The introverts’ more sensitive nervous systems were highly affected by a stimulating environment while extroverts less sensitive nervous systems were hardly phased (Cain, 2012, pp. 99–101).

Other studies link introversion and sensitivity. Psychologists studied the effects of television distraction on introverts and extroverts. Participants were given reading
comprehension exercises in the presence of a television playing a popular soap opera.

Though both introverts and extroverts performed the reading exercises better in silence, the extroverts were much less affected by the din of the television. At the end of the test session, extroverts also reported feeling less distracted than introverts (Furnham, Gunter, & Peterson, 1994. p. 709).

Personality Measured

Jung’s foundational theory of psychological types led to practical methods for assessing human personality. Isabel Briggs Myers pioneered a method to quantify and understand psychological types based on Jung’s theory. Myers, driven by an intense curiosity in human personality and a desire to improve the world after witnessing the atrocities of World War II developed the *Myers-Briggs Type Indicator* (MBTI) to “help people understand each other and avoid destructive conflicts” (Black, 1993, p. xiv). Myers spent years perfecting her type indicator (MBTI) by testing it on thousands of medical students and nurses.

However, many psychologists did not accept the *Myers-Briggs Type Indicator* (MBTI). They did not see it as a viable assessment tool for psychological studies. According to Black:

The response to Myers’ efforts from organized psychology was certainly cool if not hostile. In the first place, the measurement of personality was considered a dubious enterprise by many psychologists. Furthermore, among those few who
were interested in personality theory and measurement, typologies were not in good repute. Trait and factor scales were the focus of research and surely Myers’ lack of establishment credentials did not help the MBTI to win acceptance. (1993, p. xv)

Despite receiving a cold shoulder from much of mainstream psychology, Myers continued her work on the MBTI. The MBTI has become the preferred method of measuring personality in non-psychological applications. Today, the MBTI is widely used by corporate and academic human resources departments for improving interactions between employees (Lloyd, 2012, p. 23).

Other researchers developed similar personality measurements that are not based on Jung’s psychological types. One of these scales, the Five Factor Model (also referred to as Big Five), measures the strength of five personality traits. These traits show remarkable similarity to Jung’s types. Extroversion is one of the five traits measured. Each trait is measured as a percentage to indicate its relative strength in an individual’s personality (Lloyd, 2012, p. 25). The Five Factor Model has been much more readily adopted by the psychological community and serves as the basis for many psychology-based studies dealing with personality.

Lloyd points out some differences between the Five Factor Model and the MBTI. He theorizes that the FFM contains value judgments. According to Jung’s type theory and the MBTI, both introversion and extroversion were seen as legitimate and desirable personality types with distinct advantages and disadvantages (Lloyd, 2012, p. 27). The
Five Factor Model acknowledges extroversion as a trait but not introversion. According to Lloyd, the Five Factor Model describes high scorers for a trait with “positive and affirming” words while individuals with low measures for a trait are described with “negative and derogatory” words (p. 27). Because extroversion is considered to be the desirable trait, introversion by its omission is implied to be less desirable. Lloyd quotes others who describe the Five Factor Model as containing morally “judgmental” tones from the 1800s. Lloyd concludes, “Overall the Type approach [MBTI] seems more balanced in its judgment, seeing both potential advantages and potential disadvantages in both polarities of each preference axis” (Lloyd, 2012, p. 32). These value judgments might have come from the extroverted Western context in which these particular researchers were immersed. The topic of how a dominant culture can affect personality will be discussed later in greater detail.

Communication

It almost goes without saying that an individual’s preference for introversion or extroversion affects their methods of communication. Many writers have described how personality influences the way we communicate. Susan Cain lists a dislike of small talk, a preference for written communication over spoken communication, a need to think things through before speaking, and being a good listener as common communication preferences of introverts (2012, p.13). Introverts may also avoid phone conversation (Cain, 2012, p. 13, Dembling, 2012).
Many have found links between introversion and a preference for electronic communication methods. One study found that introverts are more comfortable meeting new people in an online chat room than in person (Amichai-Hamburger, Wainapel, & Fox, 2002). They conclude that virtual settings “provide an excellent answer to people who experience great difficulty in forming social contacts due to their introverted personality” (pp. 128–129). They theorize that although initial interactions often occur in virtual settings they can often transition to real-world, face-to-face relationships once the initial awkwardness of meeting someone new has subsided.

Another study compared the personalities of those that prefer online instruction to those that prefer traditional classroom instruction. The results indicated that introverts preferred online courses and extroverts preferred traditional instructional settings (Harrington & Loffredo, 2010, p. 94).

One design-related study also theorized that a website’s design could be tailored to better communicate with specific personality types. Though largely conjectural and not adequately researched, the authors posit that the point of view of the writing (first person vs. third person), type of photography, and navigation can all be tailored to make specific personality types more comfortable in an online marketplace.

It appears personality can also affect the way people learn how to communicate. Regarding second language acquisition, Zafar and Meenakshi have concluded that an “...extrovert with an outgoing personality and more tolerance for risk would be a better language learner than the more introverted personality who is more conservative and
more self-conscious” (2011 p. 35). An extrovert might be less socially anxious about forming words and sentences in an unfamiliar language. An extrovert, less concerned by error, will forge ahead with communication regardless of its roughness. This could result in a faster rate of conversational language acquisition. An introvert may be too reluctant to make a mistake to even speak. This suppression of speech could make immersion in a new language challenging. An introvert may take longer to adjust to such a change.

Personality can also influence the way one chooses to worship. Researchers measured the personalities and religious activities of members of a particular Anglican congregation. Introverts were found to attend church for more internal reasons such as faith and a relationship with God while extroverts were more likely to attend church for social reasons. The study concludes that introverts’ personality preferences also carry over to their religious observance (Francis, Robbins, & Murray, 2010).

Physical Spaces

Personality can also affect the way people organize physical space. In the context of arranging furniture in a room, a more extroverted person may prefer the seating to directly face other seating as this would facilitate active conversation. Conversely, an introvert might choose to give their furniture a less confrontational arrangement turned slightly away from the adjacent seating (Fig. 2).
A current emphasis on collaboration has influenced the design of many office floor plans. Corporate office workers who previously would have inhabited private offices or cubicles formed with grey fabric walls are now working in open floor plan offices (Cain, 2012, 76). These plans place entire floors of workers together seated at lines of tables and desks with open views to all sides of the room. Such floor plans are meant to encourage informal interaction between employees and foster creativity. Many of the trends implemented in these designs could be considered improvements. The designs do create more aesthetically pleasing spaces, increased natural light, and a lack of “status symbol” corner offices. Despite these positive features, there is a marked difference in the amount of private personal space allotted to each worker. These trends seem to suggest a disregard for a crucial need of introverted employees: access to privacy. An introvert would have fewer chances to physically escape the constant din and
potential for disruptions (see Fig. 3). Despite the open office trend, some designs still accommodate a variety of personalities by providing a diversity of spaces ranging from congregational to solitary (see Fig. 4) (Cheek, 2012).

Flexible floor plans with a variety of options may be better at accommodating variables in personality. The intimacy gradient, as described by architect Christopher Alexander, refers to a clear progression between public and private spaces in a residential building. According to Alexander, this phenomenon is most apparent in Chilean homes. At the most public end of the spectrum is the entryway, which opens into a formal sitting room. Next there is a less formal family room, followed by the kitchen and other
workspaces. These are followed by more intimate spaces such as the bathrooms and wash areas, and finally the bedroom. A visitor to the home is keenly aware of their level of intimacy in regard to the residents. Their level of friendship determines how far into the gradient they can enter. During a party, although there are many people in the house, the visitors only enter the rooms that their level of intimacy will allow—most of the visitors never leave the formal sitting room. Designing against the gradient could precipitate awkward social situations (Alexander et al., 1977).

The idea of an intimacy gradient acknowledges that different types of spaces are often for different levels of interaction. This makes it easy for different personality types to find a space they feel comfortable in. Personality influences the types of spaces a person chooses, and where that person places themselves within a space. An extrovert may prefer a position close to the entryway in a formal sitting room whereas an introvert might stay back in the kitchen. One book on personality goes so far as to call introverts territorial:

While the extravert is sociable, the introvert is territorial. That is, he desires space:

private places in the mind and private environmental places"

(Keirsey & Bates, 1984, p.15).

The word territorial seems to cast introverts in a somewhat negative light. Nevertheless, it describes the passion many introverts feel about their personal work spaces.

Education and Personality

Many researchers have found it valuable to explore how personality functions in an educational setting. An educational setting requires students and teachers to interact using a large variety of methods and contexts. This has been fertile ground for researchers.

One article discusses personality in the classroom (Schmeck & Lockhart, 1983). The writers, who consider most teachers to be introverted, theorize that classrooms are already doing an adequate job of educating introverts. The writers encourage further
consideration of introverts’ instructional needs by inclusion of more stimulating activities within the classroom.

Thirty years later, the emphasis may be swinging the other direction. Cain has cited the rise of what she has called “the new group think” as dominating both corporate and educational domains (Cain, 2012 pp. 75–77). The author of this research observed a recently updated design classroom at a state university. The classroom had been remodeled to arrange students in groups of six to encourage collaborative activities within the classroom. This arrangement left students with minimal personal space and seems to embody the current emphasis on group-based learning scenarios. One fifth-grade teacher, an advocate of collaborative classroom learning, described the current trend this way:

This style of teaching reflects the business community, where people’s respect for others is based on their verbal abilities, not their originality or insight. You have to be someone who speaks well and calls attention to yourself. It’s an elitism based on something other than merit. (Cain, 2012, p. 77)

Cain stated that current educational configurations with their large class size “...can be highly unnatural, especially from the perspective of an introverted child.” She theorized that U.S. educational structures, which are based on economics rather than educational best practices, can often prevent introverts from succeeding in their earlier years. Later, introverts unexpectedly “blossom” when they are no longer forced to cope with the social structure of a classroom setting (Cain, 2012, p. 253).
Another article looked at personality from a pedagogical perspective. The writers summarize and examine qualitative information gathered from thirteen graduates of a Teacher Education program at a Canadian university. The study included students who had self-identified as having quiet classroom personalities. Their analysis included a narrative example of a student teacher who, though successful in her education courses, failed her first student-teaching experience by trying to become uncharacteristically extroverted. The student was urged to develop outgoing techniques by a supervising professor. Over time, the student experienced great emotional and physical stress and was forced to withdraw from the program. The authors conclude that academia should make room for a diversity of pedagogical approaches consistent with the strengths of individual teachers’ personalities (Collins & Ting, 2010).

Creative Fields

One study of particular interest to this endeavor compared the MBTI personality types of students in design disciplines including graphic design, industrial design, interior design, and architecture (Durling, Cross, & Johnson, 1996). Unfortunately, the writers focused their analysis on the effectiveness of current design pedagogy rather than on design students’ preference for introversion or extroversion (p. 5). Though not discussed in their findings, a quick scan of the introversion / extroversion scores in this study suggests that most designers tend to be extroverted. In juxtaposition to this finding, Myers cited a study on the personalities of several categories of college seniors who were
art majors. Those who planned to become practicing artists tested as being more introverted. Students who planned to use art in therapy settings tested as much more extroverted, and art education students showed a more balanced orientation (Myers & Myers, 1980, pp. 44–46). Perhaps the divide between art and design is partly influenced by personality differences. No other studies about the personalities of designers were discovered.

Correlations with personality have been found in other creative fields. One study compared the personalities of high school music students in various music ensembles including band, orchestra, and choir. The study found a higher number of introverts in instrumental ensembles and a higher number of extroverts in vocal ensembles (MacLellan, 2011). It seems logical that more extroverted students would be more comfortable performing under pressure without anything to hide behind but their own voice while instrumentalists might prefer an extra layer of protection between themselves and the audience.

Personality can also affect the types of sports people choose to engage in. Extreme sport participation, or at least a desire to participate in extreme sports is linked to extroversion. Extroversion has also been linked with other high-risk behavior, such as drug use (Tok, 2011, p. 1109). It has also been shown that introverts are more likely to choose individual sports over team sports (Behzadi, Mohammadpour, Hedayatikatooli, & Nourollahi, 2012, p. 39).
Personalities of Culture

Even though it affects as much as one-third of the population, introversion can often be viewed negatively in United States culture. Susan Cain has pointed to the rise of what she termed the “Extrovert Ideal” as a turning point in American culture (2012, p. 21). According to Cain’s theory, many years ago the majority of Americans lived in small towns for most of their lives. Integrity, honor, and strong character were emphasized in this condition because the people they associated with had known them and their extended family for multiple generations. An individual’s reputation was based on long-term observation rather than first impressions.

As greater numbers of individuals started moving to cities among unfamiliar people, the ability to present oneself favorably became more advantageous. Building instant rapport with complete strangers became important. A person with a magnetic personality was better equipped to succeed while building a career in this environment than those with more introverted personalities. This placed more emphasis on the visible public facade than on the private reality—it favored first impressions over long-term experience. According to Cain, this cultural shift affected introverts:

It makes sense that so many introverts hide even from themselves. We live in a value system that I call the Extrovert Ideal—the omnipresent belief that the ideal self is gregarious, alpha, and comfortable in the spotlight. (Cain, 2012, p. 4)

It is easy to see where one might get this impression. For example, Western expectations often assume that persons good at interviewing will also be good at
performing the duties of their jobs. Because the process of interviewing involves
decidedly extroverted activities, introverts are often out of their comfort zone. They are
required to engage in casual small talk and reveal copious amounts of personal
information about themselves to groups of strangers within a short period of time. Isabel
Briggs Myers speaks more about how this emphasis on extroversion may have solidified.

The advantages of starting with the outer situation are obvious and much
esteemed in the present Western civilization, which is dominated by the extravert
viewpoint. There are plenty of reasons for this domination: Extraverts are more
vocal than introverts; they are more numerous, apparently in the ratio of three to
one; and they are accessible and understandable, whereas the introverts are not
readily understandable, even to each other, and are likely to be thoroughly
incomprehensible to the extraverts. (Myers & Myers, 1992, p. 54)

One college professor has related his experience administering the MBTI
personality assessment to a class of students (Pannapacker, 2012). While the professor
tested as an introvert, not one of his twenty students who took the assessment scored high
on introversion. He relates,

I knew my students well enough to suspect that I was not the only one with that
tendency. A third of them barely spoke in class unless called upon. A few hardly
spoke to anyone. Perhaps the introverted choices on the test were too stigmatizing
to consider (e.g., "Would you rather go to a party or stay home reading a book?").
The students had used the test to confirm that they had the right, "healthy" qualities.

Given that introversion is frowned upon almost everywhere in U.S. culture, the test might as well have asked, "Would you prefer to be cool, popular, and successful or weird, isolated, and a failure?" (Pannapacker, 2012)

The perceived stigmatization of introversion may have led many of the introverted students to overlook their natural abilities and go against their natural personality.

Many have studied the extroverted state of American culture and compared it to other cultures. It has been demonstrated that the dominance of introversion or extroversion in a population can vary by location. One study compared the personalities of people within the United States and found that residents of the Western United States are comparatively more introverted than residents of the North Eastern United States (Rentfrow, 2010).

The author of this study presented three theories on why this might be. First, he pointed out that personality type could be influenced by the dominant culture of a region. Within a specific area certain characteristics would be seen as more desirable. Because the dominant personality type in that area would be perceived as normal, people would tend to develop that side of their personality. The second theory is that personality and the degree to which people communicate could be shaped by an area’s physical characteristics. More space between residents due to agriculture or other physical boundaries, such as mountains or rivers, might cultivate a higher percentage of
introverted personalities in a population. The last theory is that personality type influences migration. Extroverts would tend to seek out new experiences and migrate to new areas to seek stimulation. Extroverts would tend to congregate in the same areas as other extroverts. They might seek out urban areas. Introverts would be more likely to continue living where they always have lived. They would prefer to stay in their comfort zone (Rentfrow, 2010). Cain also commented on how a disposition toward immigration may have played a role in creating regional preferences for a personality type.

The trait [extroversion] has been found to be less prevalent in Asia and Africa than in Europe and America, whose populations descend largely from the migrants of the world. It makes sense, say these researchers, that world travelers were more extroverted than those who stayed home—and that they passed on their traits to their children and their children’s children. (Cain, 2012, p. 29)

While the United States is considered to have a reputation for extroversion, other countries have a reputation for introversion. One study compared the cultures of the United States and Finland and concluded that Finns are generally more introverted than North Americans. These findings coincide with popular perceptions of Finnish culture as being more introverted.

Cultures of Eastern Asian countries have also been associated with introversion. Eastern Asian cultures such as China, Japan, Korea, and Vietnam tend to emphasize thinking as a process for acquiring knowledge. Asian cultures often associate thinking
with meditation and solitude (Kim, 2002, p. 829). Consider the sentiments expressed by Chinese philosopher Lao Tzu about speaking (See also Fig. 5):

He who knows does not speak.

He who speaks does not know.

(Tzu, 1969, p. 166)

Much talk will of course come to a dead end.

(Tzu, 1969, p. 142)

As a contrast, many Western cultures have associated thinking and knowledge acquisition with verbal skills, such as public speaking and debate (Kim, 2002, p. 829). This cultural difference can cause problems for Eastern Asian college students when they are placed within the context of Western higher education and its verbally oriented
classroom expectations. One psychologist studied the correlation between thinking and speaking for college students from different cultures. Eastern Asian and European American college students were asked sets of problem-solving questions. He measured participants’ abilities to answer correctly while thinking internally versus externally vocalizing their thought processes. The Eastern Asian participants’ performance declined when required to vocalize their thoughts. Conversely, the European Americans tested slightly better while vocalizing. The researcher theorizes that East Asians’ thinking is less connected to verbalization than the thinking of their European American counterparts (Kim, 2002). The findings of this study conclude with these recommendations:

Perhaps making students speak up in class might not be the only way to make them better thinkers for the colleges who are concerned about East Asian students’ silence. Another way might be for the colleges to realize that the meaning of students’ silence can be the engagement in thoughts, not the absence of ideas. (Kim, 2002, p. 840)

One reason for Asians’ measured restraint of speech is their culture of respect. Americans tend to be individualistic in their embarrassment. When an American does something stupid, they are primarily concerned with making a fool of themselves. In contrast, people in Asian cultures are more aware of the status of their larger social group. A social faux pas in an East Asian culture does not only reflect poorly on the individual, but also on the family, friends, and coworkers of that individual (See Fig. 6).
This emphasis on group identity may seem to contradict the notion that Asians are introverted. However, respect for the group often leads to more introverted tactics. East Asians are perhaps much more deliberate about what they say in public. Thoughts are formed ahead of time and carefully scrutinized to avoid bringing shame upon the group. There is much more at stake—not just one person’s reputation, but the reputation of an entire clan. This cultural phenomenon, known as relationship honoring, has the tendency to cause great anxiety in social situations. (Cain, 2012, 190)
Though helpful in maintaining an atmosphere of respect and amiability, relationship honoring does have its limitations. Too much emphasis on respect between flight crew members of an airplane can have disastrous effects on safety. Safety problems with one East Asian airline have been linked to relationship honoring. To maintain an atmosphere of respect, junior flight crew members at this airline were reluctant to contradict orders from their superiors even when doing so would clearly put the flight in danger. Asserting oneself at a critical moment is often necessary to avoid catastrophe (Gladwell, 2008, p.215).

Primary and Secondary Processes

Fortunately, human personality is not a completely rigid phenomenon—it can flex to accommodate multiple contexts. An individual’s personality may be dominated by either introversion or extroversion. However, the non-dominant function is also important. A fully functioning human being cannot afford to completely focus on the inner world at the expense of the outer world. Nor can one living primarily in the outer world ignore the inner world without consequence. Reflecting on the need for a balance between inner and outer, Carl Jung stated, “There is no such thing as a pure extrovert or a pure introvert. Such a man would be in the lunatic asylum” (Cain, 2012, p.14). For introverts living in an extroverted Western context, developing extroverted skills is even more crucial for success.
Introverts have less choice about participating in both worlds. The outer life is thrust upon them whether they want one or not. Their dominant process is engrossed with the inner world of ideas, and the auxiliary process does what it can about their outer lives. In effect, the dominant process says to the auxiliary, “Go out there and tend to the things that can’t be avoided, and don’t ask me to work on them except when it’s absolutely necessary.” (Myers & Myers, 1993, p. 12)

The extroverted side of an introvert tethers the introvert to the outer world in which they must exist. A kite remains in flight only by straddling the boundary between flight and groundedness. Without the resistance provided by a string linked to the ground, flight could not be accomplished or sustained. A grounded kite becomes a symbol of untapped potential. Much like the predicament of a kite, caught between the terrestrial and the celestial, an introvert cannot accomplish his or her personal goals without contact with the outer world.

While an individual may prefer introversion as a core operational strategy, such an individual can become adept at pivoting from his or her central core to temporarily function in the outer world (see Fig. 7. When doing this, an introvert acts out of their natural personality in much the same way a stage or screen actor temporarily assumes a different character. In the case of the stage or screen actor, achieving a convincing transformation into another character can require extensive research and rehearsal. However convincing this final performance becomes, it can be physically, emotionally, and mentally taxing on the individual. Acting out of one’s personality for extended
periods of time may cause problems. As an advising professor of an introverted student teacher observed:

Sara believed that not being animated and chatty was a weakness. It seemed so natural and worked so well for her supervising teacher. She just needed to “buck up” and work on those skills. The development of these characteristics became of paramount importance and soon Sara began to devalue her own strengths. She worked hard at being animated and chatty but it was incredibly tiring. She had to become “a very hyper version” of herself, but it wasn't working. (Collins & Ting, 2010, p. 904)

Due to the stresses of this extended performance, this student teacher later withdrew from her teaching experience (p. 905).

*Figure 7.* Sketch illustrating how an individual’s personality can pivot around their core personality preference based on context.
Some painters have successfully captured introversion. One notable example is the American Painter Edward Hopper. Hopper’s work is replete with depictions of men and women isolated from each other in moments of palpable silence. Figures in his work are depicted as if in transition. They pause between conversations, thoughts, or activities for a moment of reflection. The surrounding environments are often devoid of texture and detail. The environments are simplified and clean, almost out of focus. The visual noise of the outer world has been edited. Through this technique, it is as though Hopper directs the viewer to assume an introspective vantage point. The vivid details of the exterior environment surrender focus to the inner. In the words of Hopper himself, "Great art, is the outward expression of an inner life in the artist, and this inner life will result in his personal vision of the world" ("Edward Hopper Master of Silence," 2008, p. 45).

Hopper’s work seems both formally and conceptually related to the work of Dutch master Johannes Vermeer. Many of Vermeer’s subjects are solitary female figures focused on household activities (See Fig. 8). The specific moment in which they have been captured feels both mundane and monumental. His subjects concentrate on their task with the steady persistence of an introvert. Like Hopper, editing and blurring help accomplish this focus on the inner. Vermeer’s paintings incorporate a narrow depth of field. It is thought that Vermeer may have achieved this mysterious blurriness by using a primitive lens or camera. Regardless of how he achieved these effects, the soft, selective
focus lends feeling of introspection. It is the sense that Vermeer has chosen to leave many things unsaid that is captivating. The work, like Hopper’s, seems to lead the viewer toward introspection:

Vermeer’s displacement of the optical focus also shaped reception by making familiar domestic subjects look subtly unfamiliar. As a result, his images preclude easy closure of the viewing process. Their split focus, which remains more sensed than noticed, as does the consequent visual ambiguity, probably contributed to the sharply escalating interest in Vermeer's work since the late nineteenth century. Though viewers may remain unaware of the degree to which his paintings incorporate fresh observations about the visual process itself, they respond to the works in kind, with longer, more absorbed and less talk-accompanied looking.

(Filipczak, 2006, p. 272)
Figure 8. Johannes Vermeer, *Girl Reading a Letter at an Open Window*, c. 1657-1658, Oil on canvas 32.75 x 25.375”, Staatliche Kunstsammlungen, Gemaldegalerie, Dresden.
CHAPTER 3: METHODOLOGY

Visual communication is often employed to help a viewer grapple with a complex subject. Complex, abstract, internal processes of the mind can and should be clarified with the use of visuals. In the words of Edward Tufte “all the interesting worlds (physical, biological, imaginary, human) that we seek to understand are inevitably and happily multivariate in nature” (Tufte, 1990, p. 12). Such complexity may be encumbered and confused with the use of many words.

Simple, open-ended visuals can provoke thought, open a new vantage point, and establish an empathetic point of embarkment. Images build from the existing archives of the mind. What is left unsaid visually prompts the active retrieval of information from these archives. Restructuring this archived information in new contexts opens up new possibilities for understanding. As Maxine Greene has powerfully stated,

One of the reasons I have come to concentrate on imagination as a means through which we can assemble a coherent world is that imagination is what, above all, makes empathy possible. It is what enables us to cross the empty spaces between ourselves and what we teachers have called "other" over the years. If those others are willing to give us clues, we can look in some manner through strangers' eyes and hear through their ears. That is because of all our cognitive capacities, imagination is the one that permits us to give credence to alternative realities. It
allows us to break with the taken for granted, to set aside familiar distinctions and
definitions. (Greene, 1995, p. 3)

It is in accessing the imagination that an understanding between diversely unique
individuals can be reached.

Another advantage of visual communication is its ability to teach indirectly.
Resistance to directness is often a natural human reaction. If the mind is provided a stage,
set, props, and costumes, it can create its own narratives, identify key messages, and
reach its own conclusion.

Additionally, it has been recognized that visual expression, because of its intuitive
tendencies, can have therapeutic benefits for both the creator and the viewer (Lusebrink,
1990, p. vii). It can free both the artist and the viewer from the polarizing specificity of
words.

This research harnesses the mind to create visual essays about introversion. It uses
a process of gathering (though a review of available literature), explorative making
(through diverse media), comparative analysis, revisionary making, and exhibition. The
major events in this tangential process are described in this chapter.

Phase I: Documentary Sketching

Simple graphite sketching on plain copy paper was used during the gathering
process to complement the literature review. This was done for three reasons. First,
sketching served as a method of recording significant findings. Second, sketching helped
solidify internalization of the material. Imagery has been considered “a cognitive component of information processing” (Lusebrink, 1990, p. viii). Third, sketching is an efficient method for recording ideas.

Many sketches were simple, graphic depictions of introversion and extroversion (See Fig. 9). Other sketches tested possible symbols for introversion and extroversion as inspired by the literature. Where an introvert could be considered wireless or battery operated, an extrovert would require a more consistent exterior energy source. This sketch captures introverts’ strengths as autonomous beings (Fig. 10).

Figure 9. Initial pencil sketches comparing introversion and extroversion.
Figure 10. Internal vs. external energy sources.

Figure 11. Comparison of a modern and medieval city.
Another sketch compares introversion and extroversion to the structure of two cities (Fig. 11). A typical modern city, supported by efficient infrastructure and transportation systems derives its energy primarily from outside sources. The raw materials, agricultural goods, manufactured goods, and services necessary to sustain its daily professional and residential activities are quickly accessible via connections with the outside. If the arteries of a modern city’s infrastructure are severed, life within that city cannot continue to flourish.

In contrast, a typical medieval city has high city walls to contain and protect its contents. Its energy is confined to a small geographical area. Its localized design keeps essential resources within or very close to the city walls. The survival of the medieval city depends on its ability to quickly become isolated from its surroundings. The goods and materials necessary to sustain life are kept at hand with possible attack in mind. It is internally focused.

Along a similar line of thinking, introversion and extroversion can be compared to biological support structures. Compare the exoskeleton of a lobster with the endoskeleton of a typical fish (Fig. 12). The exoskeleton is a rigid barrier protecting the internal organs of the lobster. Considering this rigid barrier, it could be considered more introverted. In contrast, the skin of the fish is more permeable and more subject to the influence from its surrounding environment. This exterior connectedness is like an extrovert. However, when considering the sensitivity of the two types this comparison could be reversed. The
fish (or introvert) might be more affected by outside stimuli while the lobster (or extrovert) might be less affected by these stimuli.

As an additional marine tangent, a starfish is also an interesting comparison. The starfish is capable of turning its stomach inside out (Bondy, 2009). This allows it to digest potential food sources outside its body (Fig. 13). The starfish’s powerful arms can open a
Figure 13. Sketch of a starfish with everted stomach.

Figure 14. Sketches of group interactions.
clam’s shell far enough for its stomach to be inserted. While this seems advantageous for the starfish, it also leaves its internal organs vulnerable.

Other sketches attempt to visualize the complex interactions of groups (Fig. 14). For introverts, group interaction often increases the potential for isolation. These sketches visually chart the interactions, disruptions, and interference of complex group interactions. Speech isolates some and erects barriers separating parts of the group.

Architecture is the stage on which human interaction often transpires. As previously noted, the arrangement of physical spaces can encourage or discourage certain types of interaction (Fig. 2).

As previously noted in Chapter 2, the primary process of an individual—be it introversion or extroversion—is most effective when balanced with secondary opposite. The secondary process must be well enough developed to use the primary process at its full capacity. This can be compared to a hiker in an arid desert environment. The primary condition of the dessert is an absence of water. The hiker must provide the secondary condition (water) for life in the desert to be pleasant and sustainable. Likewise a scuba diver, immersed in the primary condition of water, must rely on the secondary condition (air) to survive. Each primary condition must be balanced by its secondary condition to enable the human visitor to survive for an extended time. Developing some extroversion allows introverts to comfortably negotiate with their external world.
Phase II Visual Experimentation

The gathering process (literature review and documentary sketching) was followed by visual experimentation. This period consisted of iterative, tangential explorations into methods for visually representing the conditions of introversion and extroversion. Preconceptions as to the final result these explorations would produce were postponed until the next stage of the process.

Personality Worn

The idea of a balanced personality also emphasizes personality as a choice. A well-balanced introvert can choose to play the role of the introvert or of the extrovert on any depending on the situation. The type of clothing worn by the individual can communicate a desire to blend in or to be seen, noticed, and approached. A person’s attire can function as a camouflage or a fanfare. These ideas led to the idea of a T-shirt that was both understated and overstated. Digital type was placed on photos of a charcoal grey T-shirt to create sketches. These sketches were then compared with each other.

One of the sketches was selected to explore further. In this design, the outside of a charcoal grey T-shirt was imprinted with a single comma on the center of the reverse side (Fig. 15). The comma, rendered in a slightly lighter shade of grey, represents a pause in the linear narrative of writing or speech. The natural condition, in which the seams are hidden inside the shirt, would be considered the more typically introverted side. The only visual information, a punctuation mark rather than a statement, is located on the backside.
Its placement makes it inherently non-confrontational. This mark would only be visible when the wearer is walking away or being approached from behind.

When turned inside out, the same charcoal grey T-shirt exposes a contrasting interior. Because the seams are now visible, they imply its status as the non-preferred side of the shirt. The inside of the T-shirt is covered in a visually active pattern. The pattern is comprised of diagonal rows of exclamation marks in vivid periwinkle contrasted with warm gold on the charcoal grey field. This diagonal pattern fills the entire space of both sides of the shirt. The shirt draws attention from all sides, inviting interaction. This inside surface of the shirt represents the extroverted function that balances the dominant introverted function on the outside surface of the shirt.

\[Figure 15.\] Reversible T-shirt design.
Test swatches of these fabric designs were printed using an online fabric vendor. The designs were printed on organic cotton-knit material suitable for creating a T-shirt. The interaction between the colors was refined through each iteration of the process. The intention was to physically construct a T-shirt using this design. However, this particular exploration was edited out based on the relative success of other design explorations in this research.

*Projection on Silent Surfaces*

Another exploration depicted how introverts negotiate various societal expectations placed upon them. A series of extroverted phrases emphasizing stereotypically extroverted ideals were recorded using a word processor. These phrases were narrowed down to four phrases.

Using Adobe Illustrator, these four phrases were typeset in Berthold Akzidenz Grotesk Bold Condensed in various bright hues set on a black background. A figure was positioned in front of a blank white wall while holding a panel of transparent to semi-transparent material. Panel materials included plexiglass, weathered plexiglass, dusty plexiglass, window screens, sheer fabric, and translucent, striated, frosted plastic.

These typeset phrases were projected using a digital projector. The typography was visible on both the surface of the panel and surfaces of the figure. The typography visible on the surface of the panel appeared with its intended geometry and proportions.
The projection also passed through the semi-transparent panel allowing the remaining light to cascade onto the surfaces of the figure. The undulating surface of the figure distorted the geometry and proportions of the projected typography decreasing its legibility. Besides being distorted, the projected type also distorted and flattened the figure’s recognizable features, rendering the figure less legible. The projected type played a dual role of both distorting and being distorted. The type was distorted by the body’s uneven surface while simultaneously distorting, illuminating, and concealing the recognizable features of the body. The legibility of the message and the legibility of the personal features are simultaneously diluted. The interactions between various panels, lighting conditions, facial expressions, colors of type, and colors of clothing were documented using a digital camera. These results were collected during three separate photo sessions (Fig. 16).

This exploration faced some technical challenges. Capturing a crisp digital image of the results was difficult. The low amount of ambient light, longer exposure times, difficulty of focusing the camera on the subject, and the difficulty of focusing the projector on a moving human figure proved challenging.
Figure 16. Projected type explorations.
Notwithstanding the technical challenges, some of the results were successful. The interactions between the colors of the projection and the color of the figure’s clothing was, unexpectedly, quite dynamic. Another happy accident involved a dual message inadvertently created by the interaction of the projected type on the two surfaces (Fig. 17). The projected message read, “Thinking with my mouth.” However, a portion of the word “mouth”—specifically the o, u, and t spill onto the figure in the same location as the word “with.” The bright blue color of the “out” blends with the word “with,” resulting in a double reading of the word as with or without. Therefore, the phrase could also be read as “Thinking without my mouth.”
This experiment also yielded some interesting conceptual insights. Though the message of the projection cannot be completely avoided by the person, it is somewhat averted with the intermediate surface. The projection encroach on the individual’s appearance in the same way a cultural preference for a specific personality type might encroach on an individual’s preferred personality type. Promoted through popular media, culture, and advertising, the perceived glitz of extroversion is almost inescapable. An individual cannot help but be seen and judged within the context of their own culture. While these messages are inescapable, a self-aware introvert must mentally screen these influences to preserve their self-esteem. Though the bright projections of extroversion are alluring, their disfiguring of the individual’s unique features also foreshadows a deeper, internal disfigurement.

Projecting type on a figure is one method for demonstrating how a cultural pressure to become more extroverted can influence an individual. Though visually dynamic, these experiments were outside the visual language of the final realization of this research.

_Everted Sanctuaries: Object Transformations_

Another compelling exploration examined of the strains and stresses faced by an introvert when forced to live within an extroverted context. Many introverts have learned to play the role of an extrovert in pursuit of their core personal ambitions. However, this masquerade is not without its associated costs. Introverts are often fatigued after acting
like an extrovert for an extended amount of time. Personality transformations can even become hazardous to the individual’s health if there are not opportunities to fully recuperate (Cain, 2012).

To demonstrate the effects of this personality reversal, physical objects were turned inside out against their natural states. As this change was exerted upon the objects, the amount of violence and disruption necessary to perform such an act was apparent.

**Found Objects**

The first candidate for reversal was a set of blue silicone muffin cups. The soft, pliable nature of the bakeware made it an easy candidate for these initial explorations. The material easily transformed while still retaining some recognition as a set of muffin cups (Fig. 18). The stress imposed on the silicone resulted in some visually interesting shapes. Glossy, liquid-like folds emerged within the inverted muffin cups. Though this reversal, the muffin cups were concurrently functional and dysfunctional. Though the muffin cups’ smooth, circular geometric forms had become irregular, it would still have been possible to bake muffins in them.
The next phase involved a trip to the secondhand store to search for more objects to transform. A soccer ball, a plush teddy bear, a tennis ball, and a shoe were selected as test subjects. The soccer ball seemed the perfect candidate because of its pliable casing and hollow interior. First, the seams were carefully severed using a utility knife. This formed a jagged opening extending around half the circumference of the ball. Next, the black, rubber air bladder was removed through this opening, becoming deflated in the process. The outer casing was pulled through the hole in its surface and the ball was reversed (Fig. 19). The ball’s characteristic structure of hexagonal and pentagonal seams was heightened by the reversal. While still immediately recognizable as a soccer ball the
change was readily apparent. The yellowed and stained fabric-lined backside of the vinyl contrasted with the dynamically branded, glossy exterior.

Figure 19. Transformed soccer ball.

The black rubber air bladder that was extracted from the ball’s vinyl casing was also aesthetically interesting (Fig. 20). Years of pressure against the protruding vinyl seams on the inside of the vinyl casing had imprinted the network of hexagons and pentagons into its surface.
A child’s teddy bear was also selected for the configuration of its seams and subdued color scheme. The bear’s cream-colored fur was fluffy and sheeplike. The bear’s tag identified it as the mascot for the popular fabric softener brand Snuggle. The seam along its spine was popped using a utility knife, the stuffing was removed, the skin reversed, and the stuffing was reinserted into the reversed skin. The transformation exposed the personal, intimate details of the bear’s construction—details only its original maker would have been familiar with (Fig. 21). The formal qualities of the reversed bear tied closely to those of the soccer ball. Both surfaces were similar in color with similarly protruding seams. The black backing of the bear’s eyes and nose echoed the small black
air valve of the soccer ball. When transformed, the object was still recognizable as a teddy bear. The bear’s previously pleasant expression was retained, but it was now more pensive. The bear’s ears have also disappeared inside its skin.

The next test subject, the tennis ball was split into two hemispheres using a utility knife. The each hemisphere was turned inside out and flipped around. This created a new sphere that resembled two cereal bowls coupled together (Fig. 22). The color palette of the tennis ball’s tan and black rubber interior was in harmony with the reversed bear and soccer ball. The extroverted fluorescent glow of its fuzzy yellow felt was now hidden except along the seams.

The final and most challenging test subject was a woman’s canvas shoe. This particular shoe was selected because of its soft rubber sole, which seemed easier to turn inside out. The heel end of the shoe was easily reversed by pulling it through the mouth. About halfway though the transformation, the materials started to resist. This required making a small incision in the rubber toe with a utility knife. A flathead screwdriver was inserted first inside the shoe and then through this small opening. Once inserted, the screwdriver’s plastic handle was hidden inside the shoe and its metal shaft extended out of the small hole in the toe. The metal shaft of the screwdriver was used as a handle to pull the remaining portion of the toe outward. This final push required much exertion. After being transformed, the shoe was still recognizable as a shoe (Fig. 23).
Figure 21. Transformed teddy bear.
Upon first glance, it was not readily apparent to most observers that the shoe had even been changed. The shoe looked aged and distressed, but not necessarily transformed. Closer inspection was necessary to determine that the shoe was inside out. The new location of the tongue on the outside of the laces provided one clue. The exposed insole provided another (Fig. 24). Despite being easily recognizable, the shoe could no longer be used to adequately perform its intended function. The vulnerable insole would not hold up to friction against pavement or moisture from puddles. The ridged rubber outsole would surely cause undue friction on the foot and be uncomfortable for anyone attempting to wear the shoe.
Figure 23. Transformed shoe.

Figure 24. Transformed shoe (detail).
Photo Documentation

To aid further analysis the results of these experiments were documented with a digital camera. The transformed objects were photographed on white backgrounds using natural light from a window. It was observed from these photos that some of the objects’ original exteriors were not inherently introverted. The tennis ball, with its gleaming yellow exterior was definitely purposefully extroverted. The soccer ball with its dynamic exterior markings was also visually extroverted. The shoe, the exterior surface of which was decorated with blocky capital letters also seemed more extroverted. The bear was perhaps the only object with an exterior that was visually introverted. It was modest in scale. It did not call attention to itself amidst the throng of discarded plush toys at the secondhand store. Its cream colored skin was soft and unassuming compared to other more brightly colored animals.

Electronics

Electronic devices warranted exploration as transformed objects because of their visually introverted nature. The inward complexity of many electronic devices contrasts with their often simple exteriors. An obsolescent pushbutton phone and television remote control were purchased at a secondhand store. These objects were selected because their primary functions involved communication. The plastic shells of these objects were opened to reveal the contents—a maze of green circuit boards, buttons, switches, and
wires. The phone receiver, the most iconic part of the phone, yielded the most interesting results because of its more involved role in human interaction (Fig. 25).

![Figure 25. Transformed phone receiver.](image)

Following the transformations, the objects were documented using a digital camera. The results of this experiment were not as successful. The interiors of electronics proved too complex and overwhelming. The images carried connotations of disrepair or obsolescence (Fig. 26). The exposed interior components yielded results that seemed visually harsh or alien. The origins of these components as mass produced, generic, interchangeable parts made them too disconnected from the individualized and nuanced
levels of human personality. The resulting images were cold and mechanical—lacking any soul or depth of feeling. Based on these findings, the objects were deemed unsuitable for further exploration.

Figure 26. Transformed phone.

Fruit

A search was made for objects with more introverted exteriors. A kiwi fruit was selected for its innately introverted visual state. Its non-reflective, fuzzy brown exterior and diminutive scale made it unassuming. However, its interior of vivid green flesh was visually outspoken. The white core at the center of a kiwi’s flesh contrasts with characteristic black seeds. The circular patterns created by the arrangement of the seeds,
core, and flesh are intricate and beautiful. Its interior is the introverted visual equivalent of an exotic flower.

Though it required several tries to find a fruit that was neither too mushy nor too hard, the kiwi was successfully turned inside out. After being split into two lengthwise halves, a series of lengthwise parallel incisions were made into the flesh without penetrating the outer skin. These incisions were made at incremental angles radiating out from the core of the fruit. Next, widthwise incisions were made perpendicular to the lengthwise incisions. The flexibility of the skin allowed the fruit to be turned inside out. As the fruit was reversed, the skin inevitably tore along some of the cut lines due to stress. The kiwi’s inside out-flesh was now divided into multiple four-sided pyramidal shapes arranged in a grid covering the oval shape of its reversed skin. These pyramids were connected at their bases to the outer skin. This grid of green wedges now extended into and interlocked with the surrounding environment creating an extroverted aesthetic. The new arrangement created a gradual transition between the environment and the skin of the kiwi (Fig. 27). The kiwi’s precious black seeds, usually protected and nourished beneath the skin and fleshy padding, now extended outward into the environment at the tips of the green wedges.
Figure 27. Transformed kiwi.

The reversed half of the kiwi, having lost its structural integrity, was placed over the remaining half of the kiwi for support. This arrangement seemed to mimic an introvert’s continued dependence on their core personality for support during a period of extroversion.

Another exploration used a cantaloupe. Like the kiwi, it too had an unassuming exterior and visually splendid interior. The natural colors and subtle pattern of the rind left little clue as to its contents. The process of dissecting the fruit into halves was repeated with the cantaloupe. Similar to the kiwi, the exposed seeds of the cantaloupe dangled precariously on the ends of the protruding triangular flesh. The bright orange
color of the interior flesh contrasted with the cool green rind and resulted in a decidedly extroverted aesthetic (Fig. 28).

Figure 28. Transformed melon.

The passion fruit seemed a perfect candidate for reversal because of its mostly hollow interior and flexible skin. The passion fruit was halved in a similar manner as the other fruit. However, its skin proved to be too inflexible to withstand the pressures of the transformation. The resulting object did not read clearly as extroverted, but instead seemed merely smashed and distressed (Fig. 29).
As with the synthetic objects, the transformed fruit was documented using a digital camera. The objects were photographed on white backgrounds using natural light from a window. The extroverted fruit was visually pleasing and resulted in some strong photographs. There were some obvious limitations with the fruit. In comparison to many of the found objects such as the soccer ball or teddy bear, it could not be easily returned to its original state. The transformation was irreversibly destructive. Another limitation of the transformed fruit was that it could give introversion a more negative connotation. It could be inferred that an introvert was finally “blossoming” or “blooming” into his or her full potential as an extrovert and achieving true success. Introversion might be seen as a
disability to be overcome rather than a beneficial and naturally occurring personality preference.

*Caught in Transition*

After further analysis, it was determined that the process of the transformation itself could be more powerful than the objects’ static transformed states. Transformation spoke more powerfully about introversion, and on various levels. It spoke more about the discomfort, stress, and pain of having to live in an extroverted culture while at the same time highlighting how a well-adapted introvert could thrive in many different contexts.

Another set of experiments was undertaken to investigate the transformation of the objects. Previously reversed objects were returned to moments of transition between their introverted states and extroverted states and documented with a digital camera. The stuffed bear, shoe, and soccer ball were selected for this experiment because their structures were more prone to reversibility. Photos of the bear produced some dynamic results. In one photo, the bear appears to actively leap out of its own skin (Fig. 30). The top half of the bear exits its exterior with an energetic about-face. In another photo, the transitional space between the two sides of the bear reveals the delicate stuffing material on both sides of the divide (Fig. 31).
Figure 30. Transforming bear in transition.

Figure 31. Transforming bear in transition (detail).
The shoe in transition also created an interesting visual contradiction. It steps downward yet upward instantaneously treading divergent planes of existence (Fig. 32). The transformation allows the intimate details of its inner nature to emerge. The fragility with which the insole attaches to the upper is immediately apparent.

The soccer ball exhibited less movement when placed in a moment of transition (Fig. 33). Though soccer balls are usually associated with motion, its transitionary state is more static. In this state, it lacks the visual tension that the other objects so clearly exhibit.

*Figure 32. Transforming shoe in transition.*
Stop Animation

Considering the success of these static transitional moments, more experiments were conducted that would describe this transition more appropriately. Performance seemed an interesting combination with the topic of introversion. However, a performance that displayed an outside source as the force transforming the object didn’t seem appropriate. The transformation of an introvert is usually internally fueled as a reaction to external forces — not as a direct result of external forces. Stop motion implied this essence perfectly. The object would appear to transform through its own volition. The visual results of this experiment solidly translated this essence and helped realize the conclusion of this research.
A stop motion sketch was created using a digital SLR camera and natural light. As a sketch, it was produced quickly as a way of determining whether the approach would be suitable for further exploration. The sketch comprised 113 still photographs of the stuffed bear transforming between inside-out and right-side-out states (Fig. 34). This photographic sequence was animated at a rate of ten frames per second using the video post-production software Adobe After Effects. In the sketch, the bear is seen becoming inside out. Then, the same sequence of frames was reversed to show the bear returning to its original state (See sketch.mp4).

The apparent transformation of the bear of its own volition proved to be visually captivating. Though the results showed potential, the relative speed with which the bear transitioned was somewhat problematic. As noted previously, the transition from introversion to acting as an extrovert is not usually instantaneous. This first sketch was somewhat problematic because it condensed the transition period and its accompanying disfiguration. Also, the bear’s horizontal position in the animation posed some questions. Would a vertical format allow the bear to be seen as a personality rather than a static object lying on a table? Would an upright, more direct view of the bear allow the viewer to better focus on the transition of the bear? Would a vertical format allow the audience to personify the bear as an extension of human personality?

To answer these questions, a second sketch was made. Equipment and software were upgraded to improve the technical quality. Technical improvements included adding studio lighting and using Dragon Stop Motion, a professional-grade stop animation.
software. This sketch included 374 stills. The additional frames lengthened the period of transition so it could be seen in greater detail. Also, two separate sequences of transition were shot: one for the transition to inside out and one for the transition back to a regular state. To lend more fluidity to the motion without losing the inherent roughness of stop motion, these stills were animated at a slightly higher frame rate of twelve frames per second. The animated sequence was rotated ninety degrees to bring the bear to an upright position within a vertical rectangle. The bear’s arms, head, and legs were animated during its inside-out state.

*Figure 34.* Initial animated transformation of teddy bear (video stills).
Figure 35. Refined stop motion transformation of bear (video still).
This sketch resulted in several improvements (See Fig. 35, and bear.mp4). The additional frames improved the fluidity of motion and allowed the viewer to more closely examine the bear’s discomfort during the transformation. The vertical orientation of the bear allowed the viewer to empathize with its predicament. The upright bear was now more human—more a living thing than an ordinary object.

Two more motion sketches were created using the same technical equipment. One sketch animated the silicone muffin cups (muffin.mp4). Each of the six cups turns inside out at random until all cups are inside out. The cups’ glossy silicone interior undulates and flows almost as if it is a thick liquid. One conceptual advantage of this sketch was its ability to show varying increments of introversion or extroversion. This presents personality as a continuum rather than a dichotomy. This added variability meant that the muffin cups could be two parts introvert and four parts extrovert, or one part extrovert and five parts introvert, or any other available combination with the six cups.

The other sketch animated a kiwi (kiwi.mp4). The methodical dissection of the kiwi followed the same steps as the previous static sketches. This time each step of the process was documented as a single frame. As the shoot transpired, the material of the kiwi presented new possibilities. The writhing motion of the kiwi’s pyramidal arms and spinning motion were added intuitively during the shoot as elaborations on happy accidents. Through the process, the kiwi was taken from its default state to an extroverted state. As with the bear, this process was repeated two times to create two separate
sequences. One of these sequences was time reversed to create the illusion of the kiwi transforming back to its original state.

*Group Dynamics*

The next experiment combined multiple object transformations using the previously captured kinetic sketches of the transforming bear and kiwi as building blocks. One sketch juxtaposed the animation of the bear and the kiwi in the same footage (See kiwi-bear.mp4). Their transitions were synchronized so they were both inside out at the same time. The spinning motion of the kiwi was removed to avoid overpowering the comparatively subtle motion of the transformed bear. This experiment combined reversibility (the bear) with irreversibility (the kiwi) and disclosure (the bear) with blossoming (the kiwi).

Another sketch in this experiment combined multiple bears to simulate the interaction of a group. A new motion sketch was made of a right-side-out bear with no transformation. The arms, legs, head, and mouth of this bear were animated to express highly extroverted levels of energy. Seven instances of this extroverted sketch were combined with three of the previously shot introverted sketch to create a two-by-five matrix of ten bears (See Fig. 36 and group.mp4). This ratio was based on the relative levels of extroverts to introverts in U.S. culture (Cain, 2012). The seven extroverted bears were animated at a double frame rate of twenty-four frames per second, while the introverts were animated at the previous rate of twelve frames per second. The three
introverted bears appear on the screen first, still and silent. These three are joined by the seven extroverted bears, whose constant motion impels the introverted bears to transform. As the introverts reach the final stages of their transformations the seven extroverted bears depart, leaving the three introverted bears isolated to methodically return to their original contemplative state.

Figure 36. Group of extroverted and introverted bears (video still).

The extroverted bears in this group sketch exhibited overwhelming levels of energy. When sped up to twenty-four frames per second and multiplied by seven bears, the motion was overpowering. Also, because the bears were multiples of the same footage, the bears appeared too homogenized. This sketch was refined to show various levels of introversion and extroversion. Different levels of introversion were created
using existing footage. The introverted bears became extroverted for different lengths of time. One introverted bear didn’t fully transition. New frames of the extroverted bears were shot using smaller increments. This resulted in smoother, more realistic motion that was less bouncy and distracting. One of the extremely active bears from the previous sketch was kept as an extreme extrovert. The revised sketch had more variety and nuance. The amount of motion, however, was still somewhat overwhelming. This sketch was less conceptually successful. It became targeted and specific. The result was less open ended and expressive than the single transforming bear. The single bear invited more thought, thus allowing the viewer to evolve their own connotations.

Audio

Audio was investigated during the next series of experiments. A handheld field recorder was used to capture a variety of sounds. Sound samples included a clothes dryer spinning, construction activity, a child singing, the hum of a furnace, a male voice reading verses in Tagalog (Filipino), a doorknob turning, footsteps, and various instruments and vocalists warming up and practicing.

These sounds were paired with previously completed motion sketches. The sound of the singing child was paired with the solitary transforming bear. The sound of the spinning dryer was paired with the kiwi. The Tagalog readings were paired with the combined kiwi and bear. The sounds of instruments warming up were paired with the sketch using multiple bears.
The spinning dryer was an interesting fit with the kiwi. The spinning sound related to the spinning of the kiwi. The mechanical hum combined with the organic quality of the kiwi was so unexpected that most people could not identify the source of the sound. With the sound, the sketch now alluded to external cultural forces that attempt to process an individual’s inherent qualities into socially or culturally acceptable norms.

The singing child and teddy bear also made an interesting combination. The child’s recorded voice was time reversed to obscure the lyrics of the song. This allowed the listener to concentrate on the innocent character of the voice, which matched the soft, vulnerable aesthetic of the bear. The combination produced a distressed, tragic feeling. The bear, tortured by pressure to perform, sings a sweet, thoughtful melody rendered doleful by its backwards motion. It was determined that the combination of the child’s voice and the teddy bear was too expected and less interesting. Teddy bears are too frequently associated with children for the combination to invoke deep thought. This combination instead conjured ideas of a disturbed childhood.

The instrument warm-up combined with the grid of multiple bears was less successful. As previously noted, the multiple bears created very complex motion. When paired with the chaotic audio of multiple instruments warming up, the complexity was intensified. The result was confusing and difficult to follow. As a result, further sound combinations with this sketch were abandoned.

One technical problem occurred with all of these audio animation combinations. Glitches occurred in the audio of the final files rendered from Adobe After Effects. To
avoid these glitches, future sketches used Final Cut Pro to add audio content. The animation was rendered using Adobe After Effects. This animation was imported into Final Cut Pro, where it was combined with the audio track. This resulted in clean audio that was free of glitches.

The Personality of Culture

As discussed in the literature review, concentrations of personality types vary over geographical and political boundaries (Kim, 2002; Cain, 2012; Rentfrow, 2010). Some cultures tend to favor extroverted personality characteristics while others tend to favor introverted personality characteristics. Cultural preferences for certain personality types inspired another series of sketches. Dichotomous word combinations were created to express differences between extroverted and introverted cultural contexts. Of these, the combination of the words “speak” and “think” was chosen for its simplicity, directness, and basis in the writings of Chinese philosopher Lao Tzu (1969, p. 166). Each word was paired with a material that related conceptually to cultures that preferred speaking or thinking. Rice, a significant staple crop connected to East Asian cultures (Fuller & Qin, 2009, p. 88), was matched with the word “think” to represent an introverted perspective. Chewing gum, a cultural artifact of U.S. culture (Gustaitis, 1998), was used to represent the extroverted perspective prevalent in many Western contexts.
Using a digital SLR, Dragon Stop Motion, and studio lighting equipment, typographic animations of “think” and “SPEAK” were created with rice and chewing gum.

The process began with forming a word out of each material. First, the words “think” and “speak” were typeset using Adobe Creative Suite. The words were then flipped horizontally using a vertical axis. These words were printed in black on a sheet of white paper. These papers were then affixed to a translucent acrylic panel with the type facing downward. A bright photographic light was positioned below the panel pointed upward. When illuminated by the light, the backwards words appeared reading correctly through the surface of the white paper. The backlit type served as a guide for placing the materials during shooting. The light was turned on to view the guide, or turned off to hide the guide and capture an image.

Colors of chewing gum were selected based on their aesthetic qualities. Neon green Wrigley’s spearmint and electric blue Wrigley’s winter fresh, were combined with the neutral tan of Wrigley’s juicy fruit and titanium white polar ice. The neutral colors were chosen to intensify the electric color of the green and blue.

Using the backlit template of the word speak set in Berthold Akzidenz Grotesk Bold Condensed as a guide, gum was chewed individually and added gradually over several frames to form the word (Fig. 37). Once the word was formed, the gum was animated to writhe, pulse, and leap back and forth while still retaining the shape of the letterforms. Then, the gum was animated outward toward the edges of the paper.
The gum wads left strings on the white background as they exited the outside edges of the frame.

![Image of chewed gum forming the word speak](image)

*Figure 37. “Speak” created with chewing gum (video still).*

The word think was also created in a typeface designed by the author using white and brown long-grain rice (Fig. 38). Starting with a field of rice forming an even texture, the grains were animated to gradually distill into the word think. The backlit paper was again used as a guide. After forming a legible word, the grains were again gradually dispersed into an approximately even field. This field of grains was animated using several techniques. The table was bumped repeatedly to make every grain of rice dance independently. Smaller portions of the field of rice were also displaced by hand to
Figure 38. “Think” created with rice (video still).

Figure 39. Rice ripples (video still).
form traveling clusters of moving rice. This process was repeated twice. This created two separate animated sequences showing the word think forming out of rice and then dissipating. In one sequence, the word explodes into circular ripples. In another sequence, the rice seems to pour into the invisible vector forms of the letters (Fig. 39).

After the animations of each word were filmed, they were exported as footage from Dragon Stop Motion and refined and edited using Adobe After Effects. Once completed, they were combined into a diptych with “speak” on the left and “think” on the right. They were synchronized so that neither word appears at exactly the same time. While “speak” is on screen, the rice on the right animates as a field of textures. The word “think” only appears after “speak” has departed and faded to a white background. “Think” immediately disperses when “speak” reasserts itself onscreen.

The experiment proved to be successful. The expressive qualities of both materials resulted in interesting animation sequences that meshed aesthetically with the body of work previously generated. The delicate pulsing energy of the field of rice mimicked the distilling processes of the mind. The moist, writhing energy of the colorful gum evoked the repetitive processing of the mouth. Despite the fairly direct cultural symbolism, it was determined that another level of information would provide more clues about the piece’s cultural commentary.

Audio was employed to further link the two halves of the piece to separate geographical locations. A march by John Phillip Sousa was chosen to accompany the
word “speak.” Sousa’s marches are usually included at public patriotic celebrations in the United States such as Independence Day. Ostentatiously uniformed marching bands often play these marches for throngs of bystanders. A kazoo was selected to play the march. The kazoo was recorded using a handheld field recorder.

The kazoo was selected for one singular characteristic. A kazoo, as an instrument, is somewhat superfluous by nature. The instrument itself has no mechanism for varying the pitch. The human voice provides the changes in pitch required to play a melody. The kazoo filters and disguises the real instrument, the human voice, by use of its tube and vibrating membrane. The human voice also performs the function of speaking, a primary strength of extroverts.

A traditional Chinese folk song, Mo Li Hua, was chosen to accompany the animation of the word “think.” A bamboo flute was chosen for its East Asian connotation. The melody was also recorded using a handheld field recorder and synced with the animation sequence using Adobe After Effects.

The result of this combination was humorously successful. The energetic sound of the kazoo matched well with the vigorously dancing chewing gum. The bamboo flute added a more contemplative tone to the quieter moments of the animation.

When tested before audiences one problem became apparent. The bamboo flute was too informed by Western stereotypes of Eastern culture. It formed a link to the background music played in ubiquitous Americanized Chinese takeout restaurants. This made it unfit to symbolize authentic Asian culture. It was determined to replace the
bamboo flute with the more sophisticated tones of a cello. The cello was chosen for its sonorous, meditative tones and high regard as an instrument of “serious” music. A cello is a difficult instrument to master. A cello, skillfully played, embodies dedication and focus.

This refinement created a more sophisticated counterpoint to the zany timbre of the kazoo. These audio choices were influenced by the findings of a study about the personality types of musicians. Researchers found that vocalists are on average more extroverted than instrumentalists (MacLellan, 2011). This inspired the juxtaposition of the human voice (through the kazoo) and the cello.

Audio samples of rice being poured on various surfaces were also recorded. The results mimicked a gentle breeze or the light drumming of rain on a hard surface. These audio segments were inserted during moments of transition to add textural depth to the sound and underscore the rice’s motion.
CHAPTER 4: RESULTS

Following these visual explorations, selections were made from the body of work to be included in an exhibition entitled *Everted Sanctuaries: Increments of Silence*. These works were installed in the Ohio University art gallery for six days during April 2013.

![Preliminary sketch of exhibit layout](image)

*Figure 40.* Preliminary sketch of exhibit layout (plan view).

Works included in the exhibition were organized in chronological sequence. This sequence reflected the progression and pacing of the visual experiments (Fig. 40). First, the viewer is introduced to the topic with the exhibition title and two paragraphs. This
text explains the title and other background information to orient the audience to the topic of introversion. The typography for this text was machine cut from adhesive translucent light grey vinyl and installed directly on the gallery wall surface.

Second, the viewer comes across the inside-out soccer ball presented on a pedestal and paired with a large format digital print of the soccer ball in its original state. Third, a large format digital print of the transformed cantaloupe was paired with a non-transformed cantaloupe presented as a physical object. These four pieces, the exhibition title, and the introductory paragraphs were installed on a wall facing the entryway to the gallery space (Fig. 41). These pieces constitute the viewers’ first encounter with the exhibit.
Next, the viewer is led around the right side of the wall to another lighted pedestal. This pedestal supports a stack of promotional exhibition cards and small pencils. A personality assessment is printed reverse side of the promotional cards. The assessment includes a series of twenty questions compiled from multiple sources. Using this card, the viewer can quickly evaluate his or her own personality type. Viewers are invited to check the boxes next to the questions that describe their personality and circle the total on the front side of the card. The front side of the card includes a sequence of still images of the kiwi transforming (Fig. 42). These photos were selected from the frames of the stop-animated kiwi. Higher scores for introversion correspond with images
of the kiwi in its natural introverted state. Lower scores correspond with the transformed, extroverted kiwi. This interactive experience invites the viewer to explore their own personality as a context to experience the work within the exhibit.

![Exhibit announcement card (front).](image)

Next, the viewer moves around the wall into a dimly lit space with projections on both sides (Fig. 43). Audio is provided using small wireless speakers positioned on small shelves mounted below the projections. The first projection shows the transforming teddy bear (See bear.mp4 and http://vimeo.com/user14633426/bear. A diminutive, cream colored teddy bear sits still on a white background. The bear has amber colored eyes, soft fluffy fur and an open mouth with a pink tongue. The stillness is broken when the bear jerkily turns over. Once overturned, the bear pours out its polyester filling from an
opening in its back. Next, the bear awkwardly exits its own skin through the opening. As the bear unfolds, voices speaking in a foreign language recite scriptural texts. As the transformation progresses, the voices grow louder. Through the din of words, some words emerge more clearly than the rest. They are a question and a response. The voice asks “and all the people hate me; for I am slow of speech, wherefore am I thy servant?” and is answered with “Open thy mouth, and it shall be filled, and I will give thee utterance” (*The Pearl of Great Price*, 1996). At this response, the bear reaches its extroverted state revealing its seams and structure. The exposed bear rocks back and forth as if dancing for a few moments. Then, it retreats inward with the

*Figure 43. Exhibit installation interior view.*
same ritual of flowing polyester. The animation concludes with the bear returning to its state of rest. After a few seconds, the animation loops back to repeat the same sequence.

To the left of the bear, the kiwi performs a similar transformation (See kiwi.mp4 and http://vimeo.com/user14633426/kiwi). The solitary, fuzzy, brown kiwi sits on a white background. The kiwi slowly splits in two. The half closest the viewer is removed revealing the flesh and seeds of the other half. An invisible knife bisects this half, leaving a vertical incision. These sections are bisected again, leaving more vertical cuts. Next, horizontal cuts gradually appear from the center forming a grid in the green flesh. Now the outer boundaries of the kiwi contract and expand producing spaces between the grid’s parts. Suddenly, these green squares of flesh are released from their container. They are now pointed spokes extending outward, interlocking with space. The spokes come alive, writhing and reaching. The inside-out fruit starts to spin. The warm hum of a dryer, accompanies the spinning. The metal notions of the clothes can be heard colliding with the dryer’s metal drum creating loud, percussive clanks. Some of the spokes break free from the spinning fruit, careening out of view. The spinning stops. This destructive transformation is now reversed. The arms of the kiwi queue back into position and are again enclosed by their fuzzy shell. The hum of the dryer fades to silence and the kiwi rests again on the white background. After a few seconds of silent stillness, the sequence begins again.

A third projection, the diptych animation of the words “think” and “speak,” is projected on the back of the title wall (See Fig. 44, think-speak.mp4 and http://
vimeo.com/user14633426/thinkspeak). It is positioned as the final component of the exhibit and culmination of the visual research process. This projection is accompanied by the sounds of the kazoos and cello as described previously. The sound is projected into the space with two downward-facing stereo speakers mounted at the top of the ten-foot-tall gallery wall.

The contents of the two rectangular animations seem to wrestle against each other. As gobs of disfigured chewing gum quickly litter the left rectangle, the rectangle on the right is covered with a field of animated rice. The rice quivers with quiet intensity. It shuffles itself over and over in a constant state of motion, its grains whispering in rough, soothing tones. As the gum interjects on the left, it quickly distills into familiar forms. Gobs of gum are added to eventually form the word “speak” in condensed sans-serif letterforms. The slimy gobs churn brashly, shoving, negotiating for position, vomiting on themselves—a mass of competitive green and blue tongues. As the gobs move, they are accompanied by a collection of male and female voices playing kazoos. The quirky, nasal tones of the kazoos play an upbeat march.
The vividly synthetic hues of the gum overwhelm the warm, natural tones of the rice. The writhing motion of the letters overpowers the subtle vibrations of the rice grains.

Eventually, the invasion of gum gobs explodes, exiting the confines of the rectangle in sticky threads. The threads dissipate and fade to white. On the right, the rice flows and hums with mellow contentment. It trickles and flows, slowly distilling into recognizable letterforms. The rice produces letters one at a time until the word “think” is
legible in modern, serif lowercase letters. The moment is clearer. The stillness persists.

The deep, sonorous tones of a cello play a simple melody.

The word “think” remains for an interval, unaware of its imminent disruption.

Suddenly gum gobs repopulate the screen on the left. The gobs quickly reach a visual forte, assuming their former prominence. The meditative melody of the cello is replaced by the lively sound of kazoos. This event causes the rice grains to dissipate into circular ripples. The letters formed by the rice soon recede into soft textural fields. Their latent potential for thought is stored.
CHAPTER 5: DISCUSSION

This research’s results elaborate on introversion and its cultural contexts. They invite the viewer to not only understand the topic, but also identify with introverts’ struggles. The various conceptual levels of these results are discussed in the context of each component of the exhibition.

Everted Sanctuaries: Increments of Silence

The title of the exhibition draws upon several themes within the work. The word eversion is a biological term for an organism turning itself inside out. It references the sculptural object transformations at the visual and conceptual heart of the work. It also hints at the inherent risk involved in transforming one’s personality. Sanctuary is what an introvert needs to recover from such a transformation. It is a place to recharge. Sanctuary describes the environment in which a person is most comfortable. The word “increments” reinforces the idea of a personality continuum. Introversion and extroversion are at two ends of a continuum rather than a binary pair. Silence refers to the preferred environment for introverts and the way they tend to be perceived in social settings.

Interior Spaces

Besides presenting the works in a chronological progression, the exhibit organization also loosely follows the intimacy gradient (Alexander et al., 1977). The viewer progresses from public space to more secluded personal space. The static,
superficial experience of viewing a photograph, an object, or reading a text progresses to an exploration of the viewer’s own personality. This personal engagement serves as a more intimate, intermediate step. The monologue has turned to a dialogue between the work and the viewer’s own personality. At the most intimate level, the viewer experiences the objects as dynamic animated performances without a barrier of time. The work fully discloses the entire process. These performances are presented within a physical sanctuary partitioned off from the larger gallery space. Within this inner sanctum, the viewer can contemplate the work in the context of his or her own personality.

As noted previously, public and private spaces are tied to our personality. This leads to another connection with Rachel Whiteread’s work. Whiteread’s sculptural work deals with “The idea of architecture as a primal social and emotional space housing man's self, and its sculptural transformation” (Whiteread & Schneider, 2005, p. 7). Space is considered a container for emotions and social interaction. Based on personality, people place themselves within containers. They are subjected to the stimuli that are present within that container. An introvert would choose a smaller, less populated or even unpopulated container. The architecture houses the emotional space a person carves for themselves. An extrovert might choose a larger container. It would house social space. It would be more generously sized to allow large groups to gather. It might be more of a sitting room. The repeated sculptural transformation of the object creates a fusion of these spaces.
Sociologist Erving Goffman has placed this dichotomy of spaces into a theatrical context. His theory describes how people present certain impressions to those they interact with. These impressions are managed using two distinct approaches—front stage and back stage. Front stage is what the audience sees. The front stage persona ensures that only certain types of behavior are presented to this audience. Our backstage selves are much less inhibited. The backstage self would only be accessible to close friends and family—those who have earned trust (1959). It could be theorized that an introvert places more emphasis on their back stage world or possibly has a clearer division between the backstage and front stage aspects of their life. An extrovert might have less defined front stage and backstage spaces.

**Object Transformations**

*Eversion*

As discussed previously, eversion is a biological term for the ability of an organism to turn itself inside out. A starfish can evert its stomach. It places it in the outside environment to digest food that cannot be taken into its body (Bondy, 2009). It's a mechanical coping strategy. Though placing its internal organs outside its body does present some risk for the starfish, it is necessary for its survival. Also mentioned previously, a sea cucumber has a similar ability. It can eject its internal organs as a distraction for predators (Fig. 45). Eversion can be deployed at certain key moments to allow the cucumber to accomplish its key agenda—staying alive.
These examples provide an obvious connection to the eversion of the material objects in this research. The teddy bear releases its internal organs, stitching, and structural framework into the environment in a moment of vulnerability. The cost is a disruption of its filling. When replaced at the end of the transformation, this filling takes time to re conform to its former arrangement. This process results in a lumpy, distressed teddy bear.

Sculptor Rachel Whiteread also works with opposing surfaces. Her work typically transforms architectural spaces from negative to positive by casting them in concrete (Fig. 46, Fig. 47). Whiteread is more focused on considering space as an object. In one series she created negative castings of several doors (Fig. 48).
The process of reversing the doors' surfaces has the alchemical effect (common to all Whiteread's sculpture) of transforming an ordinary, entirely mundane object into something disconcertingly beautiful. ... Yet at the same time this alchemical transformation of ordinary functional objects into sculptures resonates beyond the aesthetic. These sculptures also signify as doors, though not simply as functional objects to pass through, but rather as metaphors for transition. (Whiteread & Schneider, 2005, pp. 73–74)

The effects of the object transformations in this research are similar. The transformed objects become a metaphor for affected human personalities. The teddy bear as an object is so forgettable, so mundane and ordinary. The teddy bear’s ubiquitous exterior yields to reveal a new, more unique interior aesthetic. Its reversed surface contains more information—the details of its construction and materials emerge. The recognition of what was already in existence, though previously unnoticed is revealing.

As discussed previously, introverts can become well adapted to negotiate these dual surfaces. As noted by Isabel Briggs Myers, the dual relationship between a dominant function and subordinate function is a necessary and helpful tension to achieve a balanced, more sustainable personality (Myers & Myers, 1993).
Figure 46. Rachel Whiteread, *Untitled (House)*, 1993, 
(Whiteread & Schneider, 2005, p. 112).
Figure 47. Rachel Whiteread, *Untitled (Upstairs)* (Whiteread & Schneider, 2005, p. 13).
Figure 48. Rachel Whiteread. *In-out-I*, 2004 (Whiteread & Schneider, 2005, p. 78).
Stop Motion

Introverts are not known as performers in the usual sense. They generally avoid large groups of people. However, existing in extroverted contexts often requires skilled performance. The highly prepared medium of stop motion emphasizes the importance of preparation for an introvert’s performance. Stop animation differs from live action video or live performance. The results are essentially the same — motion. While both processes require planning, the amount and type of preparation required to produce stop animation is significant. Stop animation requires methodically considering every instant within a sequence of motion. Every moment is carefully constructed and sequenced to form a result that is seemingly smooth and spontaneous. Each frame plays a transparent, but important role in the overall result.

In comparison, the capture of live-action video occurs more fluidly and arguably more spontaneously. Following planning and preparation, the motion is performed by live actors in real time. This is a critical moment in which everything relies on the actors’ abilities to spontaneously produce under pressure.

The methodical creation of stop motion parallels the introvert’s transformation to extroversion. In stop motion, every frame is crafted with methodical planning and concentrated care to produce a result that approximates the nuances of live motion. In the case of an introvert, methodical planning is necessary to achieve the appearance of extroversion. The mask of extroversion can only be worn after each moment and each step have been carefully scripted, rehearsed, and reflected upon. The result, though still
lacking the smoothness of extroversion, is still powerful enough to persuade an audience to suspend their disbelief in the abilities of the introvert and focus on their message.

In stop motion video, the hand causing the motion is absent, but its activity is recorded as a series of reactionary impressions left upon the materials. It involves the capture of imprints from an invisible hand. Stop motion compiles multiple, insignificant "performances" into a fluid, larger performance. It is a condensing process—a distilling of multiple instances of work that are then highly concentrated to fit within a small amount of time. The creation of these instances can range from several seconds to several minutes. The net result of this creation becomes a single frame, a single instance in the finished piece.

_The Material Bear_

As a material, the bear is unassuming. It has soft, fluffy off-white colored fur, friendly brown eyes and a slightly open mouth with a pink felt tongue. The bear’s surfaces have inherently pensive qualities. Its artificial fur skin is both soft in hue and soft in texture. Its white stuffing is also comforting, flowing with tranquility. The reverse side reveals its synthetically woven dermis. The extruding seams form comforting, regular borders like the evenly measured ticking of a mechanical clock. The plastic backings of the two eyes extend outward. The bear is constructed to allow multiple transformations while always returning to its original state.
Ambitions of a Defunct Spokesperson

This particular bear is also ensnared in the extroverted workings of the American marketplace. Maxine Greene refers to “human resources...as if they were raw materials to be shaped by market demand” (Greene, 1995, p. 32). The idea of a marketplace for people mirrors the historical origins of this specific teddy bear. The bear was created for Sun Products by Kermit Love, a puppeteer, costume designer and actor who also created many of the Sesame Street characters (n.d, The Times). The bear was designed to reinforce the product’s brand values (Fig. 49). It added a tangible, three-dimensional charm to a rather flat box of dryer sheets. The bear was so successful that Sun Products continues to use the bear today as an animated television personality.
The bear's role as a spokesperson for a brand emphasizes the idea of marketing. This particular teddy bear is now a discarded brand spokesperson. As a static version of its animated cousin, its market value at a secondhand store is quite low. A quick Google search of the term “Snuggle fabric softener Teddy Bear for sale,” returns about sixty shopping results ranging from $5 to $50. Millions of the bears were gifted as promotional items by Sun Products with boxes of dryer sheets during the early 2000s. The market is inundated with inanimate reproductions of the animate bear featured in Snuggle television commercials. While it could be expected that these mass-produced stand-ins function as brand ambassadors, they fall flat without the original character's animation.
and verbal abilities. They fail to meet expectations and are dumped back into the marketplace. The bear, as a secondhand object, is no longer an object of market demand. The physically and economically static bear represents a socially or economically static introvert. It is simultaneously a spokesperson and a misfit. It becomes a stand-in for misfits of many types who feel the need to conform because of others’ expectations.

Think / Speak

**Chewing Gum**

Chewing gum has many conceptual connections with extroversion. It puts the mouth in constant motion. The knotted shapes it becomes are the result of this repetitive process. The gum acts as the positive impression of the negative space of the mouth. Gum doesn't have any substantial nutritional value—it provides minimal calories. It requires constant attention—it must constantly be kept in motion. The subconscious, repetitive motion continues even after the gum has been expunged of all flavor, void of the sweetness of artificial flavors.

Gum leaves a residue. Once expended, it can be discarded or affixed to a surface. Once swallowed, it does not easily digest. Once discarded, its presence is a nuisance. It often hitchhikes on unknowing carriers. It lurks on surfaces until it attaches to the bottom of a shoe or some hair. The residue is everywhere. It traps dirt particles as it slowly lithifies onto surfaces. The gum forms a layer of waste, a layer of excess. Its layers
document generations of students, of teenagers, of youth as it is slowly builds upon hidden surfaces. It collects as the sediment of youthful indiscretion.

Gum, as is typical of many commercial products, is designed to draw attention. It comes in conveniently portable packages. It is often fruity and sweet smelling or vividly colored. Its appearance is decidedly extroverted. When chewed during conversation, gum cannot help but occasionally reveal its presence as the glowing ember of vibrant green from within the mouth. It can also be blown as an extroverted bubble.

Gum has no nutritional value, but it has value during social interaction. It facilitates social acceptance by masking unsavory breath. It is a device for managing the outward appearance. Conversation is a staple of the extroverted personality.

History supports the use of chewing gum as a symbol of U.S. culture. Chewing gum—at least the large scale manufacturing, marketing, and popularizing of it—is very much American. Chewing gum can trace its roots to ancient civilization including the Greeks and Mayans who chewed various tree saps. In America, European settlers picked up the practice from Native Americans who were already chewing the resin of spruce trees. Several gum companies later, the product became popular and well known. The most prominent chewing gum mogul, William Wrigley, Jr., made his way with innovative sales and marketing. He stated: "Anybody can make gum, selling it is the problem." Thus chewing gum became another product of the machine of American sales and marketing. Wrigley's first flavors were Spearmint and Juicy Fruit. During World War II, U.S. soldiers in Britain were widely known to distribute gum from their rations to
children. During the post-war economic boom, chewing gum sales burgeoned as part of the prevalent culture of mass consumption (Redclift, 2004, pp. 148–149). Chewing gum became so closely associated with America that it was even banned in Eastern Bloc countries during the first part of the Cold War for its links to American Capitalism (Gustaitis, 1998). Two of Wrigley's original flavors were used in the animation. These historically connect the work with Wrigley and his emphasis on the extroverted pursuits of marketing and salesmanship. Chewing gum functions as "one of those cultural artifacts instantly associated with the United States" (Gustaitis, 1998, p. 1).

Besides its history, chewing gum provides psychological connections. A study was conducted to test the effects of chewing gum on anxiety in social situations. Within a ten minute timeframe students were asked to prepare a presentation. The students were then expected to give the presentation in front of a peer and two psychologists identifying themselves as communication experts. Next, the students were asked to answer math questions out loud in front of the same people. Students’ levels of anxiety were measured between each stage of the process. Researchers found that chewing gum helped relieve some social anxiety. Chewing gum kept the students more content during a potentially embarrassing situation than when the students were not chewing gum (Sketchley-Kaye, Jenks, Miles, & Johnson, 2011).

Could it be that the gum functioned as a distraction from anxious feelings? Meeting new people, performing under pressure without adequate preparation, humiliating oneself in front of peers and authority figures are all anxiety-inducing
situations. Chewing gum could be an effective strategy for dealing with social anxiety. Chewing gum could be thought of as way to release excess nervous energy built up in the face of stress. The hardened detritus of chewing gum so ubiquitously present on the undersides of school furniture could also be considered a residue of social anxiety. Sticky chairs, desks, and sidewalks could be a reaction to uncomfortable social situations.

Other designers have used chewing gum as a material for creating expressive type. A poster by Israeli designer Oded Ezer forms the title of a Hebrew poem with pink chewing gum (Fig. 50). The use of gum Ezer’s work, however, has a more beautiful, mysterious quality. It contrasts with the sticky, slimy character of the animated gum in the current research. Because emphasis is placed on the gum’s bright pink color, its sliminess is less apparent. The stringiness of the gum is similar to the tangled strings left by the animated gum forming the word “speak.” The work’s title, *Unimportant and Nothing*, relates conceptually to chewing gum’s perfunctory existence.
The Dimensions of Rice

Rice is a multi-sensory material. The appearance, sound, and smell all add dimension to the piece. Its smell is aromatic. It provides sustenance. It can flow like water, or vibrate with textural richness. It can be fluid without ever being wet. It slides and groups. Each kernel has a relationship with its adjacent kernel. One grain of rice cannot be moved without affecting the grains next to it. As one kernel moves, it creates a
chain reaction causing other kernels to shift and rotate. Each kernel is a neuron in a
massive brain, a large moving network of connectedness.

The value of rice as a material lies in its power to nourish and sustain life. It is
one of the most popular foods in the world—one that is depended upon by many people
in some of the most populous and industrious countries in the world. It symbolizes
wholesomeness, sustenance, industriousness, concentration, peace, tranquility, and
repetition. It can be textured and noisy, but also monotonously soothing and beautiful.

Author Malcolm Gladwell discusses how rice cultivation in China might be linked
to the development of a hard working culture. Asian students' strengths in math and
science come from a culture of hard work that is partially influenced by the farming of
rice. He shares details about the farming of a rice paddy: it is largely more "skill oriented"
than "mechanically oriented." American farming methods have placed emphasis was on
purchasing better equipment to farm more acres. Rice fields on the other hand, are
generally much smaller and difficult to expand. Huge rice paddies would have been much
harder to tend. Rice, as a somewhat temperamental crop, requires exact water levels at
certain times of the year and careful management. Higher amounts of agricultural skill
are rewarded with a greater crop yield. Rice cultivation demands the intricate water
management systems, earthen dikes, and level fields—all labor intensive pursuits.
Farmers who can pay greater attention to detail and work hard are rewarded with much
higher crop outputs. Centuries of rice production may have created a culture of dedicated,
focused hard work. To back his theory, Gladwell cites a study that compared American
and Japanese first graders' persistence when solving math problems. The Japanese children persisted about 40 percent longer than the American children. Math requires a large amount of persistence. Rice farming contrasts with typical U.S. farming methods. In the United States, land area and speed became more important than agricultural mastery. The success of crops in the United States is more based on economy of scale than it is on attentiveness (2008, p. 259). Based on this evidence, rice becomes a symbol of concentrated, focused effort.

White Noise

Noise can be both distracting and soothing. Sound of various intensities, temperatures, and decibel levels affects the way people operate. Voices can be a distracting stimulus for an introvert—it can disrupt the intense focus that is an introvert's strength. However, an extrovert can be energized by a cacophony of voices.

Conversely, the presence of white noise, such as the humming of jet engines, the laboring of a refrigerator, or the hum of electric hair clippers, can smooth out the auditory crests and valleys of more disruptive stimuli. White noise is usually a subtle but constant sound existing within an environment. It can be created by mechanical systems such as ventilation systems or fluorescent lights. White noise often goes unnoticed unless the room is otherwise quiet.

Visual representations of noise in this work mimic the function of sound in an environment. The motion and formal qualities of the rice function as white noise. This
white noise provides a counterpoint to the visually prominent chewing gum. The
vibrating sea of tan and white rice lacks strong contrast. Its motion calms and pulses. Its
movement shifts incrementally with the movement of each individual grain. Because its
constituent components are small, its subtle progress can go unnoticed.

The chewing gum, on the other hand, has more visual contrast. Its manufactured
vibrant yellow, green, and blue tones visually speak over the natural tones of the rice. Its
moist surface allows for bright highlights and its folds hold darker shadows. Because of
its brighter color and higher contrast, the movement of each of its individual parts cannot
escape notice.

As these two substances compete for prominence, the rice is both disrupted by the
visual loudness of the chewing gum and acts as a form of visual white noise that
balances, masks, and cancels out the visual decibel output of the gum.

Rice also reinforces the idea of white noise. The literal sounds of cascading rice
create both an audible connection to the material and a soothing ambient sound.

Though often unnoticed, white noise is a subtle reminder of many beneficial
processes. White noise represents progress. The overwhelming white noise of airplane
engines is a sign of that it is still on course to its destination. The whir of a refrigerator is
a reminder that sustenance is readily available and safely preserved. The hum of a clothes
dryer sounds like home. These sounds have become necessary in the advanced
technological state of the world. Much of humanity depends on them and expects them to
continue to preserve a comfortable way of life. Though these white-noise producing
processes usually go unnoticed, it would be difficult to live without their resulting
conveniences. White noise could be used as a tool for focusing amid distraction. In nature
the running of water or a gentle breeze through a coniferous forest create an environment
for thought. White noise subtly signifies constant, quiet, focused productivity.

*Process as a Signifier*

Processes have played a role in the origins of the materials, the making of the
work, and in its resulting connotations. The bear was mass-produced using manufacturing
processes. During the animation, the bear is processed through a series of mechanical
changes to turn it inside out. The rice underwent a complex series of natural and
mechanical processes to be prepared for consumption. It was carefully cultivated,
harvested, and isolated into single grains that were dried and processed to remove the
outer shell, leaving only the inner white material. During creative experimentation, rice
was processed into letters that form a word. Through this process the grains gradually
arrive at the precise configuration to create letterforms. The rice was then processed with
the lens of the camera to become an animation. The gum was also processed. It was
synthesized from raw materials and then processed within the mouth. After becoming
malleable, the gum was then processed manually (with an invisible hand) and with the
lens of a camera. These moments were then processed together into one continuous loop.
Because of the processes embedded in the making of both the materials and the work, the
result speaks about processes.
The mechanical sounds of the dryer spinning its load repeatedly also connect to the domestic and cultural processes that mold an individual's personality. Each person is processed though the daily routine of life in a family in which they were raised. They bring with them a family culture, a local culture, a regional culture, a national culture and countless other religious, recreational, educational, vocational, and professional subcultures that process them into who they are. Some of their naturally preexisting personality traits are influenced by these cultural processes while others remain unaffected. Educational systems are asked to produce people that meet specific demands within a market. The job market tends to reinforce and reward people that have been processed a certain way. Certain personalities are more sought after. Certain job types involving selling and networking are highly financially rewarded.

Given such a preoccupation, it follows that certain children are conceived of as human resources rather than persons. Much of the time, they are spoken of as if they were raw materials to be shaped to market demand. They belong, as it were to a constructed category: beings who are to be shaped (benevolently and efficiently) for uses others will define. (Greene, 1995, p. 32)

The notion of people being processed to meet market demand seems to make sense. The market often demands people who can sell, push products, or entertain. The market demands people who can instantly feel comfortable and chatty in a variety of social situations. People are expected to be be able to market themselves instantly. Such people may interview well, but what if the job also requires other specialized skills? The most
amiable job candidate may get the job at the expense of those that are truly qualified.

Cultural processing aiming to produce a specific personality type would turn a good percentage of the population into misfits.
CHAPTER 6: CONCLUSION

Introverts quietly and remarkably adapt their personalities to fully function within the extroverted contexts of U.S. culture. This usually requires introverts to step outside their preferred sanctuaries. They temporarily transform to play the role of an extrovert. These excursions to the outside world require time and resources, often putting great stress on the individual. Cultural, educational, and professional environments do not often provide “room to roam and to think” and recover (Cheek, 2012). Extroverted contexts often expect individuals to speak before they have adequately prepared. They may be expected to speak in front of large audiences with pressure to perform flawlessly. When searching for employment, one must become gregarious and personable, engage in small talk, unabashedly promote their abilities, and field questions without time to prepare. Introverts may be disadvantaged when competing against candidates that are more adept at these skills.

As would be expected in extroverted contexts, the operations of corporate, academic, and government institutions require extroverted activities. In this climate, introversion is often perceived as a limitation. Though introverts do have their limitations, society needs to be further educated about introverts’ strengths. We can employ visual means as part of this quest for greater understanding. Visual means activate the imagination needed to understand other perspectives.
Aware, then, on some level of the integrity and the coherence of what may seem to us to be a totally alien world in the person of another, we are called upon to use our imaginations to enter into that world, to discover how it looks and feels from the vantage point of the person whose world it is. That does not mean we approve it or even necessarily appreciate it. It does mean that we extend our experience sufficiently to grasp it as a human possibility. (Greene, 1995, p. 4)

At the very least, visual communication can make us aware of others’ situations. At its best, visual communication bridges divides by invoking deeper, shared human emotions. These emotions build mutual understanding.

_Everted Sanctuaries_ speaks on behalf of the quiet, contemplative, thinker. As visual communication _Everted Sanctuaries_ becomes an alternative to the verbal communication methods of extroverted Western contexts. Its visual essays invite the viewer to explore the inner world. Transformed sculptural objects display the potential beauty of the interior. They divulge the depth and vulnerability concealed beneath otherwise silent surfaces. The kinetic transformations of these objects become metaphors for the uncomfortable and stressful process of becoming both self and other. The qualities of stop animation mimic the meticulously planned and often robotic nature of introverts’ preparation for extroverted performances. These animations also reveal the resiliency of introverts in adapting to extroverted contexts.

This research has referenced quantitative, literal, and qualitative knowledge about human personality. From this body of knowledge, new work has been generated. Visual
essays were created using explorative sketching, sculptural transformation, photography, stop motion, animation, comparative analysis, writing, audio, video installation, and exhibition. The diptych of the animated words think and speak juxtaposes contrasting cultural contexts. The cultures’ personality preferences are signified through material and sound. This piece exhibits a balance and interaction between the functions of presentation and reflection.

_Everted Sanctuaries_ also promotes the designer as thinker. As an artifact from the life of an introverted designer, it demonstrates the importance of sanctuary as both a legitimate approach to life and a favorable climate for design. This research invites further visual exploration of introversion to improve knowledge of its personal, cultural, professional, and educational benefits.
REFERENCES


