Guidelines for Designing Stressful Emotion Relief Toys for Adults

by

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Abstract

Nowadays, the rapid development of society not only fulfill people's material needs and allow them to focus more on their spiritual needs, but also stress people out. Stressful emotion relief toys are noticed by more and more people. But designing a stressful emotion relief toy can be a huge challenge for designers since there are few research and study on this field.

By studying the stress related theories, emotional design, development of adult toy and several case studies, this thesis will establish a way of designing a stressful emotion relief toy systematically and scientifically. In this study, stressful emotion relief toys will be categorized into four types based on Norman's emotional design principles. Also common strategies and design patterns used in case studies will be summarized. As a result, by applying the strategies that designers like and following the design principles, designer will be successful to design a functional stressful emotion relief toy.

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Chapter 1

Introduction

1.1 Problem Statement

Modern adults are facing lots stress coming from work, society and family. Stress can have both positive and negative effects on people. On the one hand, the proper amount stress can make people stronger, hardier and better able to tolerate and adapt to life's difficulties, but on the other hand, struggling under long-term stress cause great harm to people, causes mental and physical diseases (Lieberman, et. al. 2015; Newcomer et al., 1999), which is why we can't let stress accumulate without stopping it.

As the economy is constantly developing, people's living standards are also improving. While enjoying rich material culture, people also pursue spiritual satisfaction. Consumers' demands have gradually shifted from low-level material demand to high-level spiritual demand, seeking products that can satisfy their emotional needs. Toys, as a universal product to play with since we are kids, can make us feel happy and free; using toys to relieve stressful emotions has become more and more adults' choice. Even psychological treatments for adults are using toys as a tool to treat adult patients. Maybe traditionally, toys are meant for kids and adults playing with toys is a sign of immaturity and childishness, but in this new era, toys are walking into adults' life gradually and naturally. Although more designers are noticing this promising market and there are some good, classic designs of stressful emotion relief toys for adults, there is little research and few design guidelines to tell designers how to design an actual working stressful emotion relief toy

systematically and scientifically.

1.2 Need for Study

A report from Everyday Health (2018) shows 93% adults feel more or less stressed, and 18% of these people consider themselves as extremely stressed. Even 30% of respondents has paid a visit to the doctor because of stress. Growing up to adulthood doesn't mean toys have to disappear from our life because adults need play even though it is considered different from children's play. "Play is the way people of all ages and cultures discover, create, and communicate… Play is the essence of life and learning" (Baptiste, 1995, p.33). Play makes humans feel positive; because toys are the tools of play, it's clear to see how effective toys can be for regulating stressful emotions.

Toys for adult to relieve their stressful emotions have arisen at this moment as a new direction in toy design, but it is not being studied widely in this industry. Most designers do not clearly know how achieve the goal: relieve stressful emotion. Therefore, stress related theories, how human react to stress and theory based on emotional design should be studied to understand how and why these toys work. Also, summarizing and categorizing existing successful cases of stress relief toys for adults will be helpful to find the common rules behind them, and, as a result, a guideline will be established.

1.3 Objective of Study

- To study the definitions of stress.

- To study human response to stress physically and emotionally

- To study how to relieve stressful emotions.

- To study the definition of stressful emotion relief toy for adults and its development.

- To study principles of emotional design.

- To study how emotional design principles help to relieve stressful emotions.

- To summarize and categorize how existing adult stressful emotion relief toys apply emotional principles.

- To develop a guideline of designing adult stressful emotion relief toys based on emotional design principles.

1.4 Assumptions of Study

This study was directed based on the following assumptions:

- All the research, approaches, methods and data I found are correct.

- Adult want to manage their stress.

- Adult stressful emotion relief toys are a promising market.

- There are few studies of how existing adult stressful emotion relief toys work.

- There are few design guidelines in designing adult stressful emotion relief toys.

- Applying emotional design principles to adult stressful emotion relief toys design is the correct way to make them work

1.5 Scope and Limitations

Although some stress of adults is caused by physical issues in the body and traditional medical treatment may have an effect on them, for this study, the scope will be limited to mental stress coming from adults' living environment. Since designers do not develop medicine, the study will focus on mental stress for which people can use toys to interfere with the stress emotions. Also, the emotional effect that materials (in general meaning; wood, metal, plastic this kind property) have will not be discussed in this thesis because material attribute is hard to classify into which one of the three levels of emotional design which is the cornerstone in this thesis. As a matter of fact, it affects all three levels design, and more importantly, the material that we choose is the result of multiple factors, such as, the way designers want users to use the product, what imagery designers want users have, what colors designers choose, etc. After deciding these factors in design flow, designers should have the decision of appropriate materials automatically.

1.6 Procedures and Methods

1. Study stress and toy-related theories; and introduce the concept of adult stressful emotion relief toys.

- Review online research, dictionaries, articles and library resources.

- Sort and analyze collected materials.

2. Study emotional design principles and how they could be applied in toy design.

- Review online research, dictionaries, articles and library resources.

- Sort and analyze collected materials.

3.Study cases of existing adult stressful emotion relief toys and extract strategies.

- Collect cases.

- Analyze collected cases.

- Extract emotional relief strategies.

4.Summarize and categorize the relationship between strategies the studied cases use and emotional design principles.

- Review online research, dictionaries, articles and library resources.

- Analyze and establish a form to show the relationship.

5. Develop the design guidelines for designers to design adult stressful emotion relief toys.

6. Apply the design guidelines to new products.

1.7 Anticipated Outcomes

The primary outcome is developing a guideline to help designers design adult stressful emotion

relief toys based on emotional design principles. Products developed by this guideline will have actual scientifically-based stressful emotion relief effects. Existing adults stressful emotion relief toys will be studied and use as a reference in research and development. At least one demo product will be developed from the preliminary sketch based in the design guidelines.

Chapter 2

Literature Review

2.1 Stress and Stress Related Theories

2.1.1 Definition of Stress

The stress problem now is studied widely around the world. But defining the term and choosing a proper definition of stress can be very difficult, even for the expert who has already studied in this field for many years. Hinkle (1987) explained that the difficult of the study of stress is that the term "stress" has a different meaning for researchers in different fields. In the biological literature, it is used in relation to single organisms, populations of organisms, and ecosystems. Biologists refer to things such as heat, cold and not enough food supply as being sources of stress. Human biologists add to this microbial infection and ingesting of toxic substances. Social scientists, for their part, are more concerned about people's interaction with their environment and the resulting emotional disturbance that can sometimes accompany it.

But there still are some very authoritative theories in the history of defining "stress". The first definition of stress, which is also considered as the most generic, is that proposed by Selye (1936), which stress is the non-specific response of body to any demand of change. Selye (1973) expanded the definition later; he used "stress" to refer to the effects of any agents that threatens the homeostasis of the organism. Lovallo (1997) proposed stress means a level of challenge that is serious enough to require major readjustments to meet the challenge or that is prolonged enough to change system function. And Toates (1995), believed that stress is a more chronic state that

happens only when defense mechanisms are either being chronically stretched or are actually failing. Unlike the stress definitions others gave that are more focused on the physical, Toates' theory is pretty much how we use "stress" these days. It can explain this term both mentally and physically.

2.1.2 Physical Stress Response

Lovallo (1997) suggests that the stress response is the compensatory reaction of the human body towards the disorder caused by stressor. Sapolsky (1994) defines a stressor as anything that can throw body out of homeostatic balance. Selye (1973) believed that the stress response is necessary for humans to survive and adapt to environments, but a severe and prolonged stress response can result in damage and disease. In Selye's theory, he introduced the term "general adaption syndrome" in 1936, which are non - specific physiological changes caused by stressors.

In the General Adaption Syndrome model, there are three reaction stages that will happen after stressor threatens the organism well-being: alarm stage, resistance stage, and exhaustion stage. During the first stage, which is called alarm, the body reacts with the "fight or flight" response, the sympathetic nervous system is activated, and hormones like cortisol and adrenalin are released to get ready for the threat. After the first stage, the stress level may be reduced or eradicated, and the body begins restoring balance, adapting the effects which stressors bring. But if the resistance stage keeps going, which means stressor continues beyond body's capability and people can't adapt to the stress effect, the organism exhausts resources and becomes more susceptible to disease

and death (Selye,1936).

The General Adaptation Syndrome
by Hans Selye

Stage 1 -
Alarm Reaction

Stage 2 -
Resistance

Stage 3 -
Exhaustion

Time - Duration of Stress
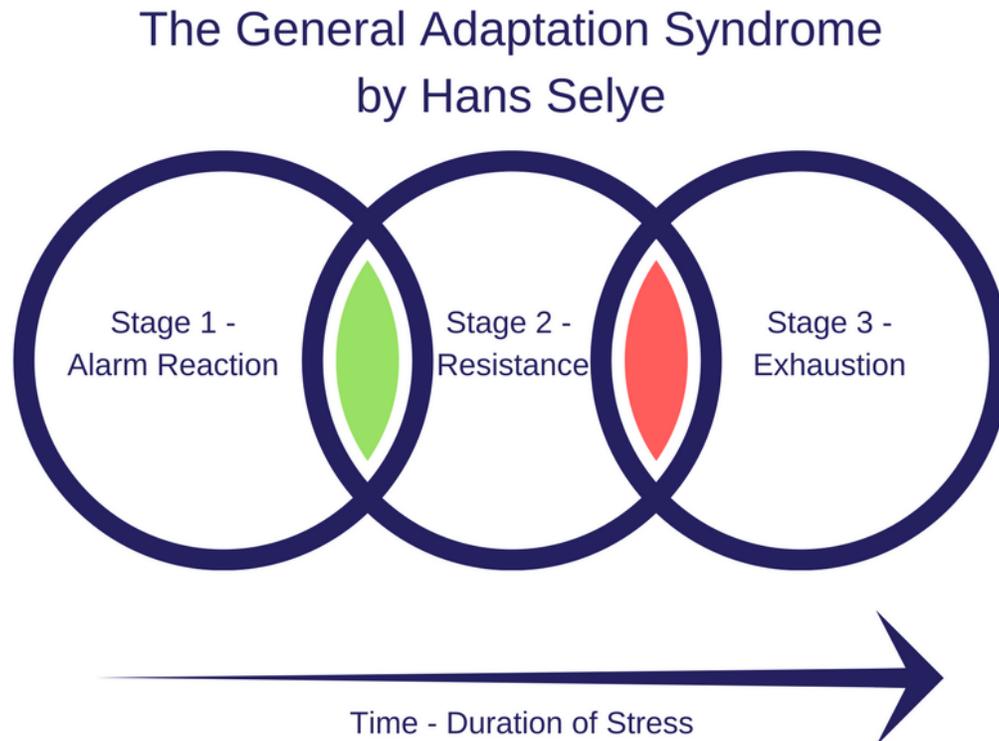
Figure 2.1 The general adaption syndrome model (Selye,1936)

2.1.3 Emotional Stress Response

Generally, research suggests that people feel more negative when they are stressed; symptom reporting increases, negative emotions appear more frequently, and general mood suffers (Baum, Davidson, Singer, & Street, 1987). In fact, it has been found stressors without negative affective components can't even produce basic stress responses (Baum et al., 1987; Mason, 1975). Lazarus (1999) identified anger, envy, jealousy, anxiety, fright, guilt, shame, and sadness, among others, as stress emotions.

If we want to know how stress emotions are produced, we need to learn Lazarus and Folkman's cognitive appraisal model of stress. Unlike Selye's theories focus on physiological stress, Lazarus and Folkman (1984) does more study on psychological stress. They define psychological stress as "particular relationship between the person and environment that is appraised by the person as taxing or exceeding his or her resources and endangering his or her wellbeing" (p. 19). In cognitive appraisal theory, theorists believe that emotions are extracted from our evaluations of events that cause specific reactions in different people. Basically, after stressors meet people, two cognitive events will occur, which are primary appraisal and secondary appraisal. In the primary appraisal, people decide if a situation is positive, negative or irrelevant to themselves; in secondary appraisal, people will evaluate if they can handle the situation and have the capability to cope with the situation. These two appraisal processes can happen at the same time and if both appraisals are bad, the stress emotions are produced. After people appraise the situation, there are two kinds of coping with the situations. First is problem-based coping, which is used when people think they have control of the situation; thus they can manage the source of the problem and don't let the emotion get in the way of solving it. Second is emotion-based coping, which is used when people feel they can't manage the source of problem. They come up with strategies involved with emotions that are produced by stress (Lazarus & Folkman, 1984). For example, when someone is having a bad time at work, after appraising the situation, if he or she decides to quit without any hesitation, this is called problem- based coping. But if he or she can't quit the job because he or she has a family depending on his salary, he or she may drinking alcohol

to release the depressive mood, which is called emotional-based coping. This thesis is mainly focus on helping people on the emotional-based coping behavior, because people face a variety of problems, we can't solve problems with only a toy, and what's more, if problem-based coping appears after two appraisal processes means people are capable of handling the problem, there is no need to use the stressful emotion relief toys.

Environment
stimuli (stressors)

person

Primary Appraisal
interpretation of the stressors

positive   dangerous   irrelevant
challenge, threat, harm/loss

Secondary Appraisal
analysis of the available resources

insufficient resources   sufficient resources

Stress

Coping
overcoming of stress

problem-focused   emotion-focused
change situation itself   *change relation to the situation*

Figure 2.2 The cognitive appraisal model (Lazarus &Folkman, 1984)

2.1.4 Stressful Emotion Relief

We usually use the term "stress-relief" in our life, but we need to understand that some stressors can't be removed, so the stress won't be relieved, for example the stress from society, work, and family. As long as we want to have a normal life, the stressor will keep working on us, and stress won't be relieved. Just like Toates' definition of stress discussed earlier, stress can be considered a state, like "stressful;" what "stress-relief" we discuss these days is more like regulating stressful emotions to achieve "stressful emotion relief".

In order to discuss emotion relief, we first need to know the definition of emotion. Gross (1998) views emotion as brief responses affecting both behavior as well as the body that are generated during events with the potential to present challenges or opportunities. Most importantly, he also suggests that emotions can be modulated or changed. In his process model of emotion regulation as shown in Figure 3, he divides emotion regulation strategies into two categories: antecedent-focused and response-focused. The simple way to explain these two terms is antecedent-focused strategies are focusing on the reason causing emotion, and response-focused strategies are used after people have emotional response tendencies. For example, if a young man has a party to attend, but his ex-girlfriend also will be there, the stressful emotion is generated. If he just chooses not to go the party, this is what we called antecedent-focused emotion regulation strategy. To the contrary, if he goes to the party and he knows he's going to feels bad about this and decides to go to a bar to have some drinks, he suppresses his feeling, we call this response-focused emotional regulation. For a designer, it will be hard to target people using antecedent-focused strategy, but our products

do effect users emotions and feelings, so this guideline is only focusing on response-focused strategy.

Emotional Response Tendencies
•Behavioral
•Experiential
•Physiological

Emotional Cues

Emotional Responses

Antecedent-Focused Emotion Regulation (e.g., Reappraisal)

Response-Focused Emotion Regulation (e.g., Suppression)
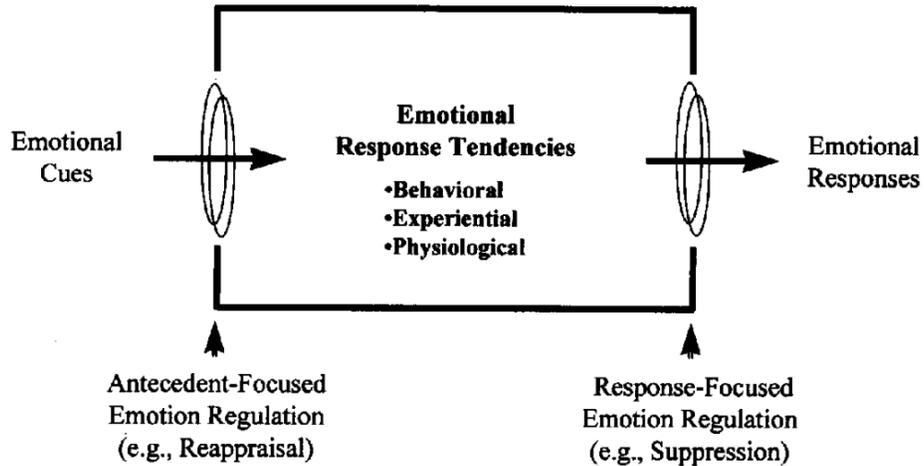
Figure 2.3 The process model of emotion regulation (Gross,1998)

The easy way of defending against the negative emotions generated by stress is keeping positive. In the research of Davidson and Irwin (1999), they find that individuals who can keep positive have long lasting activation in the ventral striatum, which is a part of the brain that elicits the feeling of rewards. The longer the activation lasts, the greater people's feelings of well-being. Continued activation of this part of brain links to health changes in body, including lower level of stress hormone. Also Garland et al. (2010) concluded from their study that positive emotion may have a counter force on multiple negative emotions.

As we talked about previously, when stressors affect us, we have both physiological and psychological stress responses. For an industrial designer, it is hard to develop something to

directly work on unbalanced inner body, but we can design products which can help regulate people's emotions, produce positive emotions, and, even as a result, affect physiological stress responses.

2.2 Definition of Toys

In Oxford English Dictionary (2018), toys are defined as objects for children to play with or provide amusement for adults. Newson and Newson (1979) described toys as "anything that he is doing with it as play" in their book and Mergen (1982) supposed that toys are the material artifacts of play. Overall, playing is an ability to make the self happy, and toys are the tool to achieve this ability, which makes why toys also are called playthings make sense.

In the traditional opinion, toys are for children to enlighten them, but now with the improvement of living life, toys' concept, function and users are expanded, so we can see lots of toys designed for adults to relax and entertain.

2.3 Adults and Adult Toys

The word "adult" can have different definition in different fields. According to Tomas McNamara's book (2004), biological adulthood ususally is determined by the start of puberty (the appearance of secondary sex characteristics). The age of legal adulthood depends on what country you are living, but the majority international range is from 15-21, with 18 being the most common age (Adult, 2018).

Adult toys obviously means toys for adults, but what needs to be noticed is the adult toys that we talk about in this thesis are the toys adults can play with to achieve their emotional need instead of adult sexual toys

2.4 The Background of The Development of Adult Toys

People have different needs in different times, and different needs make markets different. Only products which are in tune with times and meet the needs of users can get good market position. So, that adults toys have started being introduced into our lives is also a result of many background factors working together.

2.4.1 Cultural Background

"Kidult" is a word made up of "kid" and "adult", used to describe adults who have interests traditionally seen as suitable for children (Kidult, 2018). Graeme Turner (2006) used "kidult" movie to describe Star Wars, Harry Potter, James Bond and Batman which not only aims at kids but their young parents. Kidults remain curious and childlike, desire adventures and live by nature, which reflects the values of new generation of people seeking freedom and the social values of kidult.

Now, kidult has become a worldwide phenomenon, especially in pop culture. We can see that lots of classic and on-trend brands launch products meet kidults' needs based on their strong purchasing power.

2.4.2 Technical Background

The rapid development of productivity has improved people's material living standards and strengthened the pursuit of spiritual and emotional needs; therefore people are having higher and higher requirements for their surrounding environments. The satisfaction of toys is not only limited to the most basic function: play. Also, with the rapid development of science and technology, modern toys have broken through the limitation of form, function, materials and consumer level. Now they have multi-functions like developing intelligence, building strength, assisting rehabilitation and even disseminating culture, beyond simple entertaining. This not only achieves their basic functions but also meets the diverse needs of modern people, helping people to build a healthy and harmonious society together (Feng & Jiang, 2006).

2.4.3 Psychological Background

According to WHO (2004), about 450 million people suffer from mental disorders worldwide, 25% people will develop one or more of these disorders during their life, and mental disorders cause 50% cases of disability and death. Modern people will focus on their spiritual needs eventually after they achieve sufficient material wealth, but now various factors in society lead people to lack spiritual life. High technology changes people's former life style, giving people this whole new, convenient and advanced experience, but meanwhile fast-paced and high-pressure lives stress people out; indifference is becoming common, which causes lot of physical and mental diseases. Of course, most people are trying to get rid of that, which naturally places adult toys in

the spotlight.

2.5 The Concept of Adults Stressful Emotion Relief Toy

Schaefer (2003) pointed out that "Play therapy is, indeed, a powerful tool for adults" (p.1), "Play can increase our self-esteem. It invites access to states of well-being and calm as well as silliness and joy" and "Play becomes a natural and gentle environment in which the inner landscape can safely be explored in any language" (p. 4). Just like Scarlett wrote in his book (2005), "Play as a means to assess and relieve stress" (p.211). Stressful emotion relief toys are getting more and more attention from adults so they can regulate tense emotions and satisfy some spiritual need through playing with toys, which decreases the effects of stress coming from life and work. The biggest difference between stress emotion relief toys for adults and normal toys for children is the former focuses more on emotional healing.

2.6 Emotional Design in Adult Stressful Emotion Relief Toy Design

Futurologist Naisbitt (1982) noted "The more high tech in our society, the more we will want to create high touch environments, with soft edges balancing the hard edges of technology" (p.48). The soft edges he mentioned are the emotional design of products. Hannah (2004) noted that the chief designer of Smart Design LLC, Davin Stowell, also mentioned the importance of emotional design when he described product design "making something a little better, understanding and enhancing the emotional bond between product and user" (p.83). What we want to achieve in this

thesis is designing effective, scientifically-based toys to help regulating people's emotion and eventually relieve the stressful emotion for users, which means we should see toy as a media to communicate with users and not only a form of materials or a carrier of functions. Design of this kind of toy should be based on inner emotional feeling of adults so that toys can psychologically fulfill their desires and emotionally meet their needs.

According to Norman's emotional design principles (2004), he believes that human's emotion is a result from three different level of our brain "The automatic, prewired layer, called the visceral level; the part that contains the brain processes that control everyday behavior, known as the behavioral level; and the contemplative part of the brain, or reflective level" (p.21). and "each level needs a different style of design" (p.21). The three levels design can simply be mapped to product characteristics respectively: appearance; the pleasure and effectiveness of use; users 'self-image, personal satisfaction; and, memories (Norman, 2004).

2.6.1 Visceral Design

"The principles underlying visceral design are wired in, consistent across people and cultures. If you design according to these rules, your design will always be attractive, even if somewhat simple." (Norman, 2004, p.67). Visceral design mainly concerns the appearance of products, referring to the perceptible qualities of the object and how they make users/observers feel.

Vison is a very important way that we get information from outside world. According to researchers Dr. L.D. Rosenblum, Dr. Harold Stolovitch and Dr Erica Keeps, here's how much

information each of our senses processes at the same time as compared to our other senses: 83.0% – Sight, 11.0% – Hearing, 03.5% – Smell, 01.5% – Touch, 01.0% – Taste" (as cited in Hurt, 2012). Zhang (2010) also noted a product was characterized by a collection of multiple components and features. According to the attenuation theory proposed by Treisman (1964), when people are observing a product, they will selectively pay attention to the features of product and weak feature signals will be attenuated. So, when we design a toy, we need to focus on emphasizing the features that we want to express the purpose of the product.

2.6.1.1 Form

Hegel (1975) argued that "we have characterized the elements of the beautiful something inward, a content, a content, and something outward which signifies that content: the inner shines in the outer and makes itself known through the outer, since the outer points away from itself to the inner" (p.17). Form is the external manifestation of the inner essence of things; it is easy to understand and also attractive. This is why designers spend a lot of work on form. Form consists of point, line, face and body, and different ways of combining them gives people different feelings. People assign emotions to shapes: triangle is stable, square is solemn, circle is perfect, geometric shape is simple and cold, curves remind us freedom and nature. The combination of different shapes gives people more emotional experiences. A rhythmic form will resonate with people to make them have a good aesthetic experience.

2.6.1.1.1 Cuteness

Relaxing toys now mostly use animals, plants and infants we can see in our daily life as inspiration. Especially Japanese toys apply a lot "kawaii," which means cute elements in their design. Studies show that cuteness has an interesting impact on people such as increasing carefulness and attentional focus (Nittono, Fukushima, Yano & Moriya, 2012) and cuteness can cause the release of dopamine, the same chemical which is released when people fall in love, have sex or take drugs (Costa et al., 2010).

Lorenz (1943) came out with the concept "baby schema." He described it as a set of infantile physical features such as large head, high and protruding forehead, large eyes, chubby cheeks, small nose and mouth, short and thick extremities and plump body shape, that could seem cute or cuddly and cause protecting behavior from other individuals. A lot of cartoon characters who bring happiness to people such as "Pikachu" and "Mickey Mouse" are all the results of applying this theory.
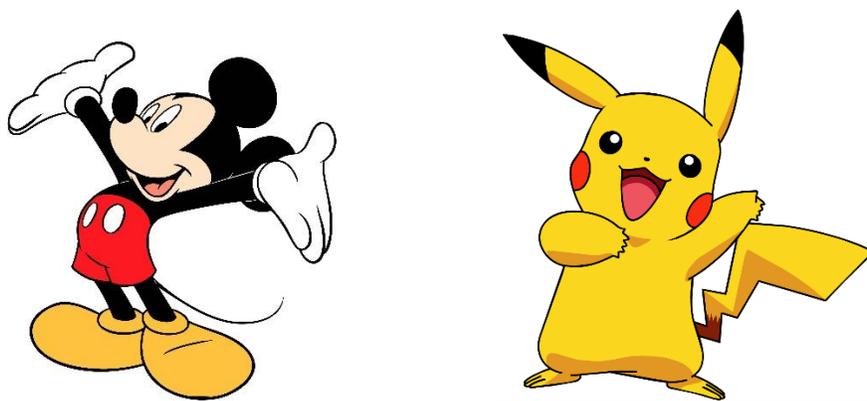
Figure 2.4 Pikachu and Mickey Mouse

2.5.1.1.2 Simplicity

Humans' eyes tend to notice those purely simple structures and forms, mainly because they are easy to identify and understand. Vernon (2013) suggested humans tend to see objects as certain favored simple forms (p.120). Kobayashi (1978) also noted in his book that making shapes simplistic and explicit as much as possible plays an important part in communication of messages. What's more, Yamada (1998) found a realistic image gives people less pleasant feelings than when abstract; more realistic is less pleasant. In this industrial society in which the variety of products is growing fast, simple products may lose the attention of people and in the meanwhile, too complicated forms may also do the same thing because our sensory system is overwhelmed. Therefore, simple forms may have higher favorability.

2.6.1.1.3 Smooth Curve

In Lundholm (1921)'s experiment, he asked eight people (non- artists) to use simple lines to describe a series of emotional words. The result showed straight lines with angles are widely used to describe angry, exciting and agitation. On the contrary, curvy lines express grace and are usually pleasant. It seems like circle and curvy smooth lines are universally loved by people because of their comforting attribute. Cognitive psychologists Bar and Neta (2006) conducted an experiment in which 14 participants were shown 140 pairs of letters, patterns, and everyday objects, differing only in the curvature of their contour. The results were not completely surprising: participants showed a strong preference for curved items in all categories, particularly when it came to real

objects. Because one of adult stressful emotional relief toy's important attribute is users need to enjoy their first impression of the product, adding smooth curvy line elements to our designs should make people feel more enjoyment when they observe the products based on the theories above.

2.6.1.2 Color

2.6.1.2.1 Color and Emotion

English essayist Joseph Addison (1813) used to say "Colors speaks all language" which tells us how important it is to apply to our design the right color. A psychology study shows that when humans observe an object through their eyes, the color perception accounted for about 80% and shape perception takes the rest in the first 20 seconds of seeing the object. The color perception and shape perception accounted for about 60% and 40% after two minutes, and at three more minutes, the status will continue to be maintained (Juan, 2005). This is why color has an important influence on people's first impression of products. Colors can affect people's emotion. Colors can evoke and express our emotions, even affect our physical well-being (Bloomer, 1976). For example, red gives people the feeling of excitement, orange has been thought as distressing and upsetting, purple as dignified and stately, yellow as cheerful, and blue makes people feel comfortable and secure (Ballast, 2002; Wexner, 1982). Colors can be described with "cool" and "warm" which is related to color's dominant wavelength. The cool colors (e.g., green blue, purple) are widely perceived to be peaceful and quiet, but the warm colors (e.g., orange, red, yellow) are

seen as stimulating and active (Ballast, 2002). What's more, people who are exposed to red and yellow feel more anxiety than those who are exposed to blue and green (Kwallek, Lewis & Robbins, 1988; Mahnke & Mahnke, 1993). The color system highly accepted internationally is the Munsell Color System (Ballast, 2002; Valdez & Mehrabian, 1994). According to this system, colors have three basic attributes: hue, value (brightness), and chroma (saturation). We talked about color hue relating with emotions above; value (brightness) and chroma (saturation) also can influence emotions. Studies have showed that brighter colors (e.g., white, light greys or lighter colors) are more pleasant, peaceful than less bright colors (e.g., dark greys, black or darker colors) (Valdez & Mehrabian, 1994); Wilms and Oberfeld (2018) proved by experiment that higher color saturation also makes people feel more excited and human arousal increased when hue changed; the order is from blue and green to red.

2.6.1.2.2 Amount of Colors

Since a single color scheme may not draw enough attention, designers usually add black, white and grey to the same color hue to get variety. A two-color scheme is balanced and powerful, when using more neutral color as the dominant color with an aggressive color as a highlight (Ferris &Zhang, 2016). When comes to three-color scheme, it balanced visual attractive and complexity, the 60-30-10 rules are widely recommended in design field (Nielsen,1999; Spool, Scanlon, Schroeder, Snyder, & Deagelo, 1999). This rule states primary color should be used on 60% of the design, secondary color should be 30%, and accent color should be 10%. For color schemes that

have more than three colors, too many colors will give people a "busy" feeling and it will be hard to remain significance and consistency (Date, 2011, p.60). Therefore, if designers need to add a fourth or fifth color, split either the primary or secondary colors and add a lighter or darker shade of that color to the mix

2.6.1.2.3 Color Harmony

Burchett (2002) suggests that "Colors seen together to produce a pleasing affective response are said to be in harmony". However, color harmony is a complicated concept because human's judgement is affected by a lot of factors including individual and cultural differences. Despite this, many color theorists have summarized some formula and rules to predict or specify the positive aesthetic response of "color harmony" (Color harmony, 2019). A color wheel model usually be used in these theories as a basis to explain the relationships between colors.   In the basic color theory, eight types color schemes are often used to achieve color harmony (Whelan,1997):

● Monochromatic : monochromatic colors are the colors that have different brightness values and saturation of the same color hue, which means adding black, white and grey to one color hue.

● Complementary: colors that are opposite each other on the color wheel are considered as complementary colors.

● Split-complementary: The split-complementary color scheme is a variation of the complementary color scheme. It splits one color of complementary color scheme into two

colors next to it on color wheel.

- Analogous: Analogous color scheme is a group of colors that are adjacent to each other on the color wheel.

- Accented analogous: This is a combination of analogous and complementary color scheme which means adding a complement to the analogous color scheme.

- Triadic: The triadic color scheme uses three colors equally spaced around the color wheel.

- Rectangle: The rectangle color scheme uses four colors arranged into two complementary pairs.

- The square color scheme is similar to the rectangle, but with all four colors spaced evenly around the color circle.
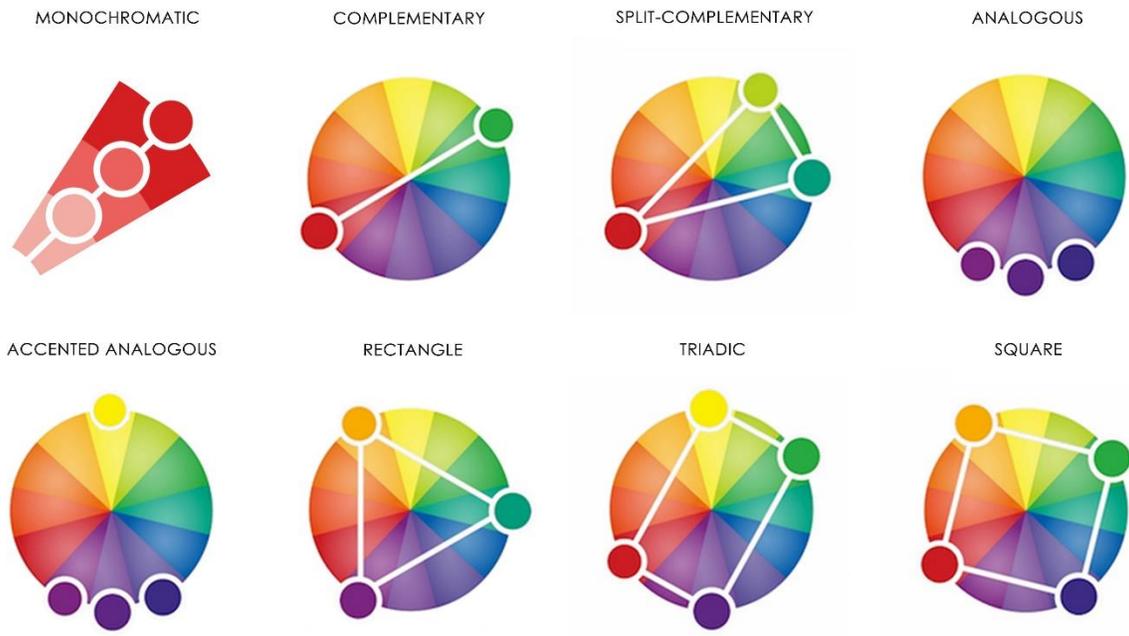
Figure 2.5 Color harmony scheme types

The reason black, white, and gray, which are called achromatic colors, do not appear in this color

harmony scheme system is they can easily and perfectly match any other colors, and also, remain the same color hue (which is the same idea with monochromatic color scheme), saturation and brightness value are very common ways to achieve color harmony (Date, 2011)

2.6.2 Behavioral Design

"Behavioral design is all about use. Appearance doesn't really matter. Rationale doesn't matter. Performance does" (Norman, 2004, p.69). In toy design, behavioral design mainly is represented by how users interact with toys, which means how users use toys to regulate their emotions when we narrow down to stressful emotion relief toys.

2.6.2.1 Venting Behavior

Why do we want to vent our emotion when we feel stressful? Freud (1955) proposed the principle of constancy, which is the principle of psychic functioning of trying to maintain the quantity of excitation in human organism at a low or constant level. When we feel stressed, the quantity of excitation increases, but our body wants us to decrease it, which leads us to seeking a way to vent emotions.

Shock, anger, fear, nervousness... these emotions are all high arousal emotions, and arousal is the physiological and psychological state of being awoken or of sense to a point of perception, It increases blood pressure and heart rate, alerts our sensory system, and also helps us become ready to make response ("Arousal" 2019). Our brain can't afford long term stress because keeping long

term high arousal increases the burden of blood vessels in the brain (the reason of why we sometimes read about someone's brain vessels exploding when he is going through intense emotions), but if the body becomes active at this period, blood flows to the body from the brain and the pressure of brain is released. As a matter of fact, venting is the performance of the body protection mechanism when high arousal emotions appear.

Venting can make people feel better and calm after doing it and the reason is simple: it makes us tired. Venting usually comes with high-intensity activity such as destroying, punching shouting out loudly, e.g., During this process, tiredness increases and quantity of excitation decreases in organism. The arousal level also decreases, so that when emotions finally drop to certain levels, high arousal emotions will be replaced by calmer emotions.

What's interesting is there is a human behavior called "cute aggression" which refers to an aggressive behavior caused by seeing something cute (Brooks & van der Zwan, 2013). People experiencing this may grit their teeth, clench their fists or feel the desire of squeezing the thing what they consider is cute without the intention of actually causing any harm (Aragón, Clark, Dyer & Bargh, 2015). Since humans have this instinct, venting toys with cute elements could be a really good way to combine the visceral and behavioral level design.

2.6.2.2 Fidgeting Behavior

Fidgeting is defined as the restless act of moving that is not necessary to ongoing events or tasks (Mehrabian & Friedman, 1986). We all fidget when we work or study, but why and how does it

help us relieve stressful emotion? According to Rotz and Wright (2005), fidgeting distracts the part of our brain that has become unpleasant so other parts can pay attention to what we are doing.

There is not so much research about fidgeting now, but we can see lots office toys use fidgeting as a strategy to release the stress emotions, fidgeting ways are varieties, it's hard to summarize all the fidgeting behaviors. But as people paying more and more attention to this human behavior, many people have gathered together on internet to discuss it, there are some websites collecting the ways of how people fidgeting, which can be designers' inspiration source:

http://fidgetwidgets.tumblr.com/

https://www.reddit.com/r/fidgettoys/

https://www.instagra m.com/explore/tags/fidget/

2.6.3 Reflective Design

"Reflective design covers a lot of territory. It is all about message, about culture, and about the meaning of a product or its use" (Norman, 2004, p.83). Users generate emotions when they try to understand a product based on their life experience. Usually the design led by reflective levels is not universal. Norman (2004) also suggests that objects may give different people different messages because of their different experience and memories. But we can find some common rules from studying the existing stressful emotion relief toys.

Chapter 3

Case Study

In this chapter, I select 18 classic and popular adult's stressful emotion relief toys as study cases. The strategies which are used in these cases will be analyzed based on Norman's emotional design principles and then summarized and categorized.

3.1 Infinite Series Toys

Infinite Series toys are designed by largest Japanese toys brand: Bandai. As we all know, we may find some activities are extremely addictive in daily life, so Bandai chooses some of them to simulate the feelings from all aspects when we are engaging these activities and then makes the toys which we can carry and play with anywhere, anytime. They have already release six models, which simulate six different activities which are: popping bubble wraps, breaking chocolate bars, opening soda or beer cans, ripping apart packages, making tokoroten (a Japanese cuisine which be made by pressing a seaweed jelly against a wooden device into noodles) and squeezing green beans. The products are shown below.

Figure 3.1 Bandai infinite bubble wrap

Figure 3.2 Bandai infinite chocolate breaker

Figure 3.3 Bandai infinite can

Figure 3.4 Bandai infinite package seal

Figure 3.5 Bandai infinite tokoroten

Figure 3.6 Bandai infinite green bean

On visceral design level, all these toys are designed highly similar to the real objects, especially in form. Some of these toys' reference objects may not have rich color, like bubble wrap and package seal, but when designers design toys, they apply more colors to make them look attractive to the consumers. Colorful but bright and low saturation color schemes also give consumers relaxed feelings. Designers even print some cute little smiley faces on the infinite tokoroten and infinite green bean. The unexpected appearance of them when users interact with those toys is

interesting and also delightful. Although they did a great job on visceral design level, the toys of infinite series are mainly focus on the behavioral and reflective design levels. Designers translate the addictive and small hand movements to how user play with the toys with simple structures to simulate the same hand-feeling experience and even sound over and over again.

3.2 Lazy Animals Squeeze Toys

The Lazy Animals squeeze toys first attract people by their super cute shapes and bright color scheme, then the soft and elastic touch also satisfies people's fidget need by squeezing it. We all have the emotional need that we want to spare some moments from busy work, the lazy animal look also expresses a relaxing atmosphere when people just put the toys on desk as a small normal decoration.

Figure 3.7 Lazy animals squeeze toys

3.3 Human-Shaped Pillow

The Aseptic Studio designed a cushion called "mannequin" in the shape of a headless torso which resembles an upper body with extra-long arms that can be wrapped around users for comfort. On visceral design level, it creates just an abstract shape of human, but its enough to make users feel it is familiar. The design is simple but effective, however imagine if they designed it to look like a real human, it would be weird. There is nothing special of the behavioral level design, it just be used like a normal pillow, people can hold or lean on it, but the most valuable part is the special shape combined with the function of cushion makes users use it like getting a warm hug from a friend, which makes a very good selling point on reflective design.

Figure 3.8 Human-shaped pillow

3.4 Nohohon Figure

Japanese toys manufacturer "TOMY" released the Nohohon Figure on July 18, 2012. It is distinguished by a large spherical head with a wide smile and short limbs, which is a typical application of Lorenz (1943)'s "baby schema" concept. It usually is used as a desk decoration, so

there is not so much to talk about it on behavioral level, but the infant-like cuteness and that big

smile not only just works on the visceral level to attract consumers but also works on the reflective

level. "Smiling" face elements can have a surprising effect to help people relax (Yanli & Guanghui,

2009). The color schemes of Nohohon figures are really diverse, so almost everyone can find the

color he or she likes, but still we can't see much dark or very high saturation color on them.

Figure 3.9 Nohohon figure

Figure 3.10 Nohohon figure's variety color schemes

3.5 Enter Key Pillow

Enter Key pillow is a toy which is designed for people who work under stress. It not only looks like a giant enter key of keyboard but also has a USB interface to connect to computers as a real functional enter key. Keyboard as an object within reach can be easily used as a venting object when people feel angry, sad or extremely stressed at work. The big size of the Enter Key pillow draws people's attention from keyboard, so you can still vent on "keyboard" instead of damaging your actual keyboard, and also the soft material can reduce noise so it doesn't disturb colleagues' work.

Figure 3.11 Enter key pillow

3.6 Scream Jar

The inspiration of Scream Jar comes from people having impulse to shout out loudly when feeling stressed, but in the daily life, the environment limits this impulse. People can't just shout

out whenever they want while at work. With the Scream Jar, when people shout out to it, it weakens the sound to 1/3 by its unique interior structure design, so there is no more worry of causing trouble to others. What's more, the shape of the Scream Jar is just like an Asian ancient pottery jar used for drinking which makes people have a feeling that they are relieving their stress through drinking, This interesting idea on the reflective design level enhances users' emotion experience.

Figure 3.12 Scream jar

3.7 ONO Roller

ONO Roller is a Kickstarter project that now is successfully being mass produced. By curling your fingers or squeezing your hand, ONO will rotate and roll within your fingers. It engages your entire hand in a continuous, effortless and near thoughtless motion. After lots prototypes, the creators found the most simple and smoothest shape of ONO to help achieving this fidget behavior, furthermore comforts people to look at it. The color schemes being provided now are not so much,

but every single one is very similar with the color schemes designer would use on technical

products like smart phones, which reminds us that colors applied on toys don't always need to be

some bright and cute color; sometimes steady, low-key but luxurious colors are more suited for

office workers.

Figure 3.13 ONO roller

Figure 3.14 ONO roller's prototypes

Figure 3.15 ONO Roller's color schemes

3.8 Infinity Cube

The Infinity Cube is composed of eight small cubes, each cube can be rotated from any angle or direction. A person can hold it in one hand and fold to any shape you like. The matching of simple geometry shape and colors (black and silver) confuses the distinction between toys and cool office gadgets, which could draw the attention of some adults who want to have a fidget toy but worry that others may think he/she is childish.

Figure 3.16 Infinity cube

3.9 Fidget Spinner

The Fidget Spinner really was a big hit in 2017. The classic fidget spinner has three lobes with a bearing in its center. What users' do is holding the center pad and just use one finger spin it, simple but addictive. Smooth curvy line element is applied on this design, which not only makes sure of the safety of playing with fidget spinner but also much less aggressive than applying sharp lines. The Fidget Spinner as a very popular and successful adult stressful emotion relief toy, it has

released hundreds of color and pattern versions. Almost everyone can find their favorite style fidget spinner, but on the other hand, when this "as much as possible" color schemes strategy is applied, the emotional effects of color are ignored.

Figure 3.17 Classic fidget spinner

Figure 3.18 Some colors of classic fidget spinner

3.10 CAOMARU Squeeze Toy

The CAOMARU Squeeze Toy was designed by a Japanese company called H-Concept. Although it and the Lazy Animal squeeze toys are all called "squeeze toy", the strategies they use

are very different. Unlike Lazy Animal squeeze toys, each CAMARU is shaped as a human's face with the look that can't use "cute" or "good-looking" to describe it, and even some people may find annoying, but this is this design's point. These faces make people want to vent on them. When users are squeezing and pulling the toy, they may see on this face of whoever gives them bad feelings, so after playing with it, the venting goal is achieved. The design of CAOMARU on the visceral level may not be likeable to most people, but what really matters is the good combination of behavioral and reflective design level. The color scheme saturation is very low, which won't have high arousal in emotion.

Figure 3.19 CAOMARU squeeze toy

3.11 Screaming Chicken

Screaming Chicken is a rubber cartoon chicken toy which will scream when people squeeze it. The character design is already hilarious enough, when users see this chicken screaming loudly when they vent all their stressful emotion through squeezing this cute and funny toy, they will definitely reach the goal of regulating emotion.

Figure 3.20 Screaming chicken

3.12 Fidget Cube

The Fidget Cube is a desk toys for anyone who likes fidget tools designed by Antsy Labs. It has six sides and each side has something that can be fidgeted with. The cube provides six different ways to fidget; the designer calls them: click, glide, flip, breathe, roll and spin. The desire of integrating multiple fidgeting actions into one device and making sure they can also work fine separately lead to the polyhedron shape. Some new multiple-fidgeting action toys have already

applied this idea into their products. Not surprising, as a popular toy, just like the Fidget Spinner, the color schemes are myriad, but they. Widely covering user groups by providing multiple choices from both visceral and behavioral level gives fidget cube the potential to be a universal popular design.

Figure 3.21 Fidget cube

Figure 3.22 Some colors of fidget cube

Figure 3.23 Similar products

3.13 Analysis and Summarization

After the case studies, we can discover some patterns in adult stress relief toy's design as below:

● When designers want to focus on reflective level design, the way of simulating the real things in our daily life from no matter the shapes or touch is a very common technique.

Figure 3.24 First pattern's examples

● For those designs that highly simulate the reference objects in appearance, color hues may

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have already been decided by reference objects, but brighter and lower saturation could give users better visual feeling.

Figure 3.25 Second pattern's examples

- For those designs that only use some characteristics of reference objects as design elements instead of highly simulating or reference object's color is too bland to attract users, color schemes could not be similar with reference objects, but the brighter and lower saturation rule should still be followed

Figure 3.26 Third pattern's examples

- Fidgeting and venting behaviors are not universal, but two solutions can be found in the case studies. First, expanding the products line, like Infinity Series toys; Second, integrating multiple behavior design in to one product, like Fidget Cubes.

Figure 3.27 Fourth pattern's examples for expanding product lines

Figure 3.28 Fourth pattern's examples for integrating multiple-behaviors

- When using venting strategy in behavior level design, cooperating with simulation strategy in reflective design may have better effect on helping users pay their emotions to products.

Figure 3.29 Fifth pattern's examples

- Because reflective level design is not universal, before we design, user groups need to be considered: is it for U.S? China? Or for South America? Asia? An example of this is the Infinite Tokoroten from the case study. Most people living in the U.S don't understand what is a tokoroten, so simulation of it won't give them an emotion experience on reflective level. Designers shouldn't use too regional elements if not designing for specific regions
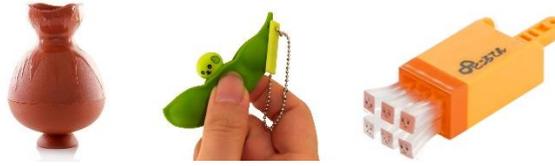
Figure 3.30 Products in case study using too regional elements

- Fidgeting actions involved in these cases are very instinctive. Users can easily understand how should they interact with the products without complicated instruction to teach them how to play with the products.

3.14 Categorization

Base on the theories in literature review, the strategies widely used in case studies of visceral, behavioral and reflective level design can be summarized like as it shown below:

1. Adding cute element to design.

2. Using smooth curve instead of sharp angle and straight lines.

3. Keep the form simple, which contains using basic geometry body elements and abstracting from reference object.

4. Encouraging fidgeting behavior through design.

5. Encouraging venting behavior through design.

6. Simulating a reference object to awake users' emotion experience related that object.

In the Table 3.1, I will use cuteness, smooth cure, simplicity, fidgeting, venting and simulation to refer all the strategies mentioned above.

Visceral Level	Cuteness		Smooth Curve		Simplicity
Behavioral Level	Fidgeting			Venting	
Reflective Level	Simulation				

Table 3.1 Strategy matrix

Adult stressful emotion relief toys in the case studies can be categorized into four groups by the emotional design levels they mainly focus on and as their selling points. Color as a must-have attribute of products will not appear on these forms as a strategy of visceral design although it is a part of the visceral design level. The categories are shown below (Colored lines with dots in the figures show which strategy combinations are used for defining product):

- B +R +v (optional): Focusing on behavioral and reflective design level, visceral level design strategies can be added but not necessary.

- V +R: Focusing on visceral and reflective design level.

- V+B: Focusing on visceral and Behavioral design level

- V +B +R: All three emotional design levels are considered.

STRATEGY MATRIX	Visceral Level (optional)	Cuteness	Smooth Curve	Simplicity
	Behavioral Level	Fidgeting		Venting
	Reflective Level		Simulation	
	PRODUCT			

Figure 3.31 B +R +v (optional)

|				
STRATEGY MATRIX	Visceral Level	Cuteness	Smooth Curve	Simplicity
	Reflective Level		Simulation	
	PRODUCT			
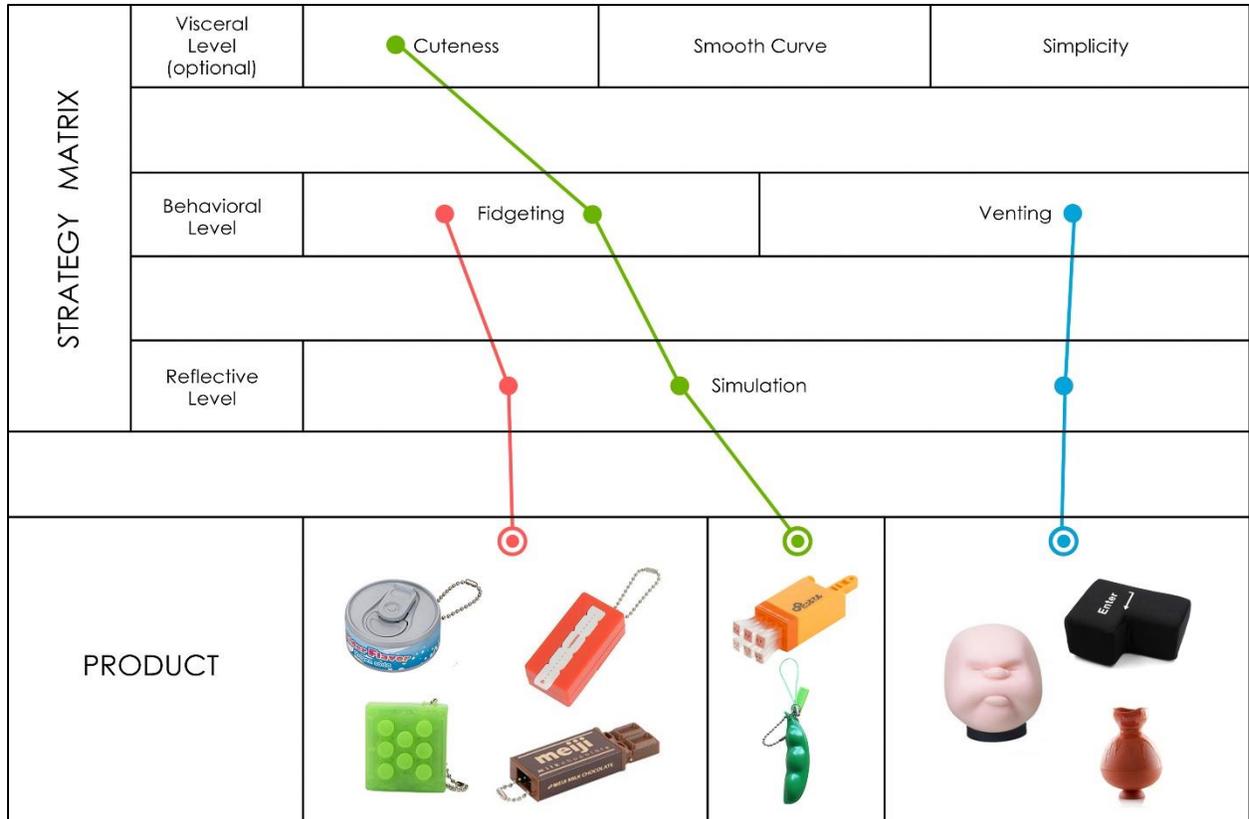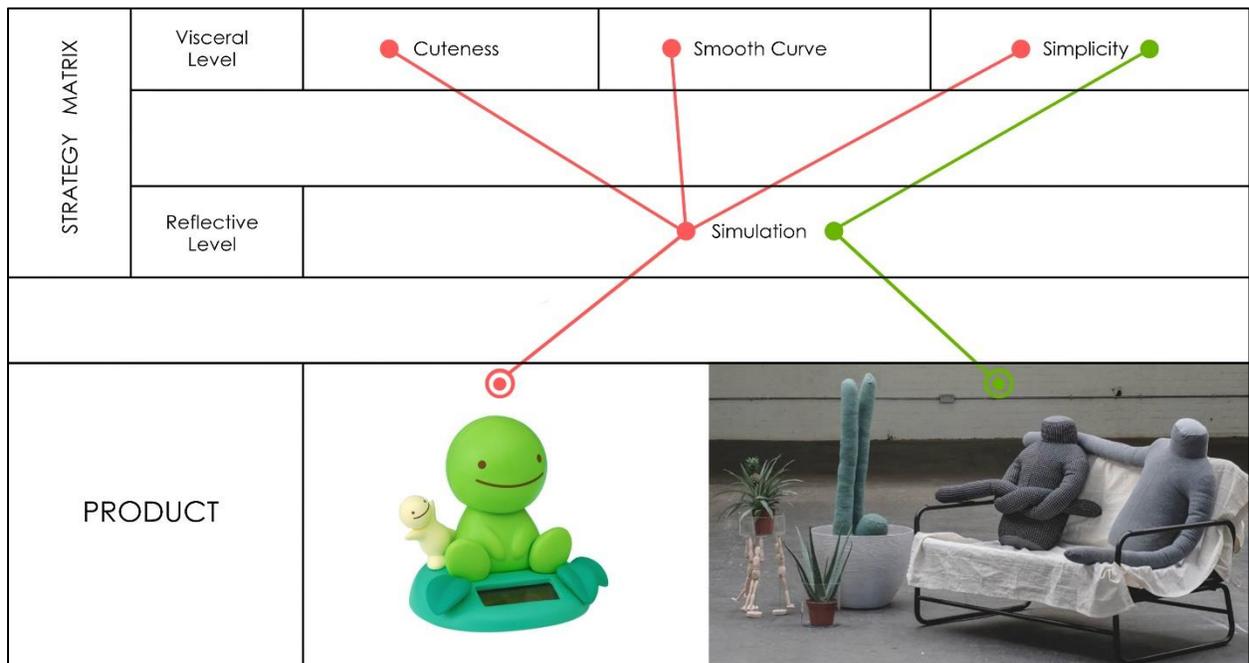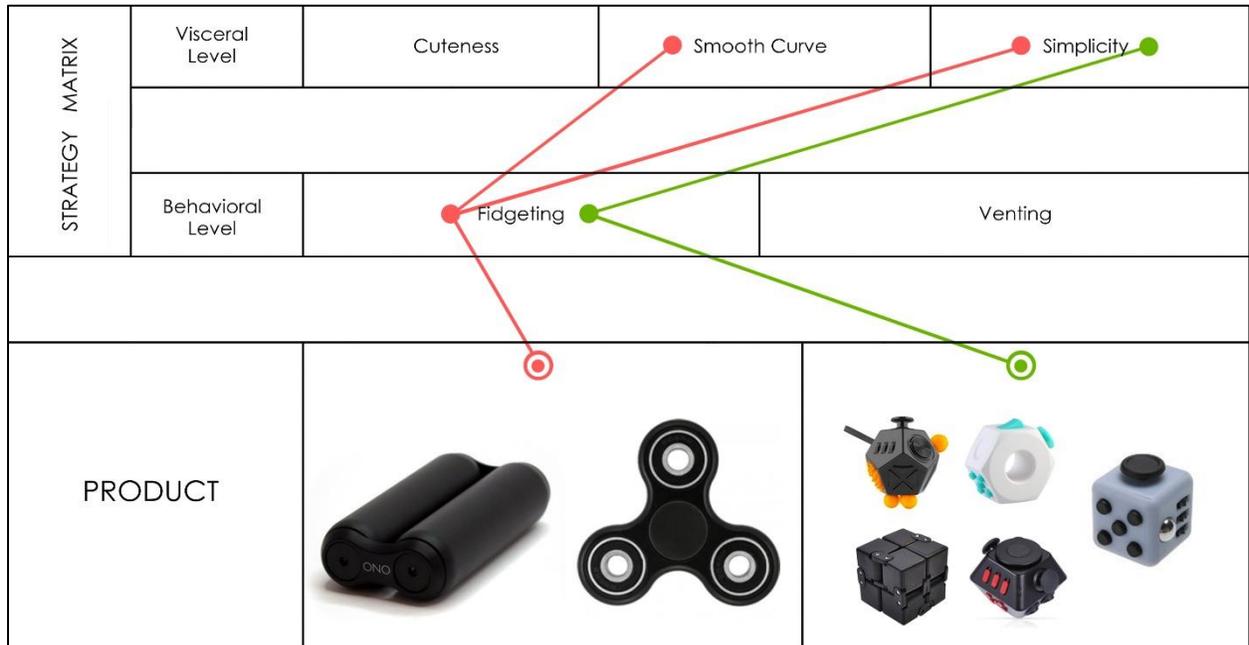
Figure 3.32 V +R

Figure 3.33 V+B
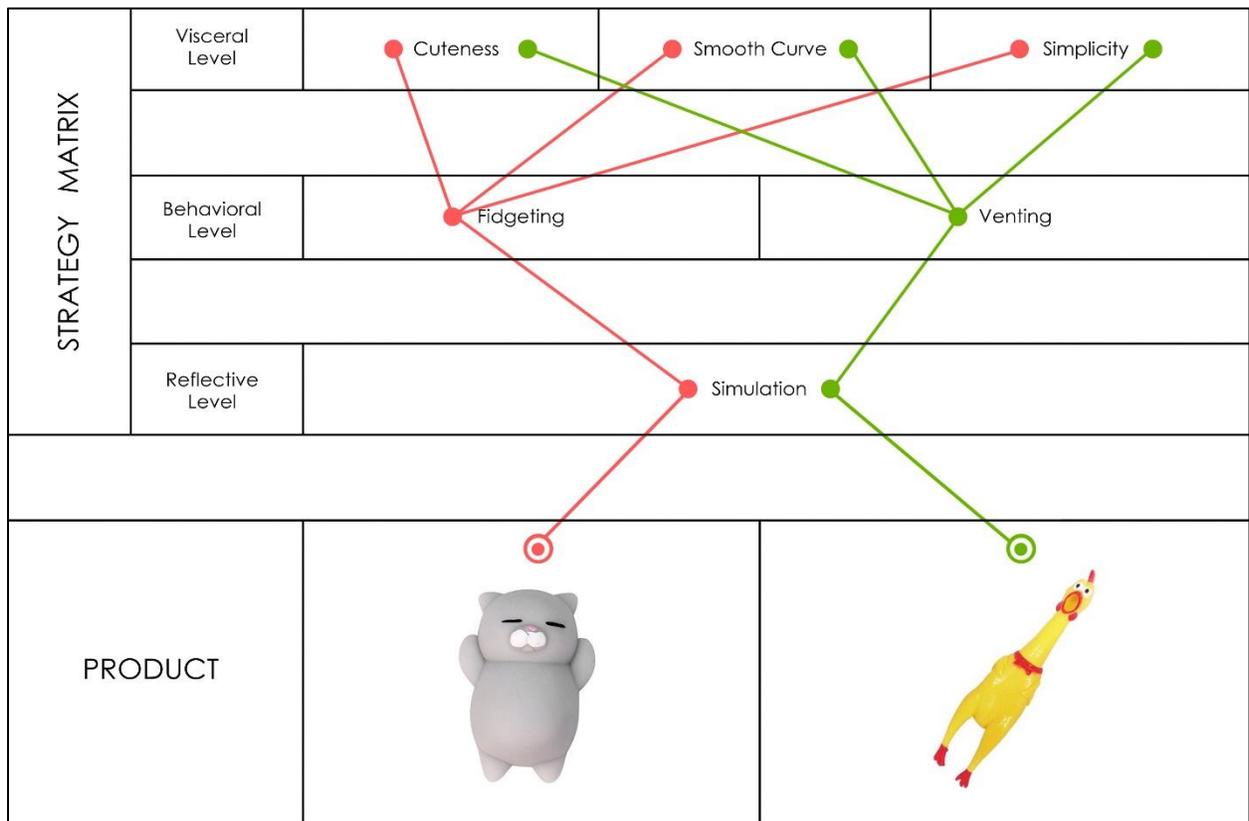
Figure 3.34 V +B +R

Also based on studying the on-sale color schemes of these cases, we can divide these products into two categories by the how designers choose color: simulated and original. Simulated color scheme means what colors designer choose are basically copied from the reference objects when designers using simulation strategy on reflective level design, otherwise is original color scheme. Most of original color schemes of adult stressful emotion-relief toys using low saturation, bright color and achromatic color (black, grey, white) except Fidget Spinner and Fidget Cube (toy manufacturer launching color scheme as many as possible may be because the toys have collection attributes or doing so decrease design cost). What also worth noticing is no matter what kind of color scheme the product is using, the maximum numbers of colors of one color scheme is four.

Figure 3.35 Color scheme strategy

Chapter 4

## Design Guideline

4.1 Design Procedure
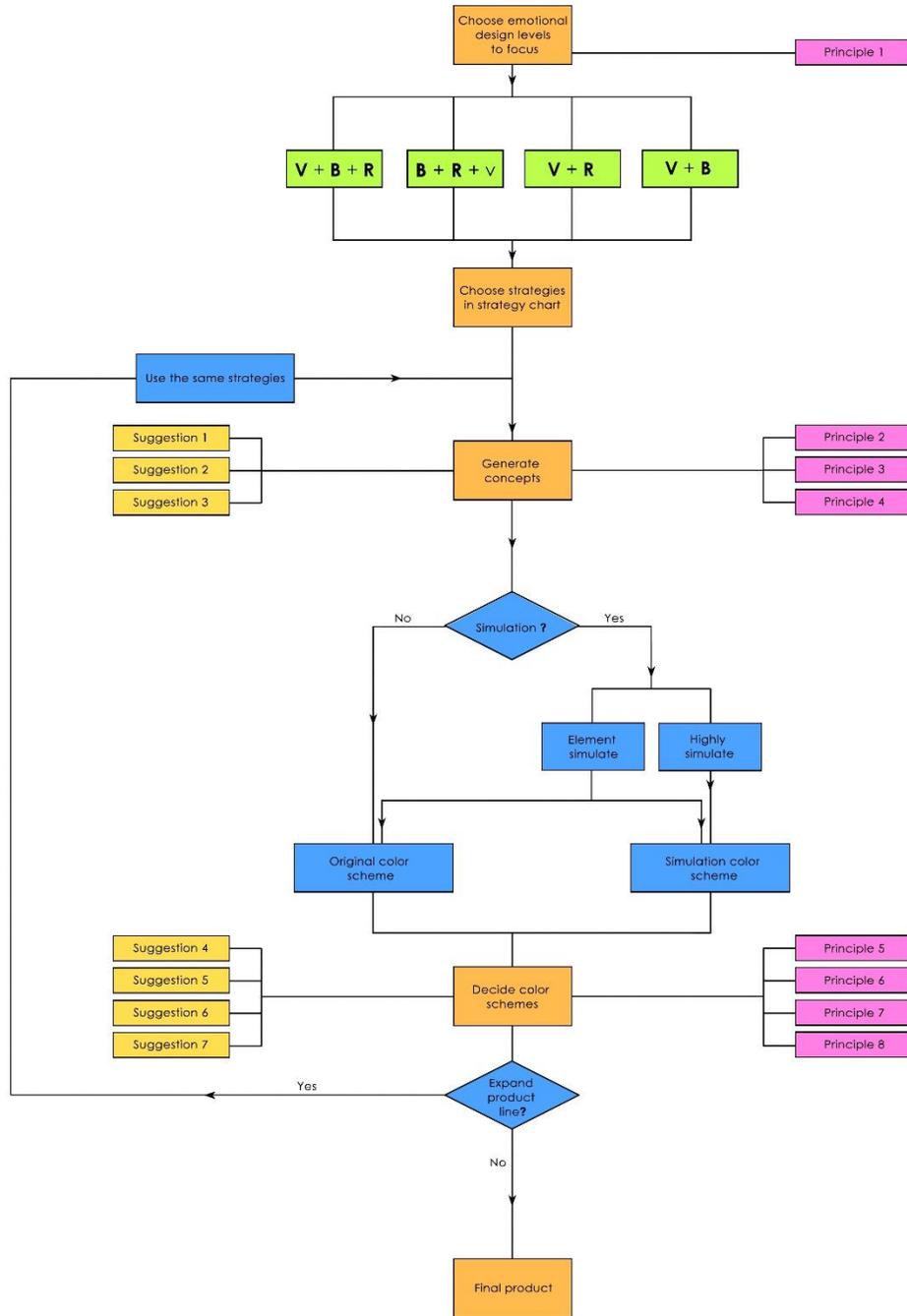
Figure 4.1 Design procedure flowchart & where to apply design principles and suggestions

Based on the previous literature review and case studies, the procedure of designing an adult stressful relief toy has five main steps: choose emotional design level to focus on, choose strategies in strategy matrix, generate concepts, choose color schemes and make final products.

First of all, choosing emotional design levels to focus makes sure designers know what kind of stressful emotion relief toy they are designing (V+B+R, B+R+v, V+R or V+B). It also gives the lead of choosing which emotional design level's strategies. After deciding strategies, the designers should mark them on figure 35 strategy chart. The designers should think them parallel and generate concepts. After generating concepts, now comes to the color scheme part, The designers should think "did I use simulation strategy in my designs?" If the answer is no, original color schemes should be applied; if the answer is yes, the designers should evaluate if the design highly simulates reference object or just use some of the object's characteristics as the design elements (which is called the element simulate in this thesis). Highly simulated products should use simulation color scheme; element simulation can use both color scheme. Once the color scheme is decided, the final product should now come. If expanding the product line is needed, just using the same strategies and repeat the steps.

4.2 Design Principles

1. Must choose more than two emotional design levels to focus.

2. More than one strategy can be used in visceral level design; only one strategy should be used in

behavioral design.

3. Do not use design elements that too regional in the reflective level unless you design for this region on purpose.

4. Behavioral level design of stressful emotion relief toys should be very clear and easy to understand, the best, instinctively.

5. The amount of colors in a color scheme should be not more than four.

6. When choosing simulation color schemes, follow the basic color scheme of reference objects, if the reference objects have many different color schemes (e.g., dogs have different hair color), either color scheme is okay to copy.

7. when original color schemes applied on products, low saturation and high brightness value colors are always the preferred choice.

8. When simulation color schemes applied on products, designer should switch to lower saturation and higher brightness value colors with keeping the same color hue of reference objects, but if reference object's color are already satisfying low saturation and high brightness valve, there is no need to switching the color. What's more, if the reference objects color is the brand color, designers should keep the exact same color on their design (e.g., if the reference object is a Coco-Cola bottle, the brand color-red, should keep the same).

4.3 Design Suggestions

1. There is not such a stressful emotion relief toy that is universal in behavioral level. The ways to

get closer to "universal" are expanding the product line and integrating multi-behaviors into one product.

2.Venting behaviors may work better when using simulation strategy in reflective design.

3.These websites can help designer find inspirations of fidget behaviors to apply to their own design. http://fidgetwidgets.tumblr.com/, https://www.reddit.com/r/fidgettoys/, https://www.inst agram.com/explore/tags/fidget/

4.Choosing color hue that have better effect on calming people, from blue and green to red, when product not allowed to have multiple color schemes, this suggestion can be followed.

5. When choosing the original color schemes,in order to achieve color harmony, color scheme type can be chosen from Figure 42.
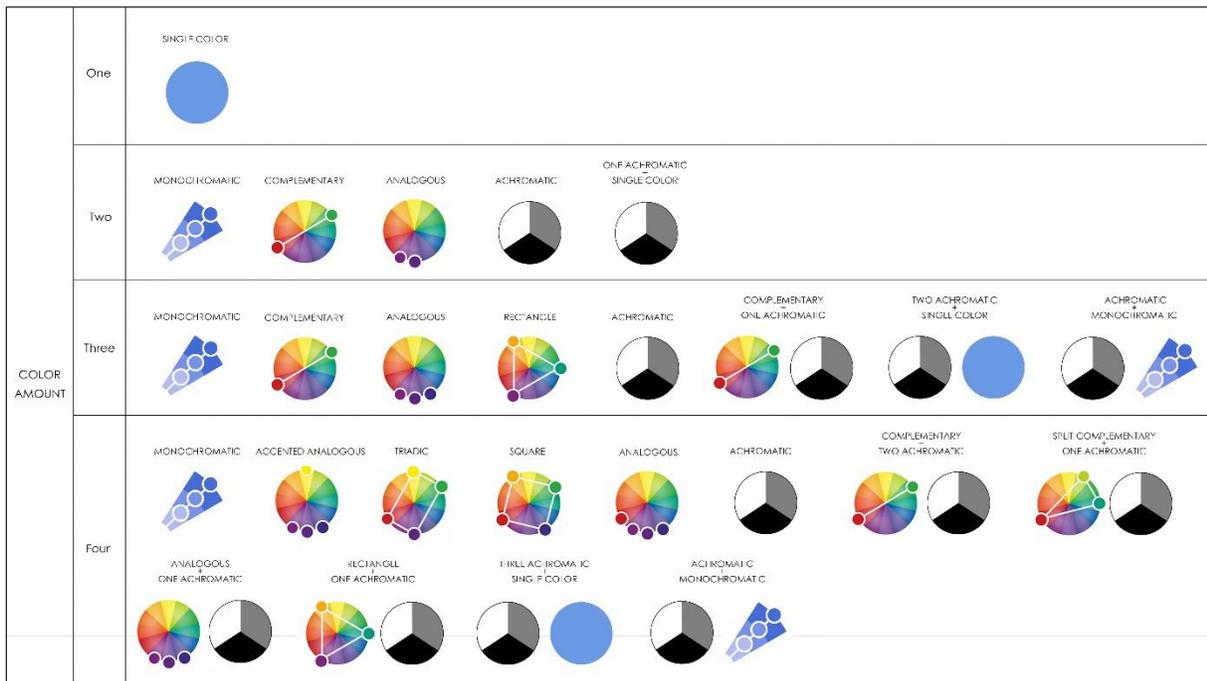

Figure 4.2 Color scheme types of original color schemes

6.Follow the 60-30-10 rules when it is suitable to be applied.

7. Original color schemes can be applied when the reference object's color scheme is too bland.

Chapter 5

Design Application

The guideline and flowchart developed in chapter four will be demonstrate in this chapter. Since the adult stressful emotion relief toys can be categorized into four types: V+B, V+R, B+R+v(optional) and V+B+R, four demo concepts will be developed for each type, which means we already finished the first step of the design flow chart: Choosing emotional design levels to focus.

5.1 Fidgeting Top (V+B)

Fidgeting Top is focused on visceral and behavioral design level, after marked the strategies I decided to use, the strategy matrix is like below:

Visceral Level	Cuteness	Smooth Curve	Simplicity
Behavioral Level	Fidgeting		Venting
Reflective Level	Simulation		

Table 5.1 Strategy matrix of concept one

As suggestion one and three suggests, I went through the websites to search inspirations, tried to integrate multiple fidgeting behaviors I found into one concept, following the design principles to generate concept.
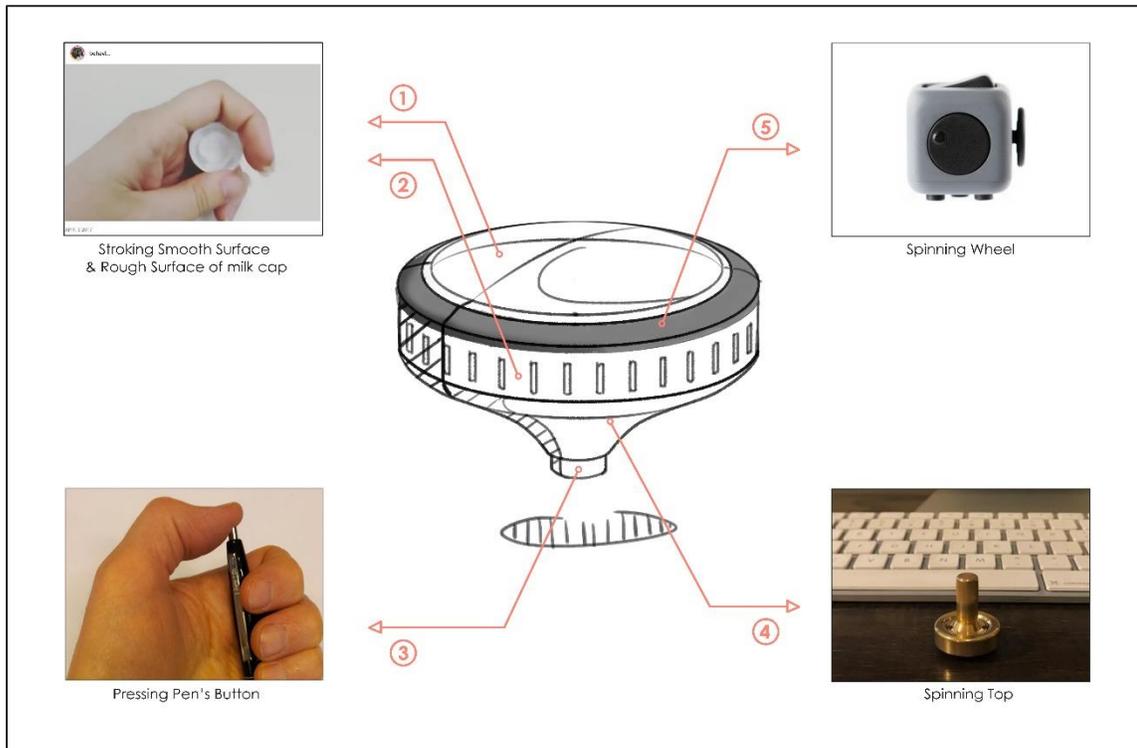
Figure 5.1 Concept one inspirations & sketch

I choose five fidgeting behaviors to apply on my concept, which are stroke smooth surface and rough surface of a milk cap, pressing pen's button, spinning wheel and spinning top.
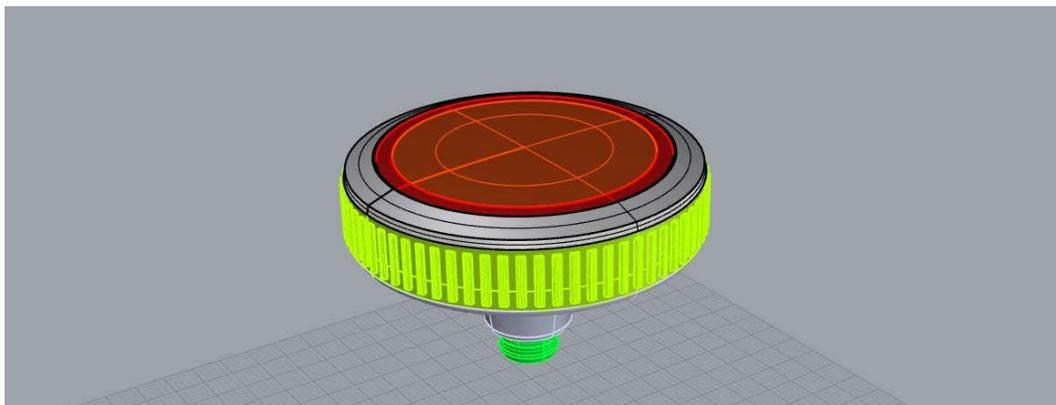

Figure 5.2 Concept one CAD model

At the point the concept had already been generated, only color scheme left to be decided.

This concept didn't apply the simulation strategy, so original color scheme should be used in this design. Following the design principles and suggestion five, the monochromatic color scheme was chosen from the figure 42. After applying the color scheme, the final products presented.

*Figure 5.3* Concept one color schemes
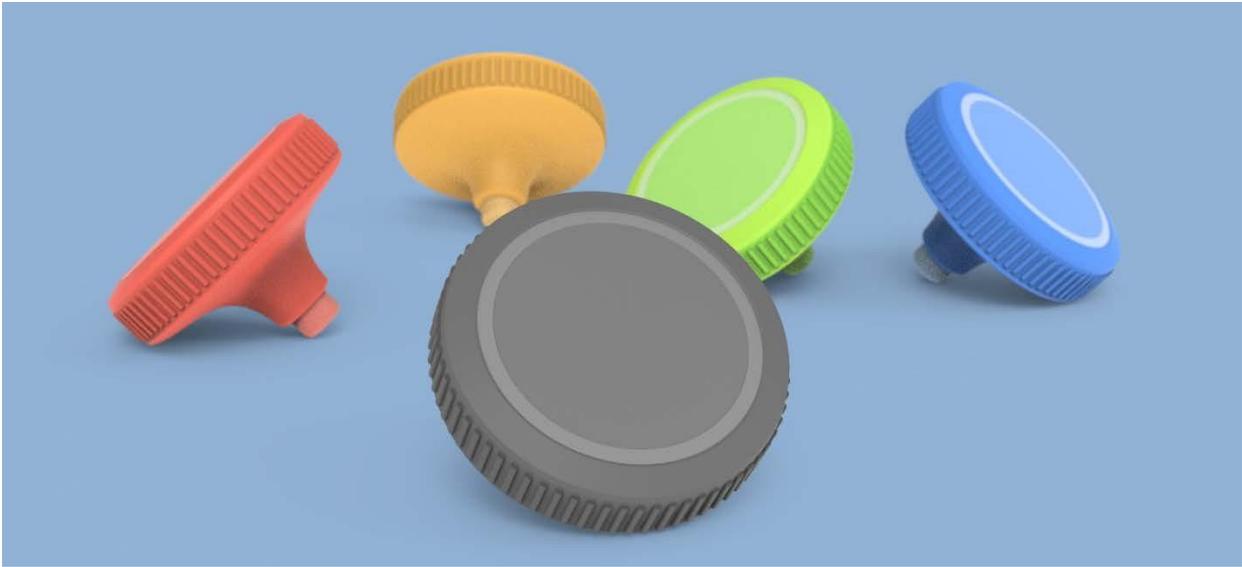
Figure 5.4 Concept one final product.

5.2 Infinity Bottle Cap (B+R+v)

Infinity Cap focusing on behavioral and reflective design level, visceral design level is optional, after marked the strategies I decided to use, the strategy matrix is like below:

Visceral Level	OPTIONAL Cuteness	Smooth Curve	Simplicity
Behavioral Level	Fidgeting		Venting
Reflective Level	Simulation		

Table 5.2 Strategy matrix of concept two

Following the suggestion three, I found spinning and screwing something is a very common fidgeting behavior, since I choose to use simulation strategy, a screw bottle cap is a perfect reference object.
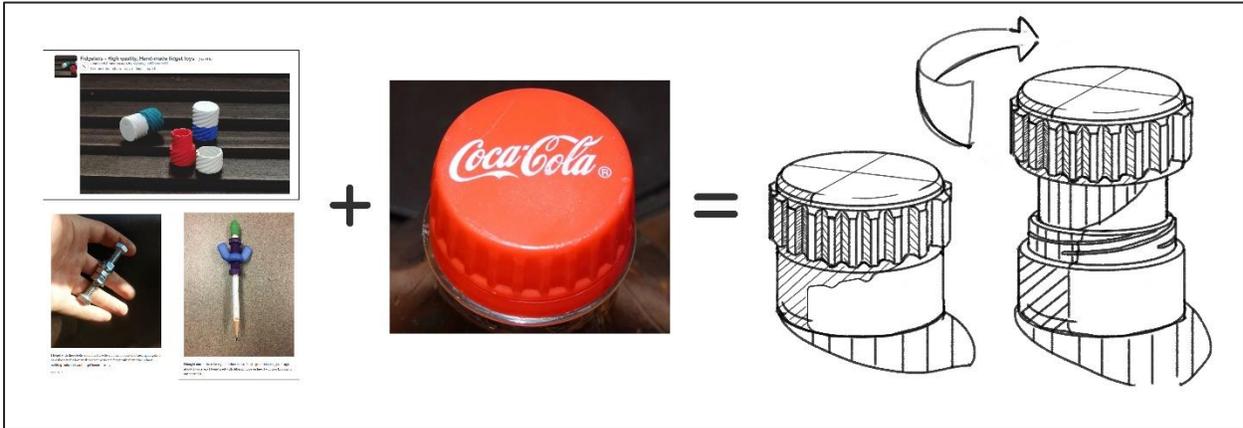

Figure 5.5 Concept two inspirations & sketch
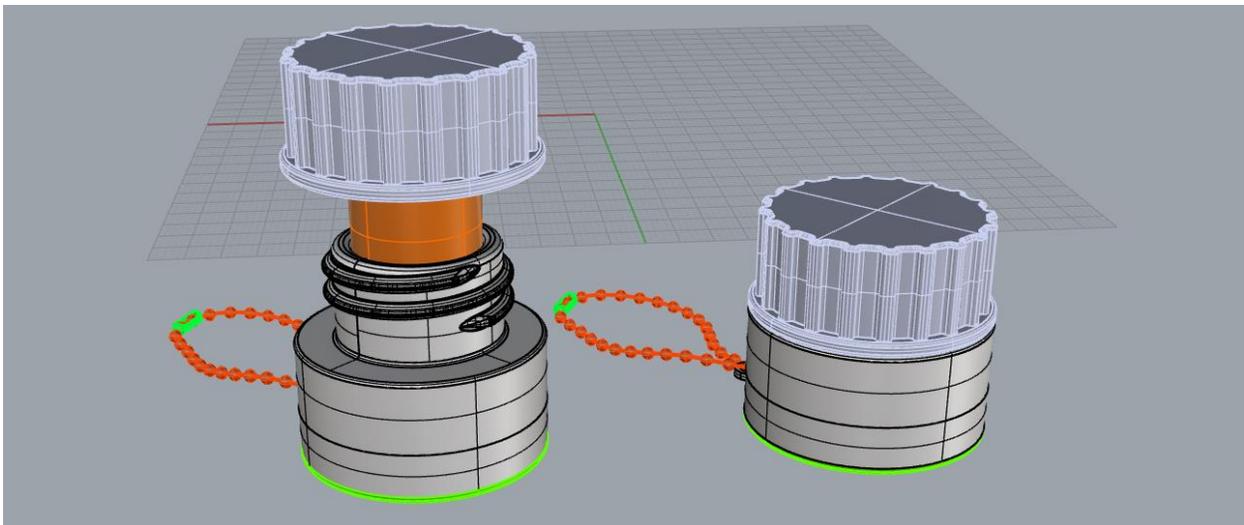
Figure 5.6 Concept two CAD model

Following every design principle involved in this step, the concept was generated. The concept highly simulated the bottle cap, so the simulation color schemes should be applied. Here I decided

to simulate Coca-Cola, Sprite and Fanta and final products are finished.

Figure 5.7 Concept two color schemes

Figure 5.8 Concept two final product

Since the visceral level design in this product is optional, I also designed a version with using the cuteness strategy as I marked on strategy matrix, I added one dizzy little cute face on the central part of the product, which only shows up when users open the cap. The dizzy face is meant to matching the screwing movement of hand, hope this will bring additional surprise and happiness to users.
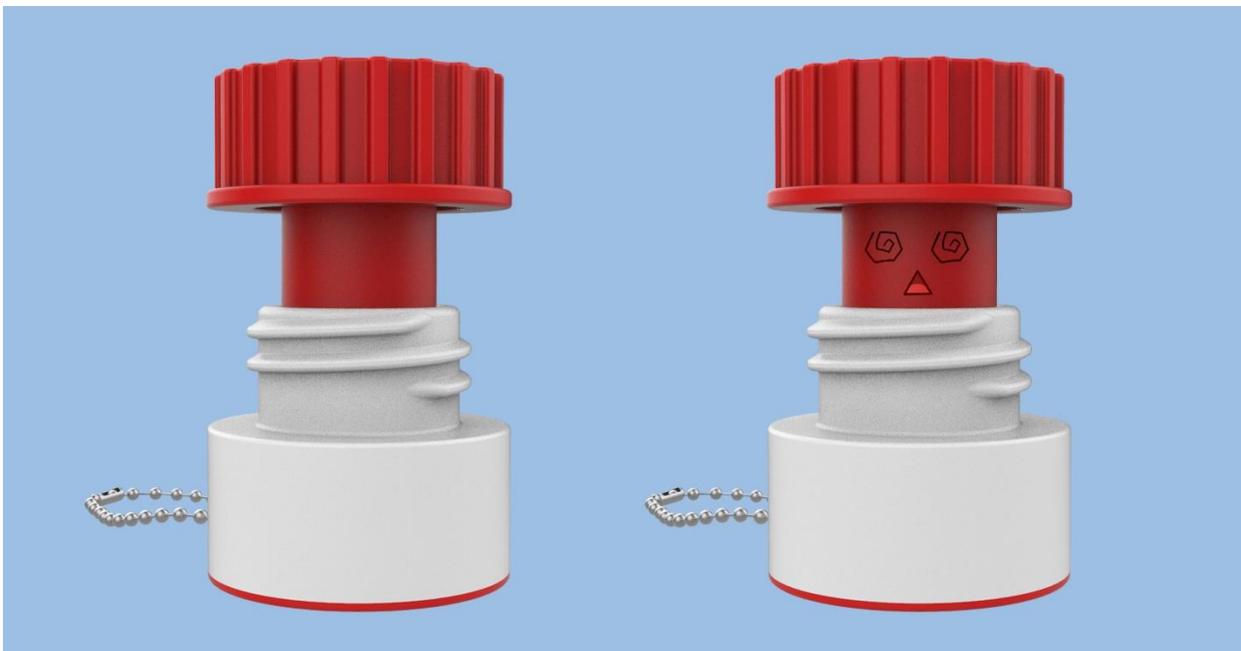
Figure 5.9 Concept two final product with visceral level design (optional)

5.3 Wagging Wagging (V+R)

Wagging Wagging mainly simulates one of dogs' important communication ways with human: wagging tails. With the touch sensor on the top of the product, It will wagging its tail like a real dog would do when users petting its head. This concept focusing on visceral and reflective design

level, after marked the strategies I decided to use, the strategy matrix is like below:

Visceral Level	Cuteness	Smooth Curve	Simplicity
Behavioral Level	Fidgeting		Venting
Reflective Level	Simulation		

Table 5.3 Strategy matrix of concept three

I choose dogs which most people consider them very cute as the reference object in this concept. So I applied a cute cartoon dog face on a highly abstracted dog body. Tail as a very important tool that dogs use to communicate emotion with humans, I didn't change its shape a lot.
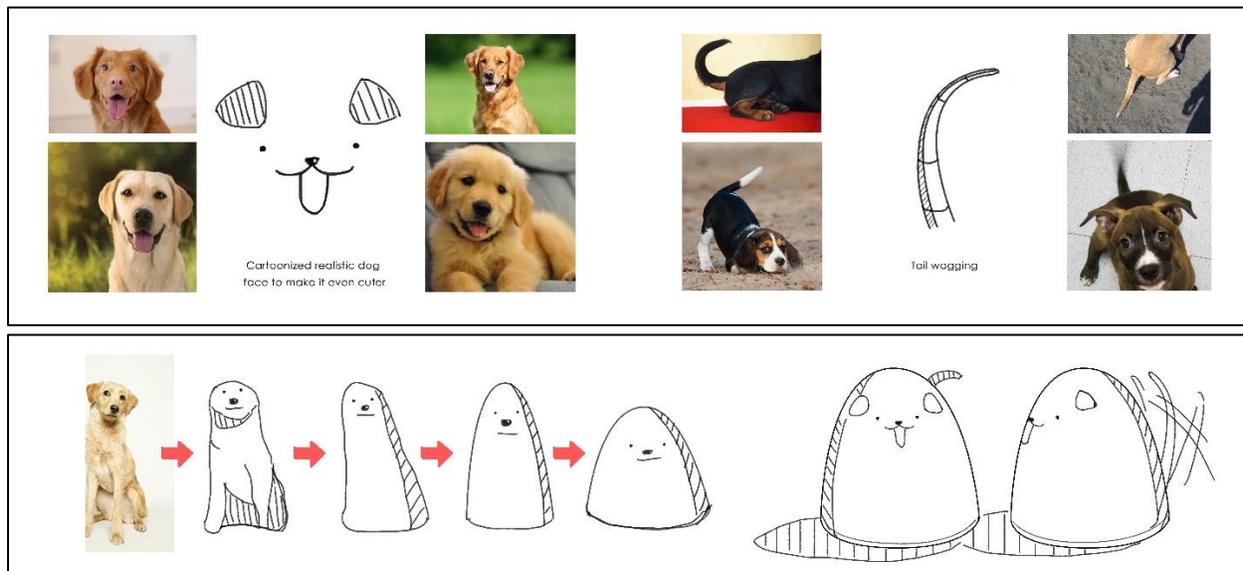

Figure 5.10 Concept three inspirations & sketch
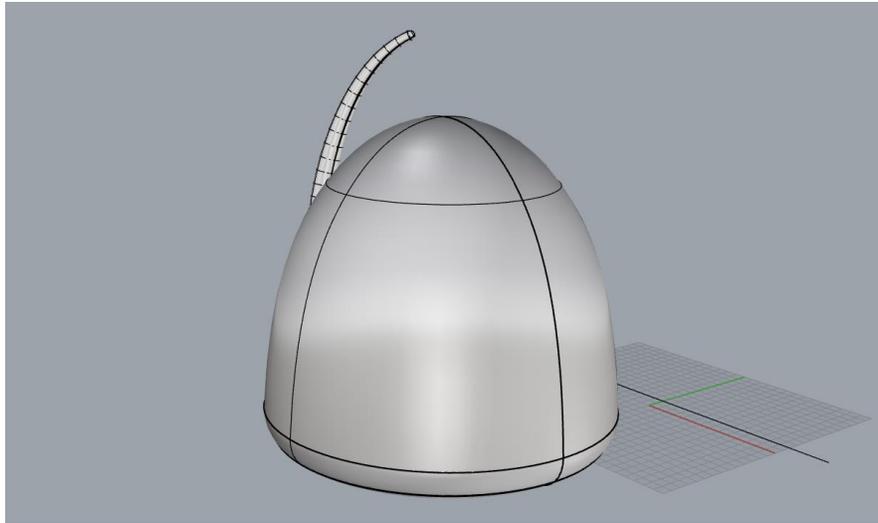
Figure 5.11 Concept three CAD model

Although this concept used simulation strategy, but it isn't highly simulating the reference object which means I can do original color scheme on this concept to add more emotional attribute than dogs' own hair colors have. This product mainly used as a decoration, I want it can blend into environment. Therefore, following the suggestion five, I applied single color scheme on the concept. The final product is shown below:
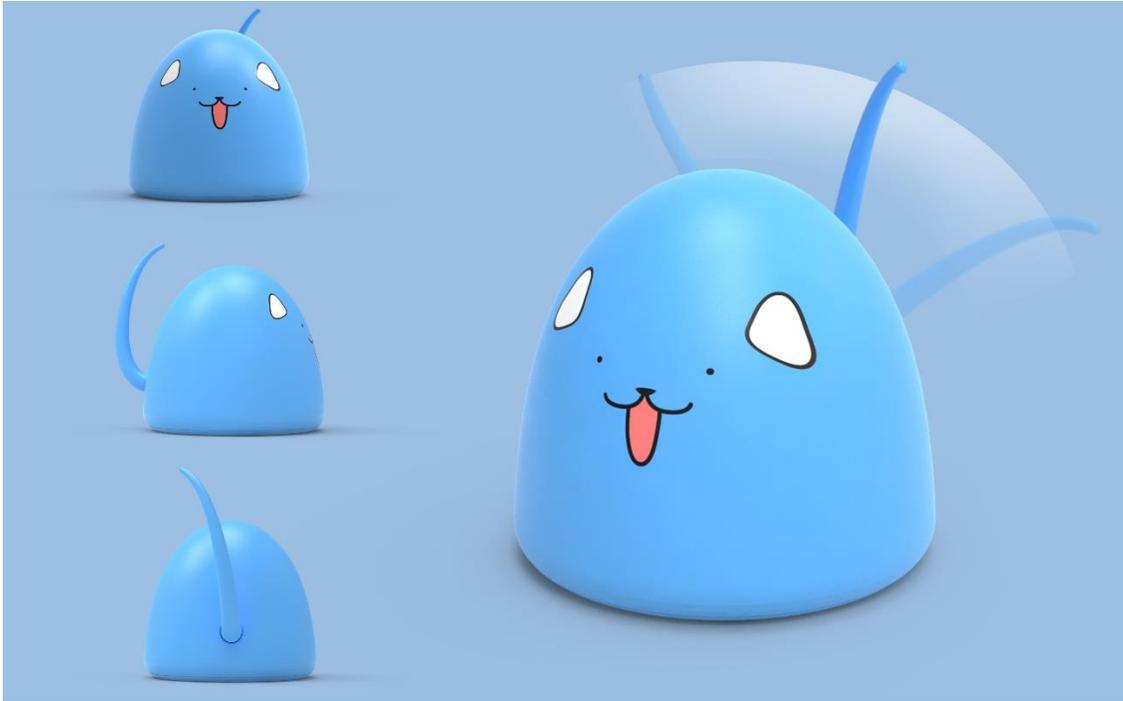
*Figure 5.12* Concept three final product

5.4 Boss Smashing (V+B+R)

Boss Smashing is a venting toy that help you vent all the anger and distress caused by your boss. The mechanism inside toy even change toy's face expression to make this whole venting process more realistic. The toy also provides multiple accessories of hair, glasses and ties. Magnets are planted into both accessories and main body to help you customize your own boss. This concept focusing on all three design levels, after marked the strategies I decided to use, the strategy matrix is like below:

Visceral Level	Cuteness		Smooth Curve		Simplicity
Behavioral Level	Fidgeting			Venting	
Reflective Level	Simulation				

Table 5.4 Strategy matrix of concept four

As suggestion two suggests, I choose "boss" in our daily life to simulate and being user's venting object. Since I already choose cuteness, smooth curve and simplicity as my visceral strategies, the first thing I need to do is abstract human being to simple shape with smooth curve.

Figure 5.13 Sketch of concept four

66
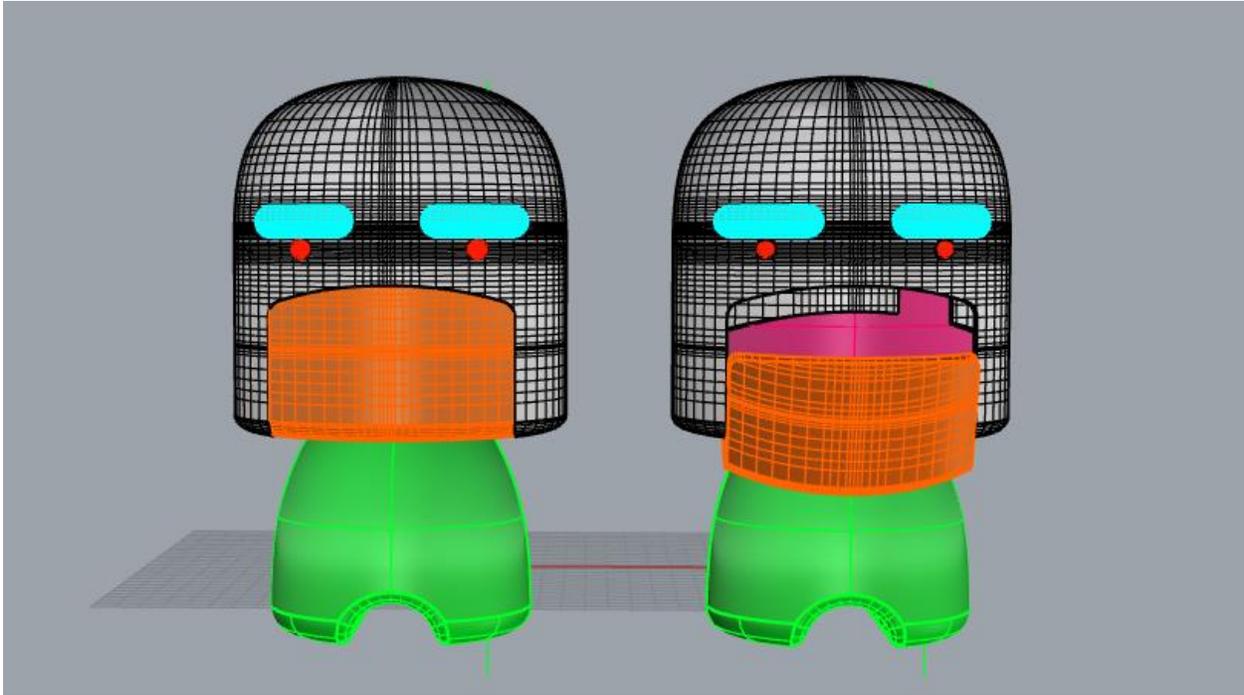
Figure 5.14 Concept four CAD model

Element simulation strategy was applied on this product, in order to keep the human like looking,

I choose to use simulation color scheme. The color schemes simulated different races of human,

and their hair color, also accessories color schemes copied from the colors of real object in daily

life. After color schemes is decided, the final product is finished.
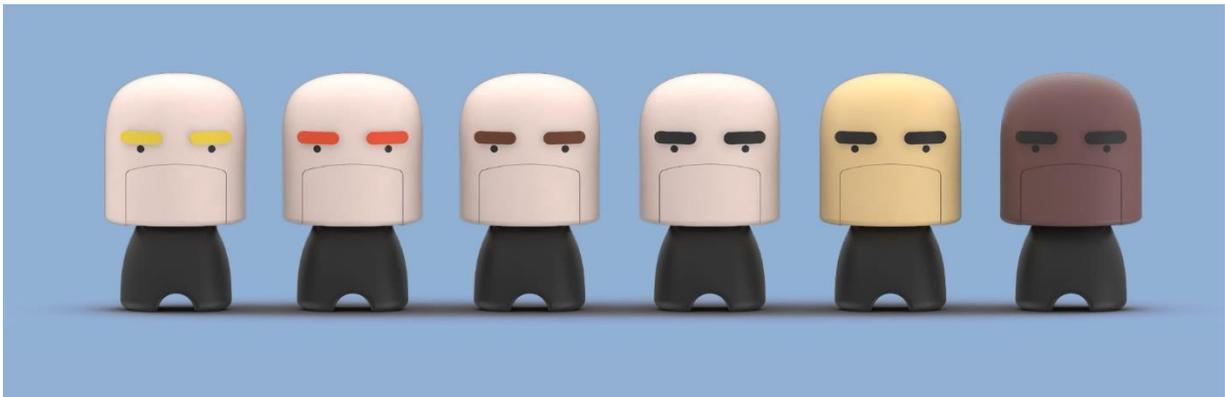
Figure 5.15 Concept four color schemes of main body
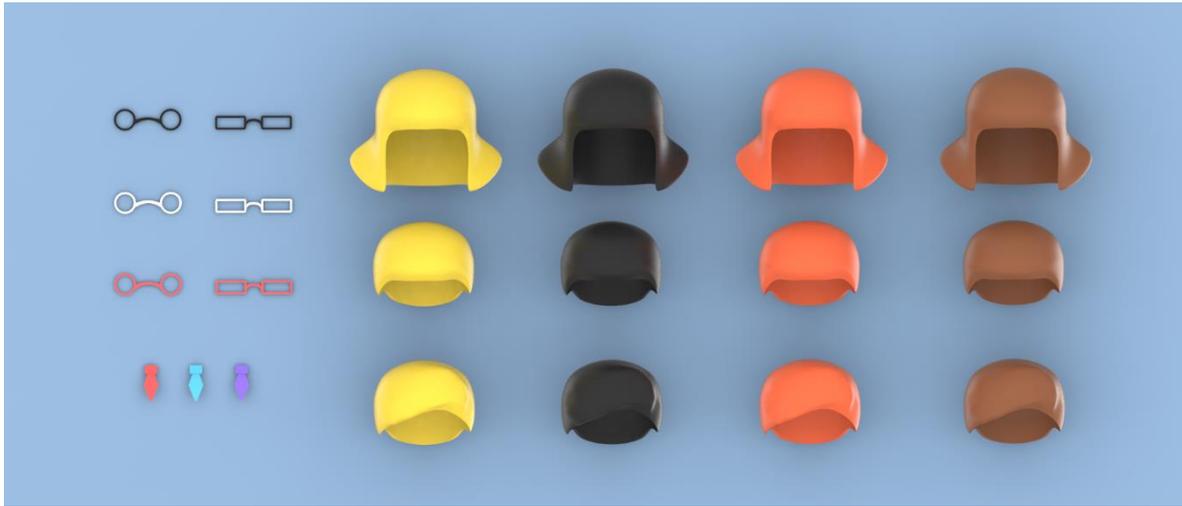
Figure 5.16 Concept four color schemes of accessories

Figure 5.17 Mechanism structure of Concept four

Figure 5.18 Concept four final product

Figure 5.19 Examples of different combinations of accessories

Chapter 6

Conclusion and Further Development

6.1 Conclusion

The intention in this thesis was to develop a design guideline that contribute to create a working adult stressful emotion relief toy systematically and scientifically. Through the study of stress, emotion and adult toy related theories, "stress-relief" which we usually use in our life was defined again as "stressful emotion relief", stressful emotion can be regulated by generating positive emotion was understood and the necessity of developing adult stressful emotion relief was aware. Norman's emotional design principles were the cornerstone of this thesis, which were used to analyses the cases of existing adult stressful emotion relief toy. After case studies, several patterns and design strategies were discovered, and four types of adult stressful emotion relief toy were categorized. Later, a procedure of design adult stressful emotion relief toy was developed with eight design principle and seven design suggestion. Four adult stressful emotion relief toys have been developed in order to demonstrate the application of the design guideline.

6.2 Further Development

More aspects can be further investigated in the next phase. This design guideline can be changed with the development of manufacturing technique and society, and feedback from users. Also, this guideline doesn't involve the effects of distraction by moving objects in stressful emotion relief, which is recommended for future study and research.

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