Warning Signs: Avoiding Consumer Debt

Can a system of visual signs be developed to

persuade consumers to become wary of their debt?

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Abstract

The lack of warning regarding consumer debt, brought about the development of a visual system of warning signs, based on characteristics found in other effective warning signs. The created warning sign has the potential to positively affect the consumer. Participants (82.8%) found the system of warning signs to be effective in persuading consumers to become wary of their debt. This warning system could help consumers make appropriate decisions concerning the purchases they desire and weigh their ability to repay acquired debt. It could aid in fostering a stronger financial future for those interested in enhancing the quality of their lives. The collected data also supports the application of the warning system on credit card statements, product packaging, and on-line banking.

Contents

Figures

Definition of terms

1. *Advertising Campaign:* the incorporation of multiple advertisements based on an idea or theme, which are visually communicated through design, for a specified duration (Landa, 2004).

2. *At-Risk Population:* "the population that is exposed to the occurrence of a vital event" (Organization for Economic, Co-operation, and Development, 2006). In this case, the vital event is the accumulation of deb or spending. The target market, that could positively be affected by a warning sign for debt, is the consumer, 18 years of age and older.

3. *Consumer:* "in economics, consumers are individuals or households that 'consume' goods and services generated within the economy" (InvestorDictionary.com, 2009). Consumers make the final decisions on whether or not to buy a product.

4. C*onsumer Debt:* outstanding credit incurred upon an individual for personal, family, or household use, which is utilized for consumable or depreciating non-investment assets including store-financed consumer purchases, credit card debt, car loans, and other loans expected to be repaid (Boomer LifeStage Coaching, 2008; Vanden Bos & Chapman, 2009). Consumer debt traditional does not include debt associated with home loans.

5. *Consumer Goods:* "new goods acquired by households for their own consumption. Comprise three categories: a) Durable goods, which can be used repeatedly or continuously for more than one year, such as motor vehicles and major appliances; b) Semi-durable goods, which can be used on multiple occasions and have an expected lifetime of one year or somewhat more, such as clothing, footwear and linens; c) Non-durable goods, which can be used only once, such as food, gasoline, alcoholic beverages and tobacco; in practice, the latter

also include a few goods of little value used more than once, such as household supplies" (Statistics Canada, 2008).

6. *Consumer Spending:* "money individuals spend on consumer goods and services" (InvestorDictionary.com, 2009). This also includes borrowed money or money the consumer hasn't yet earned. "Consumer spending makes up for about two-thirds of economic activity in the United States" (InvestorDictionary.com, 2009).

7. *Debt-To-Income Ratio:* "a measure of financial stability calculated by dividing monthly minimum debt payments by monthly gross income. This calculation gives a straightforward depiction of your financial position. Typically, the lower your ratio, the better handle you have on debt" (Credit Union National Association, Inc., 2003). The debt-to-income ratio includes a payment made toward a mortgage or rent.

8. *Label:* something affixed to or printed directly onto an object, providing information of some sort (New Oxford American Dictionary, 2007).

9. *Sign:* "a mark or language unit that stands for or denotes another thing" (Meggs, 1992, p. 6).

10. *Signal Words:* words such as danger, warning, or caution used to indicate a particular level of hazard within a warning label or sign (Association of New Jersey Household Hazardous Waste Coordinators, 2008).

11. *Symbol:* the visual expression of a thing that creates a relationship between the sign and thing being represented, which is understood as a result of prior knowledge and experience (Meggs, 1992, p. 8).

12. *System of Signs:* A related set of signs that form an entity with singular purpose. The sign's individual parts have a connection to the system.

13. *Warning:* forceful, cautionary advice, advance notice or "event that indicates a possible or impending danger, problem, or other unpleasant situation" (New Oxford American Dictionary, 2007).

14. *Warning Label:* something affixed to or printed directly onto an object, providing cautionary information of "a possible or impending danger, problem, or other unpleasant situation" (New Oxford American Dictionary, 2007).

15. *Warning Sign:* a cautionary object whose presence indicates "a possible or impending danger, problem, or other unpleasant situation" (New Oxford American Dictionary, 2007).

16. *Wayfinding*: the use of objects, graphics, signs, and/or audible methods to communicate location and help people navigate in physical space toward a specific destination (Dictionary.com, 2009).

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Introduction

This study will examine how visual warning signs are used and what attributes make them effective tools in reducing injury or harm. A system of visual warning signs will be proposed to persuade consumers to become more aware of their debt. This created system of warning signs will be tested to ascertain its success at persuading consumers to make positive money related decisions. The application and implementation of a visual warning system has the potential to help consumers become aware of their spending habits. The consequences of irresponsible spending and consumption have contributed to the failure of personal relationships, the filing of bankruptcy, the foreclosure of property, and the current economic recession. There are plenty of examples where unfortunate circumstances such as catastrophic illness, long term health problems, job loss, or other personal tragedies have played a significant role in the financial demise of an otherwise financially aware and responsible person or family. Nevertheless, if consumers as a whole were more effectively warned about the detrimental affects of debt, many individuals and families could weather financial storms.

The October, 2007 census conducted by the U.S. Federal Reserve revealed that the total amount of consumer debt in the United States is in the vicinity of 2.5 trillion dollars and rising, which adds up to nearly $8,200 of debt for every person living in the United States (Money-zine.com, 2007). This figure did not include debt attributed to real estate.

Trends have shown that debt levels have the tendency to rise with the growth of personal incomes and lower interest rates, both of which have been evident in the past decade. Rising debt levels alone, may not signify a problem, but increases in credit card debt, quick loans, and home foreclosures do indicate a potential problem. Even though there are ongoing disputes concerning consumer spending and the positive and negative effects on the U.S. economy, the question of whether or not consumer debt is healthy for the consumer must be considered.

In the current economic climate which includes the mortgage debacle and America's growing consumer debt, this system of warning signs will provide favorable end results for the consumer and perhaps help reduce the problem of consumer debt. This system of visual signs has the potential to persuade consumers to become aware of and more carefully manage their debt. If consumers can make constructive changes in their behavior as it pertains to debt, they would improve the quality of their lives, their family's lives, and society as a whole.

A visual warning system for consumer debt could aid the design community in implementing more ethical advertising and product packaging. The implementation of a system of warning signs for debt could become a standard, similar in nature to the voluntary Parental Advisory Label (PAL) program. The PAL program is supported and distributed by the Recording Industry Association of America (RIAA) whose “members create, manufacture and/or distribute approximately 85% of all legitimate sound recordings produced and sold in the United States” (RIAA, n.d.). This warning label was created to help parents make informed choices when purchasing music for their children. The PAL program warns of “strong language and/or depictions of violence, sex or substance abuse to such an extent that parental discretion is advised”.

Another prominent and familiar warning sign is the U.S. government’s Surgeon General’s warning on cigarette packaging. Although the government mandated this warning label, it educates smokers and non-smokers alike about the detrimental affects of smoking and second hand smoke. In a similar fashion, the business arena could voluntarily utilize a warning system of signs for debt, as a form of customer service and care. The ‘green’ environmentally friendly movement has spread throughout the corporate world. Not only do environmental issues promulgate, but businesses benefit through increased positive public perception.

Literature Review

Warning Signs

Warning signs are ubiquitous, from the sign that denotes potential danger in the form of "Don't feed the Bears" in Yellowstone National Park to the "Bump Ahead" sign that might be seen while driving there. Warning systems have been established to prevent injury or harm due to uncertainty. The impact these warning systems have on mankind is the preservation of life or at least a decline in harm due to heeded warnings.

To achieve this result, warning signs must be noticed. The sign must be successful in persuading the viewer to take proactive action in response to the observed warning. The viewer must then methodically change their behavior in response to the posted warning in order to prevent the potential harm from happening. In many cases, time is of the essence and the severity of injury or harm is dependent on the timely compliance and context of the sign.

Signs come in many shapes and forms, from physical signs found on the side of the road (see Figure 1) to figurative signs as that of the 'shaka' hand gesture performed as a greeting in Hawaii (see Figure 2). Many warning signs alert the viewer of impending physical harm. This is evident in the signs found on industrial equipment. These signs caution

Figure 1. Physical road sign warning motorists of an upcoming curve in the road.

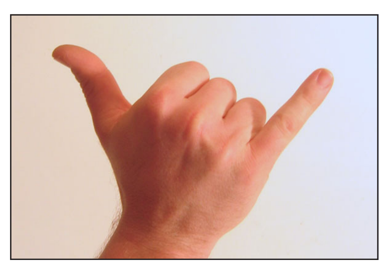


Figure 2. The Hawaiian 'shaka' hand greeting or 'hang loose' gestural sign.

Figure 3. Two examples of warning signs that warn about the dangers of moving parts.

workers to be attentive so their fingers, or any other body part, does not get caught in the moving parts of machinery (see Figure 3).

Debt is an area where the current financial decisions someone makes are not immediately felt. Because of this mentality some consumers become passive, feeling relatively safe in the way they borrow and spend money, even though there may be red flags that pop up along the way. Debt does not start out as a physical ill but can quickly become all-encompassing. Debt can lead to physical repercussions in the form of repossession of property and strained or broken relationships. Additionally, economic problems can also arise from poor or illusional relationships with money.

The strained associations people have with money and the loss of financial power that accompanies debt, have the potential to be reversed and become healthy again with the use of a system of warning signs for debt. This system may help the consumer make better choices about where and how money is acquired and spent. One way to bring added thought into this relationship is to help people become more aware of the connections between their spending habits and the amount of money they make (income). This may be done with the use of effective warning signs. If warning signs work to warn people about immediate and potential harm, the same principles and elements that make these warning signs successful might also work with a system of warning for debt.

Effectiveness of Warning Signs

Warning signs and labels have come about for many reasons including the concern over public safety, government regulation, and litigation. The warning sign "is a bizarre side effect of a culture bent on suing for just about anything" (Recchia, 2005). These lawsuits force new government regulations which force corporations to add new warning labels onto products to limit the possibility of more lawsuits. In the rush to get potentially harmful products and equipment labeled correctly, the effectiveness of the warning message has been compromised to conform to newly mandated regulations and liabilities. This rushed process has raised questions about whether these labels are effective in relaying hazardous information to the consumer. Leonard (1999) suggests that the warning label "must be located where the user can have access to it; it must be clear and understandable to potential users whatever their backgrounds may be; and it must draw the attention of the user". If used appropriately, the warning sign can do its job in warning the viewer of potential harm.

In addition to research conducted by Braun, Kline, & Silver (1995) and others, concerning attributes to measure the effectiveness of the warning sign, Argo and Main (2004) have compiled research to measure the success of warning labels. They have created five main groups categorized under what they call the *dimensions of effectiveness*. These include: (1) *Attention*—warning labels need to be seen, noticed, and attention grabbing; (2) *Reading/comprehension*—after the warning label has been spotted, its information requires the need to be read and understood; (3) *Recall*—after the warning label is read, the consumer should store away the presented information for later use; (4) *Judgment*—the read, recalled, and understood warning should "influence consumer judgments concerning their perceptions of how hazardous and dangerous a product really is" (Argo and Main, 2004); and (5) *Behavioral compliance*—"a warning label is effective if it successfully influences [the] consumer to engage in behaviors that comply with the safety precautions conveyed in the label" (Argo and Main, 2004).

Through their research of the five *dimensions of effectiveness*, Argo & Main (2004) also found warning labels to be successful in attracting consumers' attention and that particular characteristics such as color increased the probability of noticing the label. They also found that consumers did read the warning labels, but were unable to successfully identify if consumers understood the messages presented in the warning labels. Therefore, the "warning labels were not effective in influencing consumers' perceptions of hazards and risks" associated with the product, especially with reoccurring frequent purchases.

In spite of the uncertainty concerning consumer judgments, Argo and Main (2004) found that "warning labels do appear to positively influence consumer behavior", especially if difficulty levels in doing so were low and familiarity with the product was high. Their research revealed, as the consumer became more familiar with the product and its packaging, its effectiveness to communicate hazard increased. This increase also gave rise to consumers' willingness to comply with the warning.

The success of warning systems have been extensively researched by many professionals within the fields of ergonomics and design. An interesting connection between the two disciplines is the reoccurring references to the importance of what the design community calls basic design principles. Some of these principles include: balance—the distribution of visual weight each element carries within a composition; hierarchy—the emphasis placed on an element; unity—the glue that holds the composition together forming a cohesive whole; proportion—size relationships between elements within a composition; and scale—the size comparison from one object to another (Landa, Gonnella, & Brower, 2006). These are used to communicate important information like that found in warning signs and labels. If a warning sign is to be effective and persuade the consumer to take the steps necessary to comply with the posted warning, certain visual characteristics must be present.

Characteristics of the Warning Signs

Taking a closer look at the specific characteristics of the warning sign, certain commonalities become evident. Some of the most frequent, prominent, and recognizable characteristics include: color, size, contrast, type, and detail. They also use elements such as lines, shapes, symbols, icons, and signal words. These characteristics have the capacity to "influence a warning's ability to communicate important hazards" (Braun et al., 1995). Many of these common characteristics are pointed out in Figure 4.

Some other important characteristics that must not be overlooked are the intended message and the location of the warning sign. It does not matter if a warning sign has the most aesthetically pleasing design if the message it is trying to communicate is ignored, misinterpreted, or misunderstood. The purpose of a warning sign is to inform the reader of impending harm and persuade them to take precautionary action in a timely matter. The design of the warning sign or label should be the vehicle that carries

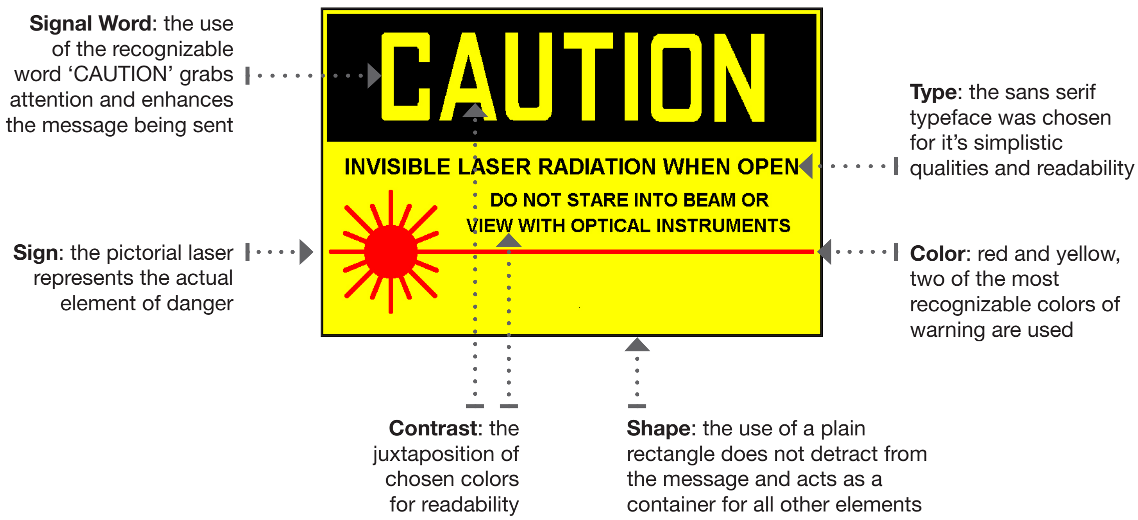


Figure 4. This warning sign possesses some of the most common characteristics found in warning signs.

the message and accomplishes the goal of strong communication. They should enhance the message at hand.

Location, another important property of the warning sign, is tougher to control. There are strict government mandates and corporate product branding rules and regulations that dictate where and how a warning sign or label is handled. This directly influences the effectiveness of the intended warning. It also creates a problem for the warning sign as it takes a back seat to the product. The warning sign often finds itself reduced in size and affixed to an unflattering location. This does not aid in the visibility or purpose of the warning sign. Many corporations actually view the warning sign as an annoyance rather than a benefit. This attitude could be attributed to the use of attention grabbing colors associated with warning signs. Those colors could clash with a product's design or packaging, as well as the negative attention directed towards a product due to the presence of a warning sign or label.

Colors of Warning

Many of the characteristics discussed have been regularly researched in conjunction with warning labels. Information display research has shown the benefits of color from "aesthetic appeal to changes in visual search time and cognitive processing… [and] "has clearly demonstrated the superior effects of color during visual search tasks" (Braun et al., 1995, p. 180). This same research has also revealed that color has "been shown to influence memory. In general, memory for color is greater than for other types of information coding [and that color is] superior to black-and-white on measures of perceived readability (Braun et al., p. 180, 184).

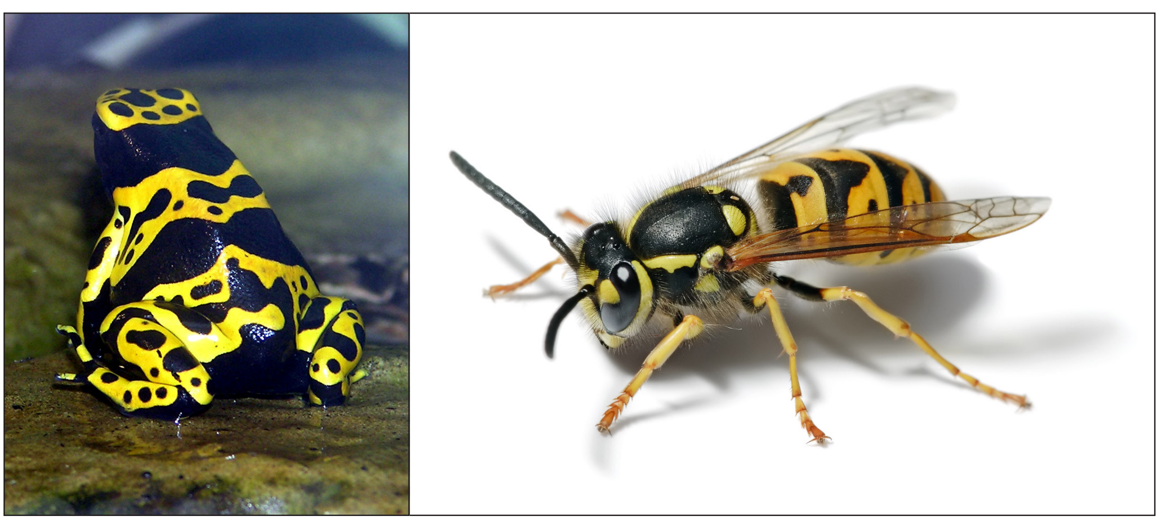
Since color carries meaning, the viewer of a specific color will translate it and make associations to that perceived meaning. In the case of a warning sign, the correct translation between the color and the appropriate level of hazard needs to be made. Color is oftentimes coupled with a word to increase the understandability of the warning sign's message. This type of word association, between different warning colors and signal words, can highly influence the decisions people make concerning hazards and the time it takes to make these important decisions. A word of warning is just that, a word, until color is added and the connection to urgency is made.

The relationship between color and warning could be found in nature long before organized research officially pointed it out. Many insects and reptiles have pronounced colors and patterns of color which warn predators of potential danger. For instance, the poison dart frog found in Central and South America are distinctively identified by their bright red, yellow, and even blue colors, warning other animals that they are poisonous. Another example is the commonplace Yellowjacket, with its distinctive yellow and black pattern, warning of the possible danger from its sting (see Figure 5). In consequence, most people will leave the wasps alone in fear of angering them and having to deal with dozens of stings.

Like the warnings found in nature, the human race has adopted and reused these colors, perhaps because they have become familiar and natural. These garish colors have found their way into everyday life and have become normal in the sense that they are recognized almost immediately, although in most circumstances they must be learned. These loud colors can be found in many places from the common 'STOP' sign and traffic light to the warning on a blowdryer.

A current and prolific color-based emergency management system of warning is the diamond shaped building placard. It is used to warn emergency personnel of the potential

Figure 5. The yellow-banded Poison Dart frog (courtesy of Adrian Pingstone via Wikipedia) and the Yellowjacket (Courtesy of Wikipedia user Fir0002) announce the danger they posses through their colors of warning.



risk associated with stored hazardous materials in combination with the elements of fire or water (see Figure 6). This system is part of an emergency management program designed to meet standards set by the National Fire Protection Association (NFPA) in order to: "(a) Prevent injuries and save lives; (b) Protect property and the environment; [and] (c) Secure critical infrastructure and facilities…" (Environment, Safety and Health at SLAC, 2009). These "placards act as an immediate warning system for emergency service personnel, helping them identify the kinds of materials present and the dangers they pose" (NFPA, 2007).

Figure 6. This sign uses color to represent different kinds of hazards to emergency personnel that have learned their meaning.

The diamond-shaped placards are broken down into four smaller diamond-shaped quadrants. Each color-coded quadrant represents one of four possible hazards. In the top diamond resides red, representing flammability—"susceptibility of materials to burning" (NFPA, 2007). In the middle left diamond resides blue, representing health—"injury hazard from burning materials," and on the right side resides yellow, representing reactivity—"susceptibility of materials to release energy" (NFPA, 2007). In the bottom diamond resides white, representing special "hazards important to emergency response personnel" (NFPA, 2007). A hazard ranking number inhabits the top three color-coded diamonds (red, blue, yellow). "The numbers in each box give the order of severity in emergency conditions such as spills, leaks, and fires, from four, indicating severe hazard or extreme danger, to zero, indicating no required warning" (NFPA, 2007). The bottom white diamond has, placed within it, an alphabetical code or codes representing special hazards if any. Any additional special hazard codes that cannot fit in the bottom white diamond, are then placed in a white rectangular box below the large diamond.

These 15 x 15 inch placards must be placed and affixed next to all building entrances which house certain amounts of qualifying hazardous materials. They must be placed at heights where they can easily be seen by approaching emergency personnel and have adequate contrast to the building. This is done so emergency personnel can see the placard without difficulty during a calamity, potentially saving lives and property (NFPA, 2007). Most people recognize the diamond shaped warning placard as a sign they have seen on a building somewhere, but do not know what the colors, numbers, or letters represent. Only someone that has been taught to understand the warning sign knows it's meaning.

Another color-based system of warning was developed by the Department of Homeland Security (DHS) warning the public about the potential for a terrorist attack. This warning system adopts a hierarchical color advisory system linked with an associated signal or trigger word and accompanying descriptive phrase (see Figure 7). Mayhorn, Wogalter, and Bell (2004) found that the DHS should have tested their warning system before publishing it to the public, because of relational confusion that occurred between the associated colors, signal words, and accompanying descriptive phrases. They found that participants had a hard time sorting the five colors as prescribed by the DHS in rank from most threatening to least threatening. Similarly the participants failed with word rank and phrase rank. “Similar confusions in the word- and phrase-sorting tasks might also have been avoided in light of extensive research demonstrating that people frequently have difficulty distinguishing one signal word from another, such as ‘danger,’ ‘warning,’ and ‘caution’” (Mayhorn et al., 2004, p. 12).

Even though there where many issues with the DHS advisory system, some commonalities were reinforced. The primary colors of red and yellow tend to be the most effective warning colors, followed by orange. Color and word association can highly influence the *dimensions of effectiveness*: *attention*, *reading/comprehension*, *recall*, *judgments*, and *behavioral compliance* mentioned by Argo and Main (2004). There have also been guidelines set up by different institutions in an effort to standardize the design of safety signs and labels. “For example, Westinghouse (1981) paired the colors red, orange, and yellow with the terms DANGER, WARNING, and CAUTION, respectively” (Braun, et al., 1995, p. 180). Others have

Figure 7. An example of a color based warning system that incorporates a trigger word and descriptive phrase.

followed suit, while some omit orange because of the potential for confusion when ranked with red and yellow.

These colors coupled with various design elements such as shape or size can effectively warn the public of immediate danger. Krause (2004, p. 132) mentioned that color can add to a composition "by giving the eye something to contemplate besides the form itself, color can lend meaning… [to and] increase the visual interest of a shape". It is no surprise that "the combination of red and the octagon produced the highest level of retention over other shape and color combinations" (Braun, et al., 1995, p. 181). It is also no wonder that one of the most recognizable signs, the 'STOP' sign, incorporates these traits. Now imagine the 'STOP' sign with the color green instead of red. The change in color would have an immense impact on readability, recognition, and the meaning of the sign itself.

The color red.

There are many attributes associated with the color red from cupid to the devil. There are some unchanging characteristics that make the color red important when dealing with warning. It grabs the viewers attention and often times prods them to action. Red denotes confidence and danger. It is used for emergency vehicle's flashing lights, such as ambulances, fire trucks, and police cars. Red also has many negative connotations such as these modes of expression: 'in the red' for financial loss, or 'a red flag' as a warning sign. Leonard (1999) found that the color red was chosen almost twice as much as other colors to denote the highest levels of risk, therefor suggesting "serious consideration might be given to using only red as the color associated with warnings".

The color yellow.

The color yellow is also associated with danger and caution as found in many roadside hazard and construction signage, ranging from 'Deer Crossing' to 'Men at Work'. Yellow is not perceived to be as dangerous as red, yet it is still used as a warning signal between the red and green lights in a traffic light. It lets the driver know that the intersection will become dangerous to drive through in just a few seconds. Yellow is highly visible, creates excitement, and when placed with other colors can create extremely visible, attention-grabbing, high contrast combinations that aid in recognizability and search time. This color works well in combination with black, producing high contrast images. Many signs utilize this color combination with a sans serif block type to produce a highly legible outcome.

Typographical Considerations

Craig, Scala, & Bevington (2006, p. 6) simply observe "words will always remain central to communication." As such, typography has evolved into a detail oriented process concerning type and the written word. Lupton (2004, p. 8) declared "typography is a tool for doing things with: shaping content, giving language a physical body, enabling the social flow of messages". Type is no longer just the discreet vehicle in which a message is disseminated but has become a form of expression—"…entertaining, challenging, outrageous, and in the best examples, fine art" (Craig et al., 2006, p. 6). Even so, the ultimate purpose of the written word is to communicate, to convey information, to make it known and understandable. Without clear communication, the warning sign takes no part in the prevention of harm or the saving of lives.

With the evolution of digital typography and the expressive qualities afforded to it, typography for warning signs must step back to its roots. Back to the times where metal type was organized and manipulated by hand, inked, and paper laid out on top to be pressed. Type must become quiet to enhance the meaning of the message it carries. This does not mean type will take a back seat to other design elements within the warning sign. It means that the qualities and characteristics within the warning sign must become harmonious and work together to send the appropriate message of warning.

Typeface choice.

Type lends itself to much manipulation by its nature and characteristics. Each individual type character has been designed with reason and complex precision. Some of these important details become pertinent while others will not influence the creation of a warning sign. There are two main groups in which typefaces can be generalized—serif and sans serif typefaces. Serif typefaces tend to be easily read at smaller font sizes, while sans serif typefaces (display type) are easier to read large and at a distance. The sans serif typeface has a tendency to be bolder and more stable, lending itself to be the display type choice to communicate quickly and efficiently. Sans serif typefaces have less minute details, which could distract from the message being presented in a warning sign.

Characteristics of type.

Other characteristics of type which will influence the display of the chosen warning typeface are: type size, type style, kerning (letterspacing), tracking (wordspacing), and leading (linespacing). Each one of these characteristics will either visually enhance or diminish the readability of type. These characteristics are tools designers readily have at their disposal to manipulate type to accurately communicate the messages at hand. Deciphering these characteristics will aid in creating a successful warning sign.

It is plain and simple, the larger the type size the easier and quicker one can recognize and comprehend the intended message. Imagine driving down the freeway at 65 mile-per-hour while approaching a billboard. The comprehension and communicatory ability of the billboard determines its success. The ability to comprehend it lies in the time allotted to the task of reading and understanding the billboard's message. The larger the type the sooner the message can be relayed. The sooner the message is relayed, the more time the driver has to decipher and understand the message. Advertisers rely on the understandability of the billboard hoping the consumer will be persuaded towards either buying a product or idea. This same concept is also evident in road construction zones where the speed limit drops dramatically and the volume of signs rises. Slower driving speeds allow drivers more time to interact with each sign. This extra time helps the driver understand the messages each sign provides, potentially keeping construction workers and drivers safe.

There are other characteristics which improve the readability of type. Type styles such as italics, bold and so forth can also aid type in becoming more visible. Kerning, tracking, and leading all influence the amount of space that is allotted in between individual letters, words and lines of type respectively. These spaces will impact how readable type can become. If too compressed, words become lost within other words. They run together and take more time to separate. If too far apart, words lose their relationships and messages become muddled.

It is also important to understand how a particular society reads. In the West, text is typically read left-to-right and top-to-bottom. Type must be appropriate for the intended target audience and communicate its message quickly and clearly. The type used must not only be legible and have readability but should not be distracting or allowed to disappear within the page. In particular, a warning sign must cohesively interact with all elements of the sign itself from color to symbols used therein. Type forms words and those words bring with them meaning. This meaning can enhance the warning sign, especially if mixed with images.

Signal Words

The language or words used within the warning sign itself must speak directly and boldly to the recipient of that warning. Time is usually of the essence when a warning sign is viewed. In addition to characteristics that stand out like color, a word can also quickly communicate to the literate. Just like other characteristics of the warning sign, signal words play an important role in capturing the attention of the viewer. Braun et al. (1995) concluded that the common signal words CAUTION, WARNING, and DANGER, while all signal hazards, do not equally communicate due to their width-to height ratio and other characteristics. It is not unusual to see color and words associated together as they relate and may heighten the potential meaning. Some of the most commonly used combinations are: red for danger, orange for warning, and yellow for caution. The color characteristic might play a large part in the perceived hazard between the three words. It might be concluded that though these three words are most commonly used and recognized as the language of warning, they are interchangeable depending on the circumstance and presumed potential harm.

Wogalter, Kalsher, & Rashid (1999, p. 186) say, "warnings are a type of persuasion attempt that is intended to motivate people to comply with its directives. A warning that fails to persuade could lead to injury, death or property damage". They also exhibit concern over the U.S. government's mandated use of the SURGEON GENERAL warning label on cigarette packaging and the GOVERNMENT WARNING label on alcohol beverages, because they heavily rely on a message source (the government) that many might not take seriously or honor. One must be familiar, admire, respect, and positively influenced by the source of the message in order for it to be credible and believable. For these reasons alone one might have second thoughts on the attention grabbing messages used within a warning sign.

In contrast, "ANSI and other warning design guidelines recommend that only a single signal word (e.g., DANGER, WARNING, and CAUTION) appear in consumer product warnings and that their print size be relatively large (compared to the other, more specific warning text) within a colored panel" (Wogalter et al., 1999, p. 186). They concluded that having a signal word was more beneficial than having no signal word at all. Surprisingly, they also found that adding a specific source prefix like "US FEDERAL GOVERNMENT WARNING, to be the most authoritative causing the enhanced credibility and compliance intention judgments" (Wogalter et al., 1999, p. 189). It would be interesting to see if (or how) the results changed during times of high and low governmental approval. Signal words, or any word for that matter, are learned signs. They carry different meaning depending on the situation or the interpreter. It's important to understand how the attached meaning is being interpreted.

Signs and Meaning

Signs can be found everywhere from Adidas' famed stripes on a soccer shoe (see Figure 8) to the infamous 'V' shape standing for victory or peace (see Figure 9). "A *sign* is a mark or language unit that stands for or denotes another thing" (Meggs, 1992, p. 6) and can take on any form, shape or size. Lester (2005) illustrates the commonality of signs and symbols by intricately describing the familiar scene at a football game:

> The flag that is raised high above a football stadium and is watched reverently during the singing of the national anthem by those in the stands and on the field is a sign. The right hand placed over the approximate location of the heart during the singing of the anthem is a sign. The words printed in the program about the football players on the field are signs. The close-up photograph of the players crouched and awaiting the snap of the ball during the game are signs. The officials' striped uniforms and their hand signals indicating penalties are signs. The illuminated numbers on the scoreboard are signs. Even the cleat marks in the sod after a running back's score are signs. The 'high-five' slap with a friend after the team's touchdown is a sign (p. 54).

Figure 8. Adidas first started using the three stripes in 1949 which turned into an elaborate identity to foster recognition of products and even devise a culture of its own.

Figure 9. Winston Churchill on Downing Street displaying the infamous 'V' sign on June 5, 1943. Courtesy of Imperial War Museum Collections.

This detailed description of the many signs one attending a football game is exposed to would make no sense to one not familiar or accustomed to the game of football. “Signs can convey their message to only those individuals who have learned the sign or the sign system” (Meggs, 1992, p. 7). Therefore, a sign is just visual clutter unless a connection to the meaning of the sign is made. It is important to understand that signs must be learned, and with this knowledge comes understanding. With understanding, meaning can be made and associated with the intended sign. The creation of meaning is as important as the creation of the signs used to communicate it, yet meaning is dependant on the person interacting with the sign and the social/personal ideas and attitudes the person brings with them.

With no prior knowledge of the meaning or context of the two previously used examples of the Adidas stripes and the fingers forming a ‘V’ shape, these signs are obscure and meaningless. But with a little informal education (advertisements, websites, television), one can decipher the meaning of the latest Adidas logo to represent elegance, durability, power, pointing up and out towards the challenges that are seen ahead, with goals that can be achieved. All this information creates what is known as the Adidas brand or brand experience. “For a designed brand experience to have meaning and value and to accurately reflect the essence of its subject, it has to be an honest rendition of what it represents” (Landa, 2006, p. x). The ‘V’ sign with palm facing outward is easily recognized as a hand gesture known for ‘Victory’ or even more commonly known for ‘Peace,’ popularized in the United States during the 1960s peace movement.

Once the meaning of a sign has been learned, one will automatically apply the learned meaning bringing understanding and translation to the sign. Therefore, if a person is bored with football and claims to have no interest in the sport, try teaching them the signs (rules, plays, etc.) and football might take on a whole new meaning or even become an enjoyable pastime.

"Culture determines the importance of the signs that affect the people who live in that culture. Although we see with our eyes, for the most part our conscience thoughts are framed as words… One of the strongest forms of communication is when words and images are combined in equal proportions" (Lester, 2005, p. 64). This can be found today in many corporate signs—their identities, trademarks, and logos. Thomas (2000) said, "trademarks are prehistoric. They began as symbols of personal and group beliefs and evolved from the desire and need for social communication of certain 'truths'… [and] have changed dramatically—to project a changing and more forward-thinking philosophy—or to help with the branding and identification of new, innovative products" (p. 9, 7).

Most signs can be organized into four major groups: (a) Iconic signs are the easiest to interpret as they closely resemble the thing they represent; (b) "Indexical signs have a logical, commonsense connection to the thing or idea they represent rather than a direct resemblance to the object," (Lester, 2005, p. 57) taking a little more time to interpret; (c) Symbolic signs can be abstract and "have no logical or representational connection between them and the thing they represent" (Lester, p. 58) and must be taught. They are heavily influenced by society and culture as are (d) Metasymbolic signs, "whose meaning transcends the tangible realm of simple one-to-one relationships" (Meggs, 1992, p. 8) and are the most abstract of all signs. History and tradition also leave their mark on Metasymbolic signs. A few examples are, the Christian cross representing devotion and acceptance of Christ world wide, and the American political emblems of the donkey and elephant representing the U.S. Democratic and Republican parties respectively.

Meaning is what separates well developed signs from their poorly thought out neighbors. If a design is poor the meaning can get lost or distorted from that of it's intended significance. In the quest to develop the perfect sign, many codes or symbolic substitutes have popped up. These signs bring with them renewed meaning that might not be instantly recognizable.

Codes and Meaning

Over time societies have developed intricate systems of codes and associations. These codes are combined to communicate increasingly complex ideas (Lester, 2005). Codes can be organized into four categories: (a) Metonymic codes are associations that lead to assumptions like a suit in representation of a business executive; (b) Analogical codes are comparisons between two things for clarification purposes; (c) Displaced codes transfer meaning from one thing to another; (d) Condensed codes combine multiple signs into a new blended sign creating new meaning.

Meaning as a term indicates the intention to convey a piece of information. That information in turn must be understood and processed. Additionally, on a larger scale, that piece of information must relate something much more vast, as belonging to a created culture or idea. For example, "…the design of a corporate symbol must be an effective visual cue representing the core attributes of the organization and thus present a mini-story" (Thomas, 2000) of sorts, to convince the participant of it's credibility. Thomas also said, "in today's marketplace, corporate symbols must be distinctive and communicate effectively with desired audiences" (p. 7). This brings up the importance of an effective design that communicates the desired and anticipated meaning.

The more complex societies become, the more complex their codes and messages must become to keep up with the increased amount of visual clutter. For example, an identity for a fast food chain is no longer just about food, but about the created environment and the experience of partaking that food. The products themselves and the messages they send are skewed in an effort to bring meaning and acceptance to the consumer. This confusion has bled over from product advertising into other areas of society. In fact, credit has been marketed and sold like any other consumer good. There are striking similarities between the sale of tobacco, alcohol and credit. The sale of credit could become more transparent with its benefits and detriments more openly discussed. These skewed messages could come into focus with the help of the icon.

The Icon

It is impossible to ignore the overwhelming amount of visual stimulus one receives on a daily basis. Take, for instance, the normal morning commute. Everywhere one looks, a silent subconscious message is being sent and received, from the littered coffee cup, to the magazine stand, to the parked cars, to the billboard high above. Icons carry complex messages that can communicate lots of information quickly.

Successful corporations and industries have come to understand the power associated with design. They have taken this principle to heart by making the icon an instrumental part of their companies. The pampered icon has the influence to persuade the consumer to make decisions that, in the past, were driven by product durability and customer satisfaction. The current purchase is no longer based on the product anymore, but the recognizability and culture that the company has created through its branding. What is being sold today is no longer just a great product but a great idea, an ideal the consumer wants to belong to, a form of acceptance of who they are or what they can become.

Consumers see many icons and receive many messages on a daily basis. These icons and messages start to become one large mass of static noise. They start to get lost in the daily hustle and bustle of life. Krause (2004, p. 155) exhorts all, especially the designer, to appreciate the icon saying "it's important to understand the power and influence that well designed and properly presented images can have on their human audience: we ought to take seriously—and learn well—the knack of their creation". "History has proven that the ideal trademark—from a marketing viewpoint—must be simple and unique, distinctive and, most importantly, memorable. It must conjure instant association with one particular product or service. It must encourage repeat purchase. It must mean excellence on all levels" (Thomas, 2000, p. 13).

The importance of the icon is as evident today as it has been throughout history. Long ago, companies placed their name on products, packaging, or crates, not in an effort to advertise but simply as a way to differentiate them from other products during the shipping process. They realized that the public found it easier to recognize their products. A successful icon will greatly profit the holder of that mark. Krause (2004, p. 155) said "the ultimate goal of an icon is to convey a message—quickly, clearly and in a manner that is aesthetically appropriate for its purpose and target-audience". He also points out that "not all icons are designed to be 'beautiful,'" but instead should be created to solve the problem at hand and communicate the intended message accurately.

Thomas (2000, p. 18–19) points out ten criteria for the development of a successful logo, symbol, or icon including: visibility, application, distinctiveness, simplicity/universality, retention, color, descriptiveness, timelessness, modularity, and equity. These attributes aid in the creation of not only icons but other designs as well. In their most basic form, icons must fit the criteria listed above and assist in the development of larger pieces of communication. Icons can become a basic building block for more complex designs such as the symbol.

The Symbol

A symbol is the visual expression of a thing understood as a result of prior knowledge and experience that creates a relationship between the sign and the thing being represented (Meggs, 1992, p. 8). Pictures and symbols are some of the oldest forms of communication that can be found before 3000 BC in ancient Egypt and Mesopotamia. "Symbols that bear a resemblance to actual objects or procedures are generally more understandable than symbols that do not" (Dewar & Arthur, 1999 as cited in Mayhorn et al., 2004). Symbols have the ability to help the mind recollect information stored away until the need for that information arises. Symbolic information is then utilized to understand the presented message.

Another advantage of using pictorial symbols is the ability to communicate to the illiterate and cross language barriers. These symbols can provide comprehension and direction. This idea has been deployed in many places worldwide where large diverse groups of people gather. The masses must have understandable instruction to insure calm and consistent movement of foot traffic. This form of design is called environmental design. It has been utilized in cities, airports, train stations, and large events, such as the Olympics and World Cup. The need for universal communication, that can surpass the language barrier, has been tried and found successful with the assistance of the symbol.

The American Institute of Graphic Arts (AIGA), in collaboration with the U.S. Department of Transportation, was given the task to unify a group of compiled symbols through adaptation or redesign, and create a new set of recognizable wayfinding symbols. "While effective individual symbols had been designed, there was no system of signs that communicated the required range of complex messages, addressed people of different ages and cultures and were clearly legible at a distance.… AIGA appointed a committee of five leading designers of environmental graphics, who evaluated the symbols and made recommendations for adapting or redesigning them" (AIGA, 2009). These designers have successfully taken on the challenge of developing a complete set of 50 passenger/pedestrian symbols, "designed for use at the crossroads of modern life…" (AIGA) (see Figure 10).

Figure 10. Three of the wayfinding symbols the AIGA designed to be universally understood including Escalator (down), Toilets and Taxi.

This set of symbols should seem familiar to those who travel frequently. The difference now is that they have been standardized and unified through good design. Design can improve the effectiveness of user interaction and experience with these symbols, enhancing communication. These principles also effectively communicate messages in advertising. They become a powerful force of persuasion and aid in the selling of ideas and products.

Advertising and Warning Campaigns

Many groups are vigorously spending valuable time and money warning consumers about the potentially detrimental effects alcohol and tobacco have on one's health and the impact on society. The U.S. government spent nearly $520 million on the Office of National Drug Control Policy's National Youth Anti-Drug Media Campaign from 2002–2004 (United States Government Accountability Office, 2005), amidst controversy that the program's return was not matching it's expenditure. Numerous lessons can be gathered from the efforts placed on these public service campaigns.

An advertising campaign is the incorporation of multiple advertisements based on an idea or theme, which is visually communicated through design (Landa, 2004). Campaigns usually run for a specified duration. A warning campaign is the most complicated system of signs which can incorporate multiple messages under an umbrella purpose and goal. The same tactics being used to warn the public about the harmful affects of products with detrimental effect, are also being utilized by the advertisers that promote them.

One product and its warning campaign that demands our attention is alcohol. The adverse effects can be felt in the most intimate of circles and easily seen though the people who become addicted to this substance. Statistics show the dramatic repercussions of alcohol abuse, where "on average someone is killed by a drunk driver every 40 minutes. In 2007, an estimated 12,998 people died in drunk driving related crashes" (Mothers Against Drunk Driving [MADD], n.d.). This number becomes more impressive when you include injuries and criminal acts of violence.

"Excessive alcohol use is the 3rd leading lifestyle-related cause of death for people in the United States each year" (U.S. Department of Health and Human Services, 2008). Adults are not the only group of Americans affected by alcohol abuse. Children and teenagers are even more at risk than adults due to the bombardment of advertising and wide social acceptance of alcohol use and abuse. All age groups are at risk of becoming dependant on alcohol, even when those around them face the risk of injury and death due to alcohol abuse. The government and other organizations have taken notice of this product and researched the contributing factors that promote alcohol use. One of these factors is advertising. "Exposure to alcohol advertising on television has risen by 38% from 2001 to 2007. Almost all of these placements were on cable television, where distilled spirits companies in particular have dramatically increased their alcohol advertising in the past seven years" (MADD, n.d.).

The advertising of Alcoholic products has, and continues to have, a huge impact on America's youth and their attitude towards alcohol. These companies are using the principles of design and advertising to distribute and sell their products effectively. MADD's (2007) *Summary of 2008 drunk driving statistics* reveals alarming figures about the impact of advertising and the consequences of alcohol consumption. These statistics show the powerful effects of advertising and portray the potential affects a warning system could have:

> (a) Recent advertising expenditures in the United States for beer, wine, and liquor combined ($1.9 billion) totaled over 10 times the amount spent on milk ads ($137.7 million). (b) Studies show that alcohol advertising may predispose young people to drinking.… (c) Research studies have found that exposure to and [the] liking of alcohol advertisements affect young people's beliefs about drinking, intentions to drink, and actual drinking behavior. (d) Research shows that not only does increased exposure to alcohol advertising relate to how young a person will begin drinking, but also that underage drinking prevention programming can help counteract this effect. (e) Young people view approximately 20,000 commercials each year, of which nearly 2,000 are for beer and wine. (f) Underage youth ages 12 to 20 were about 128 times more likely to see an alcohol product ad on television than an alcohol company-sponsored responsibility ad in 2002. They were about 400 times more likely to see a product ad than an ad discouraging underage drinking and about 188 times more likely to see an alcohol product ad than one against drinking and driving.… (p. 4–5).

Another important advertising campaign that should be considered is the anti-smoking campaign. In January, 1964, the Surgeon General's Advisory Committee presented their findings that cigarette smoking causes lung and laryngeal cancer in men, lung cancer in women, and chronic bronchitis in both. In 1965 and 1969, the U.S. Congress enacted the Federal Cigarette Labeling and Advertising Act, and the Public Health Cigarette Smoking Act, which called for the application of the health warning label on all cigarette packaging. These acts also ban the advertising of cigarettes on broadcasting media and required annual reports on the health consequences of smoking (U.S. Department of Health and Human Services [DHHS], 2007).

Today with 29 health related reports behind them, the DHHS (2007) continues their campaign "to diminish the impact of tobacco use on the health of the American people" through community education and initiatives. "Individual citizens, private organizations, public agencies, and elected officials have pursued the Advisory Committee's call for 'appropriate remedial action'" (DHHS). They have been able to support successful state and community programs to reduce tobacco use, disseminate research findings related to tobacco use, and ensure the continued public visibility of anti-smoking messages. "Nearly half of all living adults who ever smoked have quit" (DHHS) due to the combined efforts by many people and organizations. The DHHS praises it's success and accomplishments but reiterates the need to continue the push toward a tobacco free people stating:

> The antismoking campaign is a major public health success with few parallels in the history of public health. It is being accomplished despite the addictive nature of tobacco and the powerful economic forces promoting its use. However, more than 45 million American adults still smoke, more than 8 million are living with a serious illness caused by smoking, and about 438,000 Americans die prematurely each year as a result of tobacco use (DHHS, 2007).

In recently years, anti-smoking initiatives have quickly spread throughout the world, from smoking bans in the famed street cafés of Paris to public places in Buenos Aires. Governments are closely monitoring the social costs of this health hazard and taking action. In addition to smoking bans, rigorous advertising campaigns that display the ugly side of smoking (see Figure 11) have been created. They incorporate warning labels and signs that are changing the perception of smoking. This type of advertising has had an astonishing impact on the smoking community, many of which did not realize how destructive a habit smoking really is.

Figure 11. A gruesome warning label in Brazil showing the harmful effects smoking has on the brain (International Resource Center, 2008).

Another place where warning labels are found is within the music industry. The concern over graphic musical content began in 1985 with an agreement reached between the Recording Industry Association of America (RIAA), the National Parent Teacher Association, and the Parents Music Resource Center (PMRC). These "organizations reached an agreement that certain music releases containing explicit lyrics, including explicit depictions of violence and sex, would be identified so parents could make intelligent listening choices for their children" (RIAA, n.d.).

One of the most influential proponents of regulation in the music industry was and still is the PMRC, brought about by "…a group of well-placed Washington wives, including Tipper Gore, wife of Tennessee Senator Albert Gore, and Susan Baker, wife of then-Secretary of the Treasury James Baker III…" (Blanchard, 1992, p. 473).

The women created the Parents' Music Resource Center (PMRC), a lobbying group that started a campaign for self-regulation within the music industry. Their fears

> were based in part on studies that showed that young people listened to rock music for at least four hours every day. That music, critics contended, praised rape, incest, homosexuality, sadomasochism, bestiality, drug and alcohol use, and suicide (Blanchard, 1992, p. 473).

PARENTAL ADVISORY EXPLICIT LYRICS

Figure 12. The standard Parental Advisory Label created to help listeners make informed decisions when purchasing music.

This paved the way for the creation and enactment of the RIAA's Parental Advisory Label (PAL) in October 23, 2006. PAL has become a standard warning sign within the music industry (see Figure 12). This voluntary program requires participants to follow strict guidelines and requirements regarding the use of the PAL logo, when placed on physical products, notices in consumer advertisements, and notices in digital distribution like Apple's iTunes® (RIAA, n.d.).

Critics of PAL contend that "…it is debatable whether the presence of the stickers (label) has any real influence in stopping children hearing unsuitable lyrics" (Bowes, 2002). Children have the ability to choose and are strongly influenced by friends and the music they listen to. Yet, parents can still strongly influence their children's choices. R&B singer Ashanti said "people pay attention. When a mother is going to take her child to the record store and you have one [album] that says parental guidance and one that doesn't…," (Bowes, 2002) many parents would stray away from the album with explicit lyrics especially when considering buying music for their children. The PAL label does not prevent children from hearing explicit music, but has the power to warn the unsuspecting parent or child about controversial material. The label may influence their decision whether to purchase a particular album.

There are many lessons that can be learned from these public campaigns. Among them two specific factors stand out: first, the effectiveness of a campaign warning against the harmful affects of a particular substance or issue; and second, the effectiveness of advertising. These are evident in the fight against smoking. Millions of dollars are spent motivating smokers to quit and prevent others from picking up the habit, meanwhile millions of dollars are spent by the tobacco industry to sell the products and attract new customers.

It is clear that money and politics play into all of these issues. Money pays for advertising to sell the products that might not be healthy or potentially harmful to the consumer. On the flip side, money helps promote campaigns that reduce the use and abuse of these same substances. Much of this funding comes from the government or tax payers in support of programs and campaigns that could potentially reduce social harm. It is easy to see the government's positive and negative influences within certain areas. The need for further investigation into how messages are used to communicate, persuade, and influence society requires a better understanding of the relationship between communication and the portrayed message.

Communication and Message

Everyday, from the moment one wakes up in the morning to the time one climbs back into bed at night they are bombarded with all sorts of communication and messages. Communication is the exchange of information from a sender to a recipient and is carried out to achieve a goal or purpose. Effective communication happens when both the sender and recipient become personally involved with the message, forming a bond that leads to action. The more the sender can involve the recipient the more likely they will receive feedback. This may be done directly through increased sales or indirectly as the campaign message of a politician. Without the receiver of the message being compelled to action, no communication has actually taken place, just a message falling on deaf ears. Much of the daily messages one experiences, come in the form of advertisements that push to change or alter human behavior. Designer Steve Liska elegantly illustrated the relaying of messages saying "we poor humans have to deal with a barrage of messages that try to stimulate, control, embed, manipulate, and make friends with who we think we are. We make major decisions based on our acceptance or rejection of these messages…" (Landa, 2006, p. ix–x).

Lester (2005, p. 75) also highlights the intentions that messages portray, pronouncing, "the purpose of an advertisement is to attract attention, arouse interest, stimulate desire, create an opinion, and move the viewer to a specific action (to buy the product)". An active participant with a product or idea is more likely to become involved with that product and buy into the theoretical ideals being presented. A merely informational message provides no room for interaction. James Carey, a communications educator said "communication is fundamentally and essentially a matter of persuasion, attitude change, behavior modification, and socialization though the transmission of information" (Lester, p. 73).

The first step in effective communication is the ability to persuade and motivate the recipient of the message into action. The design community takes an active part in the formation and promulgation of messages. Through conceptual design or the "thought behind the design and what it is communicating…, the designer is enabled to communicate directly with the viewer, instead of simply demanding their attention" (Landa et al., 2006, p. 296). The goal of communication is to persuade the audience to make feasible changes in their behavior that they otherwise would not.

Persuasion

Aristotle, in the fourth century was one of the first to commence discussion on persuasion and "defined it as communication designed to influence listeners' choices" (Lester, 2005, p. 73). Persuasion effectively molds people through the process of gentle nudging. Society embraces these ideas, attitudes, or actions through methods of charm and fascination instead of reason, aptitude, character, or even logical thought processes. Persuaders understand the powerful characteristics of persuasion and use them to benefit their position. Extreme persuasion can lead to manipulation or exploitation, where a person or group benefits at the cost of the other. "Persuasion uses factual information and emotional appeals to change a person's mind and to promote a desired behavior" (Lester, p. 73). Aristotle taught that the persuasive argument comprised of three components: credibility, logic, and emotional appeals. "Aristotle believed that if a speaker is believable or imbued with authority, used factual arguments in a reasoned presentation, and gains an audience's attention though emotional means, persuasion is possible" (Lester, p. 73).

Creative thinkers have embraced the powerful tools of persuasion and applied them to advance the sale of products and ideas within the corporate world. Landa (2004), an advertising educator, emphasizes the importance of attaining attention, retaining this newly found attention, while being ethical, relevant, and fulfilling the advertiser's goal to persuade the consumer to action. In order to persuade consumers to invest money and time toward a product or idea, corporations develop complex visual systems that utilize the senses, to help the consumer recall important information. If these messages can become imprinted in consumer's minds, the advertiser has a better chance of making the sale.

Visual Sensation and Memory

In his 1927 book *Public Opinion*, Walter Lippmann stressed "the need for images to change a person's attitude [and said] 'pictures have always been the surest way of conveying an idea'" (Lester, 2005, p. 73). Montgomery (1981, p. 13) proclaimed, "…it is absolutely vital that you visualize the things you want to recall later.… You have to see clearly and hear accurately in order to picture vividly what you want to remember". It is important to understand the essential part visualization plays on memory, especially since 85 percent of all things learned and recalled enter the mind through the sense of sight and 95 percent of "memory power" comes from a combination of both seeing and hearing (Montgomery, p. 13). Lester also states that "recognizable symbols used in visual presentations will become long-lasting memories with the power to change attitudes if viewers have a chance to actively think about the content of the image and relate it to their own situation" (p. 73). This is why images are often successfully utilized to communicate important messages that need to be retained and later recalled. It also highlights the reason simple imagery is used to persuade and warn the viewer.

Aristotle said that "there can be no words without images" (Lester, 2005, p. 50). The inseparable connection between words and images is essential. "In *The Art of Memory* by Frances Yates, she makes the point that 'the only way we remember is visually, spatially'" (Lester, p. 60). The author Aldous Huxley expressed the theory that "seeing clearly is mostly the result of thinking clearly… [and also expressed that] 'the more you know, the more you see'" (Lester, p. 6–7). His theory includes three stages of "clear vision," first to *sense*, the physical reception of light in the eye, second to *select* or choose elements in sight, and third to *perceive*, become aware or make sense of what is seen alluding that "previous experience with specific visual messages is a key in seeing clearly," (Lester, p. 7). Corporations create elaborate mental pictures and cultures surrounding their products, so they will be easily remembered. These mental pictures help in decision making when the moment of choice is present. For instance, when the desire for a cool refreshing drink manifests itself, which soft drink does one choose: Coke or Pepsi? Why?

It is evident that memory is strongly influenced by what the eyes perceive. Memory also influences what the mind retains and later recalls. This does not downplay the importance of the other senses in combination. Sound, touch, and taste all aid in the conjuring up of mental images. Most people have experienced a nostalgic moment when a specific sound, texture, or taste has brought them back to a moment in time. Cicero (1954) elegantly described how the senses are influenced by the images seen on a daily basis. He shows how a change in normal, mundane, everyday images influences the way the mind remembers and recalls information, saying:

> Now nature herself teaches us what we should do. When we see in everyday life things that are petty, ordinary, and banal, we generally fail to remember them,

> because the mind is not being stirred by anything novel or marvellous. But if we see or hear something exceptionally base, dishonourable, extraordinary, great, unbelievable, or laughable, that we are likely to remember a long time (p. 220).

Cicero illustrates the importance of images in the retention of information. Applying this principle to advertising campaigns, it is evident that in order for the consumer to remember and differentiate the messages they see everyday, the advertiser must stimulate the mind enough to help the viewer recall it at a later time. To this end, modern advertising pushes the boundaries of beauty, ugliness, oddity, distinction, disfigurement, striking, comic, etc. It helps the consumer remember their products, companies, and messages. Likewise, the use of simple imagery within a warning sign would help the viewer remember the warning and be able to recall it when needed.

Memory Retention

Most people have heard of these two idioms: 'one picture is worth a thousand words' and 'seeing is believing'. They emphasize the importance pictures have on the mind and memory retention. These two modes of expression draw attention to the significance of the ability to visualize over the other senses. Montgomery (1981, p. 13) said that "the art of retention is the art of attention," suggesting that memory is directly linked to the recollection of minute details surrounding daily life. "Visual communication relies both on eyes that function and on a brain that makes sense of all the sensory information received. An active, curious mind remembers and uses visual messages in thoughtful and innovative ways" (Lester, 2005, p. 1). Cicero writes of the connection between pictures and the senses saying "that the most complete pictures are formed in our minds of the things that have been conveyed to them and imprinted on them by the senses, but that the keenest of all our senses is the sense of sight…" (Yates, 1966, p. 4).

Over the centuries plenty of methods have been developed to help with the problem of memory retention. The Greeks invented a popular strategy which "seeks to memorise through a technique of impressing 'places' and 'images' on memory" (Yates, 1966, p. xi) called mnemotechnics. This method of retention helps create a strategem of patterns of letters, ideas, or associations that assists in remembering and recalling something. This method of memory enhancement has heavily been utilized in public or private schooling.

Another method for memory retention is the creation of relationships to help form mental images of a place. This method of memory recollection is effectively described by Yates (1966) through the retelling of a story about the poet Simonides:

> At a banquet given by a nobleman of Thessaly named Scopas, the poet Simonides of Ceos chanted a lyric poem in honour of his host but including a passage in praise of Castor and Pollux. Scopas meanly told the poet that he would pay him half the sum agreed upon for the panegyric and that he must obtain the balance from the twin gods to whom he had devoted half the poem. A little later, a message was brought in to Simonides that two young men were waiting outside who wished to see him. He rose from the banquet and went out but could find no one. During his absence the roof of the banqueting hall fell in, crushing Scopas and all the guests to death

> beneath the ruins; the corpses were so mangled that the relatives who came to take them away for burial were unable to identify them. But Simonides remembered the places at which they had been sitting at the table and was therefore able to indicate to the relatives which were their dead. …He realised that orderly arrangement is essential for good memory (p. 1–2).

Lester (2005) said “images can be used to persuade and to perpetuate ideas that words alone cannot” (p. 65). In the case of a warning sign, the message might be clearly spelled out but once an image is applied the viewer will oftentimes make the needed connection to the sent message. Stewart (2005) remarked “through composition, we can create order, emphasize critical information, and evoke an emotional response” (p. 78). Design and advertising utilizes emotion to assist in the memorability of the messages being communicated. The connection from systematic placement of design elements within a composition leads to memory retention, recollection, and then to action or a change in behavior—the ultimate goal of design.

Sometimes, this change in behavior is not always in the consumer’s best interest. Those hiring the designers and advertisers are the companies creating, producing, marketing, and selling the products. They are interested in profit and sales. Many times they will do what it takes to get the consumer to buy the product, even if it means stretching and manipulating the truth. Need becomes an arbitrary word as the consumer is led to believe they can not live without these products. The consumer makes the final choice whether to buy a product. This choice may result in unforeseen consequences. One of these results is the accumulation of debt.

Consumer Debt

With U.S. consumer debt nearing 2.5 trillion dollars, the effects are starting to manifest themselves. These statistics only account for debt acquired by means of loans, credit cards, department store credit, and debts compiled through similar means. The sale of credit has become that of a commodity. These statistics do not include debt assumed by real estate of any kind, yet the current economic problems were propelled by the mortgage industry. The irresponsibility of many groups, including the consumer, have contributed to the economic problems by acquiring much debt and living beyond their means. The consequences of such behavior has resulted in many filing bankruptcy and the foreclosure of property.

Consumer spending has always been an important factor for a stable U.S. economy. The purpose of this study is not to undermine the economy, nor consumerism, but to help consumers become more aware of the choices they make concerning their money and how those choices can effect them. Traditionally economic vitality has been measured by the amount consumers spend, yet there are different opinions about whether it is healthy for the consumer to spend money they don't have. In April 2005, economist and Chairman of the Board of Governors of the Federal Reserve, Alan Greenspan shared his presentiment about consumer credit saying:

> As we reflect on the evolution of consumer credit in the United States, we must conclude that innovation and structural change in the financial services industry have been critical in providing expanded access to credit for the vast majority of consumers, including those of limited means. Without these forces, it would have

been impossible for lower-income consumers to have the degree of access to credit markets that they now have (Money-zine.com, 2007).

There is a fine line between easy access to credit and loans, economic strength, and the ability to repay the lines of credit one attains. Problems that have risen due to the pattern of mounting consumer debt lend themselves to a rise in default mortgage loans, which has recently lead to the collapse or takeover of once strong and powerful financial institutions. The effects of the collapse of these financial giants has been a wake-up call to the American people and to the stability of the global economy.

Debt and the Economy

The U.S. economy has had its ups and downs over the past century but has continued to grow stronger and become more powerful since the Great Depression. As a whole, Americans are making more money than their predecessors. Interest rates have also fallen, in the past twenty years, to some of the lowest rates in history. This prosperity and optimism might have influenced the spending surge and debt accumulation by the American population.

"By the mid-1980s, credit had become a highly profitable consumer product, like running shoes or soft drinks, and the new game was to sell as much as possible" (Warren & Tyagi, 2004, p. 129). This was a time when regulation became lax and "in this new sky's-the-limit world, the stern faced banker and long application forms have been replaced by chirpy advertisements and 'preapproved' credit offers. Banks can now lend to anyone and everyone (including those in financial trouble) and still make a handsome profit" (p. 129), or at least that is how it was before the recession of 2008. Financial corporations made huge profits off of consumers who thought they had financial freedom. With this ability to borrow, the consumer accumulated so much debt that both household adults work long hours just to break even. There are endless stories of those who have not been able to make it, especially as the U.S. fell deeper into recession. These situations continue to rise and worsen as financial problems moved beyond the consumer to effect business and the stability of the economy.

The first financial giant to slip and be bailed out by the U.S. government was Bear Stearns, who was later bought by J.P. Morgan Chase & Co. Then, on Sunday, September 7, 2008, the U.S. government announced one of the biggest financial bailouts in U.S. history. They bailed out the two largest mortgage providers, Fannie Mae and Freddie Mac. On Sunday, September 14, 2008, the Lehman Brothers 158-year-old investment bank said it intended to file for Chapter 11 bankruptcy, as its stock prices plummeted 94 percent from January through September 2008. "This crisis is clearly deeper than anybody had imagined only a short time ago," (CNNMoney.com, 2008) said Peter Stein of The Wall Street Journal.

These once powerful institutions have exemplified the misfortunes that have influenced the U.S. economy and sent shock-waves throughout the world. Treasury Secretary Henry Paulson said "'a lot of blame [belongs] with big financial institutions that engaged in this irresponsible lending… [with] people who made loans they shouldn't have made, people who took out loans they shouldn't have taken out'" (Isidore, 2008). Time magazine specifically points out the American consumer as a contributor to the economic downfall saying, "household debt in the U.S.—the money we owe as individuals—zoomed to more than 130% of income in 2007, up from about 60% in 1982" (Time.com, 2009). As a whole, consumers are spending and accumulating more debt than ever before.

Consumer Spending

The tendency to compulsively make purchases is a psychological behavioral problem that comes up when discussion on habitual human behavior takes place. The implications that follow this behavioral issue could help explain the reasons why consumers make the monetary decisions they do. Most people don't belong in this grouping, but some of the characteristics could be applied to those who buy into advertiser's persuasive methods.

Rodríguez-Villarino, González-Lorenzo, Fernández-González, Lameiras-Fernández, & Foltz (2006, p. 512) said, "addictive behavior [buying addiction = psychological addiction] has been conceptualized as a persistent and uncontrollable urge to buy things, that is usually perceived as pleasurable and/or aimed at reducing the individual's sense of distress, but leads, finally, to negative consequences for the addict and/or the people around him/her (Friese, 1998; Nataraajan & Goff, 1991; O'Guinn & Faber, 1989)". They point out that a buying addiction, used to reduce unhappiness, leads to a psychological addiction with "negative consequences", in the form of personal, family, or social distress.

Rodríguez-Villarino et al. (2006, p. 512) continue by saying, "…there are multiple 'causes' for this type of addiction… [and reemphasized] the role of the family and personality traits—without ruling out other potential variables (such as consumer pressure or the misuse of credit cards)—in the development of buying addiction".

They point out symptoms that accompany buying addiction to be anxiety, depression, obsessive-compulsiveness, low conscientiousness, low self-esteem, external locus of control, and sensation seeking. "It appears then, that *emotional discomfort* is the main trait associated with addictive buying [and that] a sort of *vicious cycle* in which emotional unrest sets the stage for a whole sequence of addictive buying habits: emotional distress → buying → positive consequences → negative consequences → emotional distress → buying, etc." (Rodríguez-Villarino et al., 2006, p. 371, 519).

The illustrated problem of compulsive shopping perpetuates a repeating pattern that many find hard to break. It cannot be said that all shoppers who spend money beyond their means can or even should be placed into this group of compulsive spenders. Through the study of buying addiction one may come to understand why a person may extend themselves further financially than they have means. Two areas that might explain why consumer overspend include: *low conscientiousness,* and *locus of control*. The general shopper needs not be placed within an addiction group to exhibit some of the traits found within these two groups.

Low conscientiousness.

Low conscientiousness alludes to the idea that consumers might not be aware of their actions and the long-term consequences. For example, if one visiting the Grand Canyon in Arizona observes a sign which reads: "Danger! Use caution near the edge! People die here falling from the edge. Do not go beyond—or climb on—walls or railings. Most who die have gone beyond walls or rails". People will heed this type of blatant warning because there is a warning sign in place and the consequences can be immediately imagined. In general, people require something to remind or warn them of the consequences of their actions. In this case, the national park visitor can see into the Grand Canyon thousands of feet below and envision the possibility of falling off the cliff to their death as imminent and evident.

On the other hand, a consumer might not envision the consequences of amassing debt. For example, a consumer may make a purchase on their credit card because they have no interest for one year. They may buy new appliances and furniture with their freshly acquired department store credit card which advertised no payments or interest for two years. When the time comes due to repay these loans, then the realization of accumulated debt becomes evident. It is easy to understand how people get in over their financial heads, especially with easy "access to credit for the vast majority of consumers, including those of limited means" (Money-zine.com, 2007).

Locus of control.

In 1954, Julian B. Rotter developed a point of interest dealing with an aspect of personality called *locus of control*. It refers to someone's convictions about the causes of good and bad results in their life. *Locus of Control* is divided into two groups, internal and external.

A person who has an internal *Locus of Control* believes that they personally control themselves, their life, and the consequences thereof. On the flip side, someone that has an external *Locus of Control* believes that they are not personally in control of their lives. They pass the control onto an outside force such as the environment, a higher power, or even other people, who they believe control their choices, decisions, and ultimately their life.

It is evident that someone with an external *Locus of Control* could believe that the blame belongs elsewhere for the personal financial decisions they themselves have made, pushing the blame and responsibility onto an external entity. They may push the blame onto those who are physically creating and selling the products. Because advertising tactics sometimes push the envelope of honesty and ethicality, a person with an external *Locus of Control* may believe that they are innocent and victims of these tactics. As a result, they justify their unwise spending as a consequence of outside forces over which they have no control.

Consequences of Debt

The economic vitality of the individual, family, and society are not equally assessed. A healthy economy is one with ample spending, whether the money spent is earned or credited. An affluent society does not require the rate of consumer spending which has been witnessed in recent decades. In fact, such spending detracts from business investment which in turn slows economic growth. The repercussions of society's acquisition of mountains of debt have begun to put a strain on the individual and their families. This is evident in the current mortgage crisis and subsequent bankruptcy filings. In 2004, Warren & Tyagi (2004) made four astounding predictions:

> (a) This year, more women will file for bankruptcy than will graduate from college; (b) Seventy percent of all Americans (roughly 140 million people) say that they are carrying so much debt that it is making their home lives unhappy; (c) The number one New Year's resolution in America in 2004 is to get out of debt (overtaking losing weight for the first time); (d) This year, more children will live though their parent' bankruptcy than their parents' divorce (p. xiv).

Some credit for the economic difficulty falls in the laps of consumers. They are realizing the consequences of the monetary decisions they have made. Rodríguez-Villarino, et al., (2006, p. 512) mention the adverse effects unwise spending can have on the individual saying “the negative effects can be manifested through economic or legal problems, personal distress, and social, marital or occupational dysfunction”. They also estimate that about 2–8% of the population suffer from some sort of psychological buying addiction similar to that of alcohol and drug addiction.

Taking a closer look at the 2–8% of the population that might have a buying addiction, it’s apparent that this small percentage does not represent the whole of the consumers who have accumulated debt. Consequently it can be said that not all people who become indebted have a buying disorder, but may have some similar characteristics. This notion points to the reality of debt, the normalcy of consumerism, and the ease of attaining credit. Many fall into the trap of consumer debt again and again, emphasizing the need for a visual warning system for debt.

Conclusion

The literature and information assessed up to this point indicates the success of visual warning systems in areas other than debt. If visual warning signs work, then applying those same principles to the arena of consumer debt has the potential of instigating change concerning debt. A system of visual signs, to warn consumers about the amount and consequences of their amassed debt, could positively affect the overall attitude held by consumers concerning the accumulation and uses of debt. If the consumer is made aware of the ramifications debt has on their lives and the lives of those around them, they may take the appropriate steps required to change their buying behavior. This might persuade the consumer to be more aware of their conduct, buying tendencies, and participate in behavioral planning "…as well as fostering a desire for achievement, a sense of duty, and overall conscientiousness…" (Rodríguez-Villarino, et al., 2006, p. 521) concerning debt in general.

There are many debt management resources available to persons actively looking to avoid debt. Yet, there are no easily recognized systems of warning signs to help warn consumers about the consequences of debt. Many finance professionals will advise the consumer to control their day-to-day finances by setting up and adhering to long-term financial goals, while creating a financial safety net (About.com, 2009). A visual system of warning signs for consumer debt could help the consumer become better aware of their day-to-day spending and help redirect unneeded consumption towards a six month emergency fund or the repayment of debt. Although many people find themselves in debt, it can be avoided and overcome through education, training, and behavioral change.

Argo & Main (2004) found that "warning labels do appear to positively influence consumer behavior", are successful in attracting consumers' attention, and that particular characteristics increased the probability of the label to be noticed. The DHHS praises its own success, proof that advertising and more importantly, the warning label affixed to cigarette packaging, has actually influenced the behavior of the consumer. This is exciting news for the development of a warning system of signs for debt. It is not a definite success story quite yet, but demonstrates the potential to positively affect the consumer.

An awareness of debt could be achieved utilizing the methods that advertisers use to sell products and ideas. The use of motivation and persuasion in the various forms of communication will need to be explored. The use of specific warning sign characteristics, signal words, and accompanying descriptions, will also need to be explored. The meanings that all of these bring, from the icons used to the typeface and colors utilized, will need to relate specifically to debt and warning.

Rodríguez-Villarino, et al., (2006, p. 520) recommend that through "…the implementation of programs designed to help people set achievable and progressively more challenging goals, along with the use of techniques aimed at fostering self-acceptance (including one's assets and defects) and confidence in one's own abilities," could aid in building stronger individuals. A warning system for debt could be an essential part of such a program. It could be the catalyst that prompts the movement towards a sturdier financial society, who reaches financial freedom and stability. This leads to the vision of a system of visual warning signs to help warn consumers of the potential harm that can come from a series of seemingly harmless purchases, but when combined, produce financial trouble. This warning system could help consumers make more appropriate decisions about the purchases they desire and weigh their ability to repay acquired debt. A visual warning system for debt could aid in fostering a stronger financial future for those interested in enhancing the quality of their lives.

Methodology

The review of literature has helped build a foundation for the development of a system of visual signs to persuade consumers to become wary of their debt. The gathered information was carefully investigated and would eventually have an impact on the final outcome of the proposed system of signs. Some key findings include: the effectiveness of visual characteristics found within successful warning signs; the language used in coordination with compositional elements to portray danger; typographical qualities and characteristics; the ability of design elements to influence communication; the impact of symbols; the use of persuasion; and the effects of debt on society and the economy. With these findings in mind, a system of visual warning signs for debt was created (see Figure 13).

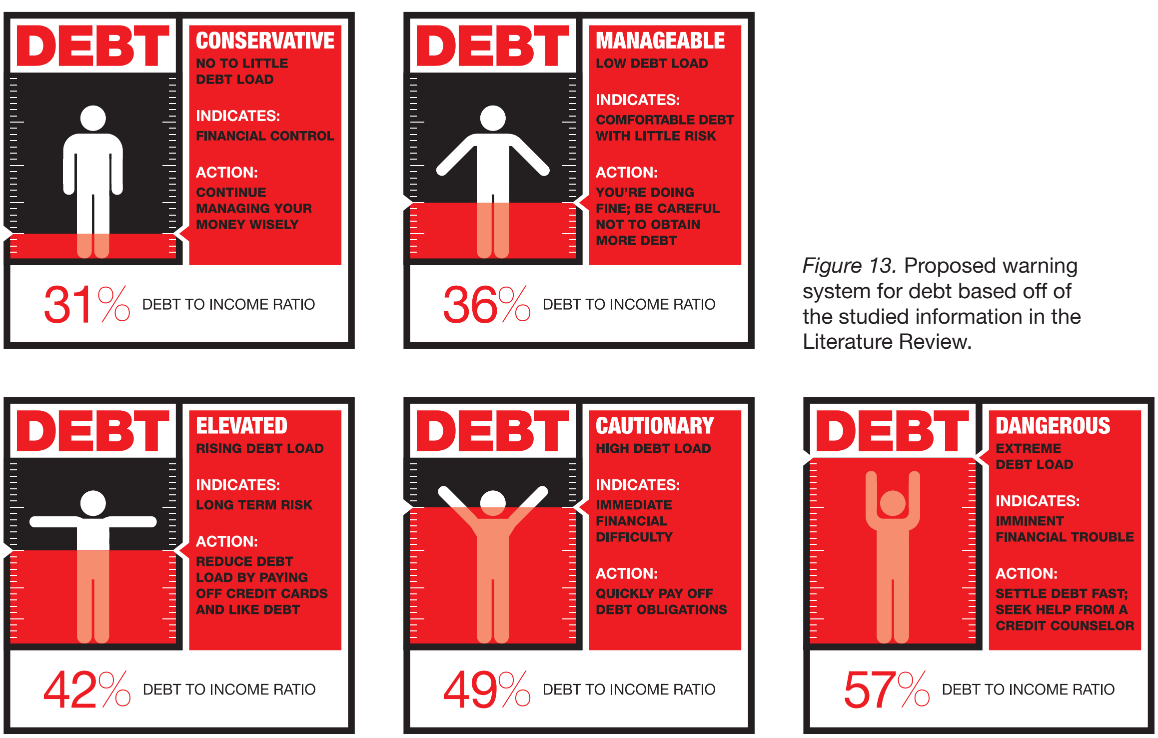


Figure 13. Proposed warning system for debt based off of the studied information in the Literature Review.

Proposed System of Warning Signs for Debt

Design.

The development of this system of warning signs assumes the attributes found in the successful warning sign. Previous research (Argo & Main 2004; Braun et al., 1995; Leonard, 1999) has found that warning signs can favorably influence consumer's behavior. These positive findings in and of themselves suggest the potential success of a warning sign for debt. The research also points out the importance of certain traits and characteristics such as color, size, contrast, line, shape, and type, along with other variables such as the sign's location, clarity of message, and the attention the sign attracts and demands.

In an effort to create an effective warning sign for debt these attributes have been carefully studied, considered, and utilized to communicate the appropriate levels of warning. The evolution of the system of signs has been provided (see Appendix A) to showcase in more detail the development of the sign. Many aspects and directions were investigated throughout the design process. Care was taken to develop a sign system that is both functional in its communication and visually appealing.

The created system of signs is flexible enough to be manipulated, depending on the application and usage. It was built utilizing three main sections that can be altered: (a) the scale; (b) text in the red box, including the trigger word; and (c) the highlighted piece of information at the bottom. These three sections allow for versatility and adaptation to individual applications (see Figure 14). Other characteristics including layout, color, typeface, and figure image, do not change, allowing the system of signs to maintain a visual

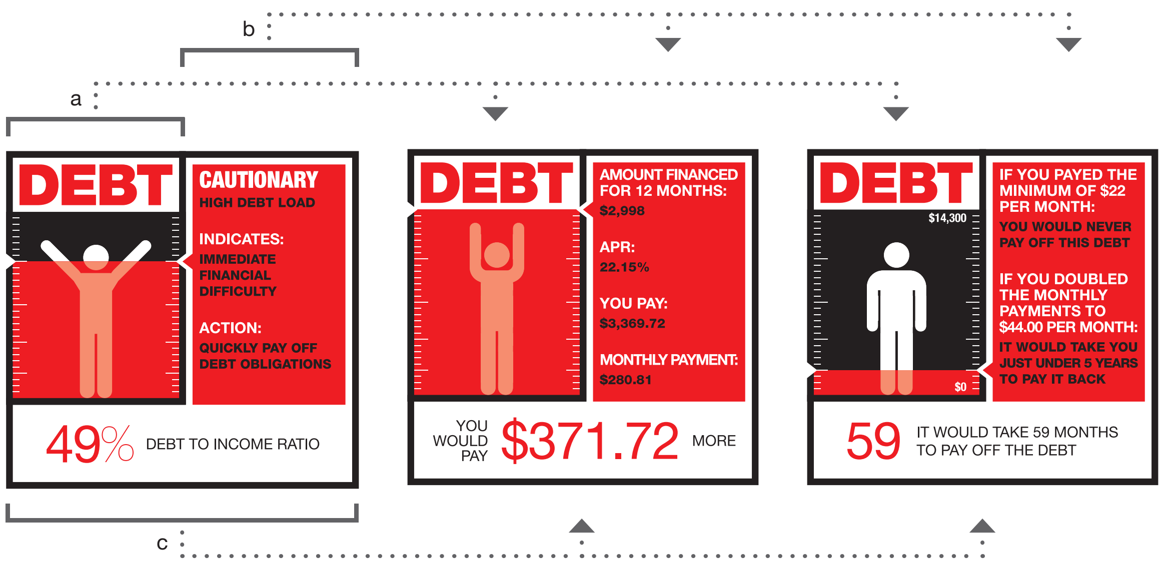


Figure 14. The three flexible sections in the developed system of signs.

consistency. The system of signs will be dissected in the upcoming sections in order to better explain and discuss its particular parts, while understanding the reasons behind the decisions that have gone into its creation.

Shape.

Warning signs come in all shapes and sizes. This warning sign for debt has been created in the shape of a rectangle, which changes size depending on the amount of information being displayed and the space where it might be used. The simple rectangular shape was chosen for the sign's container because it is easily altered. Its size may be manipulated, yet it is still recognizable as a rectangle. This system of warning signs was designed with four size options based on the most compact sign (see Figure 15). Using the compact sign as the template, the other three signs were designed to fit possible applications and the amount of information to be communicated to the consumer. Additional elements

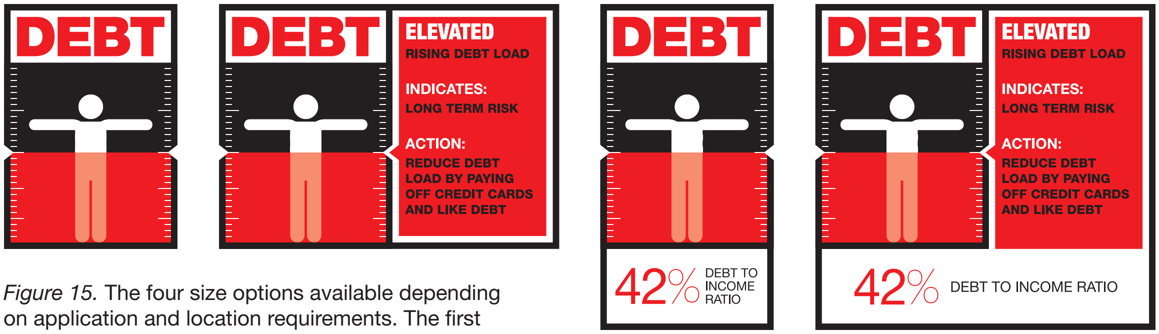


Figure 15. The four size options available depending on application and location requirements. The first sign on the far left is considered the compact sign.

were added to the compact sign producing the illusion of pop-out or sliding information panels that reside on the right side or bottom of the sign.

Size.

The warning sign's recommended minimum size is about 1 inch wide by 1½ inches high based on the readability of text in it's expanded form. If it were any smaller, the size would impede the text's ability to be read. Around the sign is a little less than ¼ inch of white space (see Figure 16) to focus the viewer's attention, similar to the space requirements found around a corporation's identity. The space is meant to give the object in play the

Figure 16. Some characteristics of the warning sign for debt are pointed out.

appropriate separation from other elements to help it stand out and maintain it's design integrity. The only elements that break the outside black rectangular boundary are the two opposing triangular arrows—the warning level indicators (see Figure 16). They draw the viewer's eye into the sign itself and point directly to the warning level. This aids the viewer by making a connection to the particular level of warning the sign is displaying without any additional information. These arrows also disappear into the white or negative space reinforcing the need for this space.

Color.

The sign incorporates a simple three color palette of black, red and white. These three colors are easily recognizable and display a satisfactory amount of contrast. Red was chosen as the contrast color for its instant recognizability and proven track record as the most commonly identified color with the highest level of warning (Braun et al., 1995; Leonard, 1999). Each color has been chosen to send a particular message. The red rectangle underneath the warning level indicators signifies the amount of debt one holds. Black denotes the assumed safety or connotation that 'in the black' reflects a person not owing any money (see Figure 16). The more black one sees, the less debt one has. The more red one sees, the more debt one has. The word 'DEBT' is in red to catch the viewer's attention, and connect the title to the level of warning.

White is the neutral color that sets the red title apart. White is used for the negative space surrounding the outside black bounding box. The white arrows point inward at the desired level of warning. It is also used to create each level of warning in the scale itself and to set the central figure apart from the foreground and background.

Back-End Debt-To-Income Ratio Scale (DebtGoal, 2009)

Percentages	Descriptions of Accompanying Debt Load
< 32%	This is a highly conservative debt load for most people and should be highly manageable, with very little risk to your broader financial goals.
32-36%	This is a very manageable debt load for most people and is generally considered very manageable by lenders. With this debt load, there is little risk that these commitments will become unmanageable.
36-42%	This level of financial commitment may be manageable in the short run, but can put you at risk over the longer term. Work to reduce your debt load to the lower end of this range by paying off credit card and other debt as rapidly as possible.
42-49%	This debt ratio is high and could indicate future financial difficulty if you don't take immediate action. Pay off credit card and other obligations as quickly as possible to improve your financial condition.
> 50%	At this level, you may have to consider immediate drastic action to move to a safer zone. Pay off credit card and other obligations as quickly as possible to improve your financial condition. If you feel that you cannot make headway against your debt with your current resources, see help from a qualified credit counselor. At this level, you may also have to consider options such as debt settlement or bankruptcy.

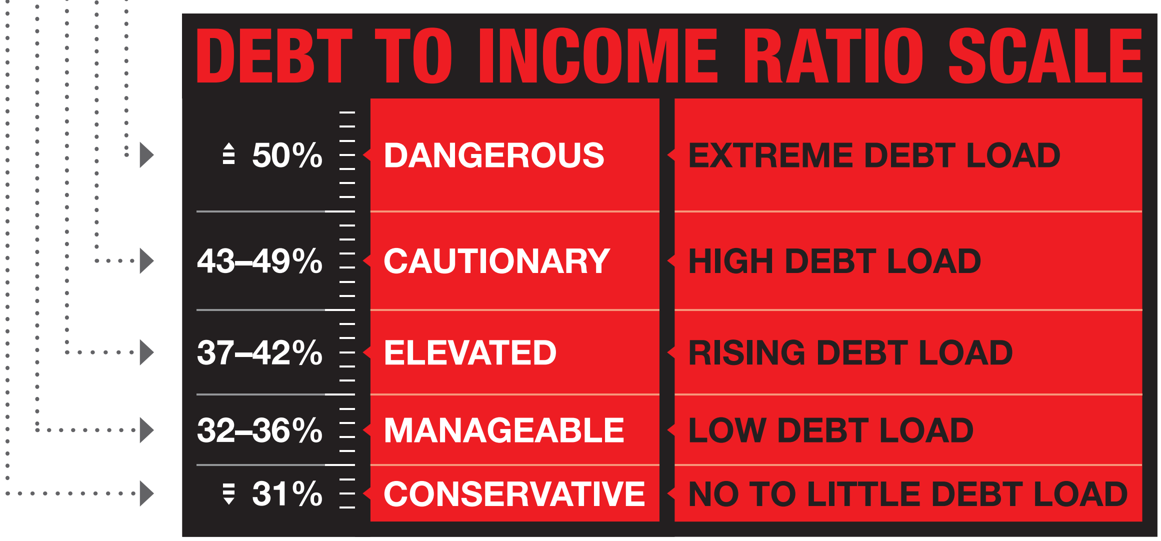


Figure 17. DebtGoal's (2009) Back-End Debt-To-Income Ratio Scale used as a model to create the Debt To Income Ratio Scale which was implemented in the warning system for debt.

System of measurement.

The scale created for this system of warning signs is based on the back-end debt-to-income ratio scale that lenders use to measure the overall financial health of a borrower. This is the comparison of all monthly obligations including consumer debt and any long term outstanding loans, to the gross monthly income, determining the ability of the borrower to repay the new debt (DebtGoal, 2009). This percentage can then be compared to the percentages in Figure 17, to see which category a borrower falls into. The table is divided into five categories that show percentages lenders consider financially healthy and lendable. DebtGoal (2009), also points out that traditional lenders consider a back-end debt-to-income ratio of 38 percentage or less to be healthy. The created warning sign incorporates this information and uses the five categories as the actual levels of warning. The five levels of warning are intended to inform the consumer about their current debt, while warning them of the potential negative affects that any additional accumulation of debt might have on their financial health.

The five main levels of debt and their accompanying percentage ranges, in order from highest to lowest levels of urgency, are: Dangerous, 100–50%; Cautionary, 49–43%; Elevated, 42–37%; Manageable, 36–32%; and Conservative, 31–0%. In order to visually portray healthy levels of debt (38% or less) as low, that level needed to be placed at the bottom of the scale. Likewise, in order to visually portray unhealthy levels of debt (above 38%) as high, that level was place at the top of the created scale. The 100 percent range of the back-end debt-to-income ratio scale also required a reduction so the medium would actually be the center of the scale. If the actual 100 point scale were used, all five of the levels would visually end up beneath the middle of the scale. For this purpose the 100 point scale has been reduced to a 57–28% spread reflecting a 30 point scale. Any amount over 50% is considered dangerous and can become unmanageable, whereas any amount below 31% is considered conservative and very favorable, therefore the choice was made to manipulate the regular 100 point scale. To show urgency, the upper and lower levels of the scale have been shaved down to a tiered 30-step scale. This scale, used in the created warning sign (see Figure 18), does not hold even tiered levels. Instead, it incorporates an increasing system of steps to emphasize the increasing amount of debt each level indicates. This highlights the heightened levels of warning. Each level actually increases by one percent, visually accentuating the new level of warning. The sign incorporates small white markings at either side to indicate the appropriate percentage. In the same manner, larger markings indicate the start of each new level.

The figure.

The central figure (see Figure 19) in the system of signs also indicates the appropriate level of warning by the position of its arms. The figure itself

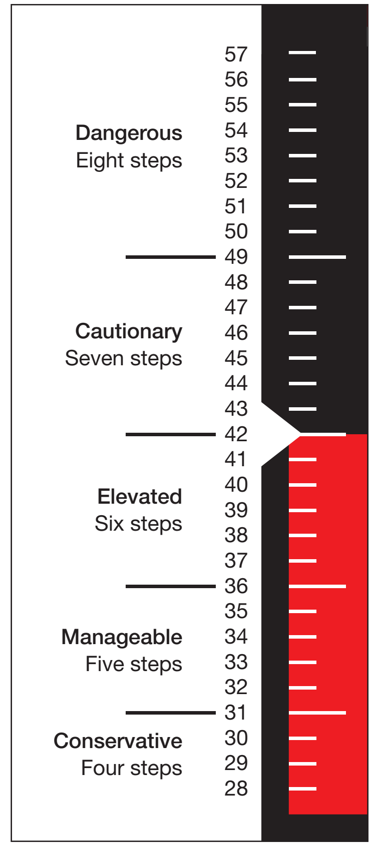


Figure 18. The created sign's scale, including the percentage and level indicators as white lines. The name, numbers, number of steps and black lines have been added for this example only.

Figure 19. With each increase in warning level, the central figure's arms move to enhance the warning.

has been placed on the sign to represent the consumer, creating a relationship to the viewer and suggesting that danger is possible. The figure's arm movements are relative to the level of danger. As the level rises, so do the figure's arms. The red level of debt and the central figure, together are representative of the idioms 'drowning in debt' and 'in over our heads'. The figure is mimicking the natural human desire to survive, to keep it's arms above the water line. At the sign's lowest level the figure's feet are barely getting wet. By the time one reaches the fifth level of debt, the figure is totally submerged and 'in way over its head'. The combination of these elements is an effective motivator to help the viewer deliberate on their economic situation. Using the white level indicators combined with the rising red debt gauge and the central figure, the viewers can easily figure out where they stand financially, but this is not all the information that can be provided to help the viewer understand their situation.

Language.

The ideal use of this system of signs would include a version that contains some additional text (see Figure 20). As words are central to communication (Craig et al., 2006), the additional text is useful in the comprehension of the potential danger debt posses and may help persuade the consumer to make different monetary decisions. The combination of signal words and memorable visual elements play an important role in capturing the attention of the viewer. It has been shown

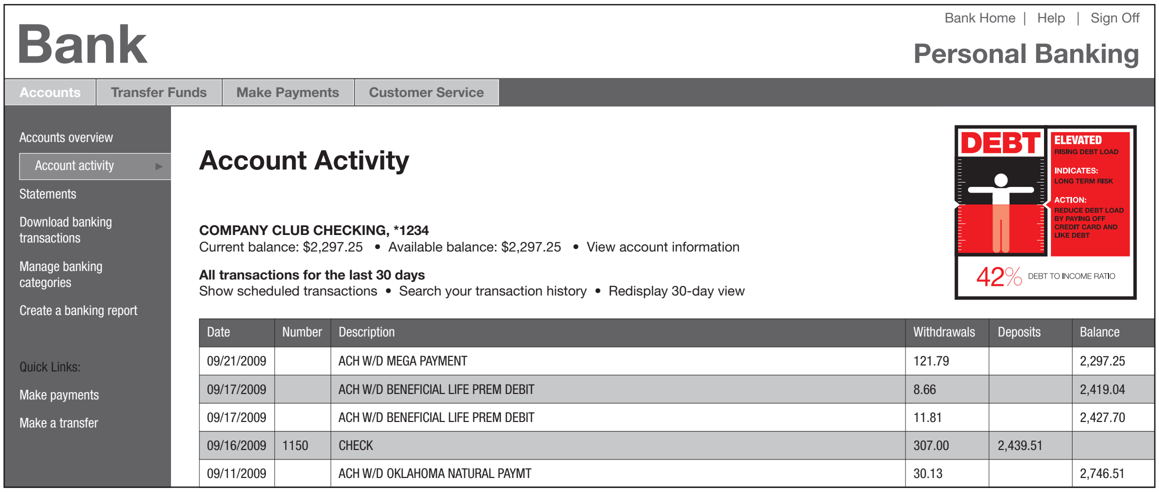
Figure 20. This sign displays the trigger word 'ELEVATED' and it's description 'RISING DEBT LOAD' along with the warning level's 'INDICATIONS', 'ACTIONS' and large debt to income ratio percentage.

that the presence of a signal word is beneficial in recognizing a warning sign (Braun et al., 1995; Wogalter et al., 1999). Therefore, to enhance the meaning of the symbols, the system of signs displays the name of the actual danger level as the trigger word and it's accompanying descriptive phrase. Listed in order from most to least amounts of debt, are the five levels of warning and accompanying phrases: Dangerous—Extreme Debt Load, Cautionary—High Debt Load; Elevated—Rising Debt Load; Manageable—Low Debt Load; and Conservative—No to Little Debt Load.

This system of signs and additional signal words can be used to educate the viewer regarding their particular level of debt and the actions necessary for their debt level to recede. Beneath the trigger word and description are two other pieces of important information that can help the viewer understand where they stand financially and how to respond to that level. The 'Indicates' heading describes the meaning of each level. The 'Action' heading describes the response needed to move to a lower level. At the very bottom, the percentage is emphasized to reiterate the importance of the warning message.

Usage.

Figure 21 displays the created sign as it might appear unchanged on an on-line bank account. The created system of signs is flexible enough to be applied on different applications with minimal manipulation. The scale and information would need to be manipulated to fit the particular application. For instance, the debt to income ratio would not mean anything on a credit card statement or actual product packaging. Figures 22 and 23, show the sign as it would appear on a credit card statement and


Bank

Bank Home | Help | Sign Off

Personal Banking

Accounts | Transfer Funds | Make Payments | Customer Service

Accounts overview
Account activity
Statements
Download banking transactions
Manage banking categories
Create a banking report

Quick Links:
Make payments
Make a transfer

Account Activity

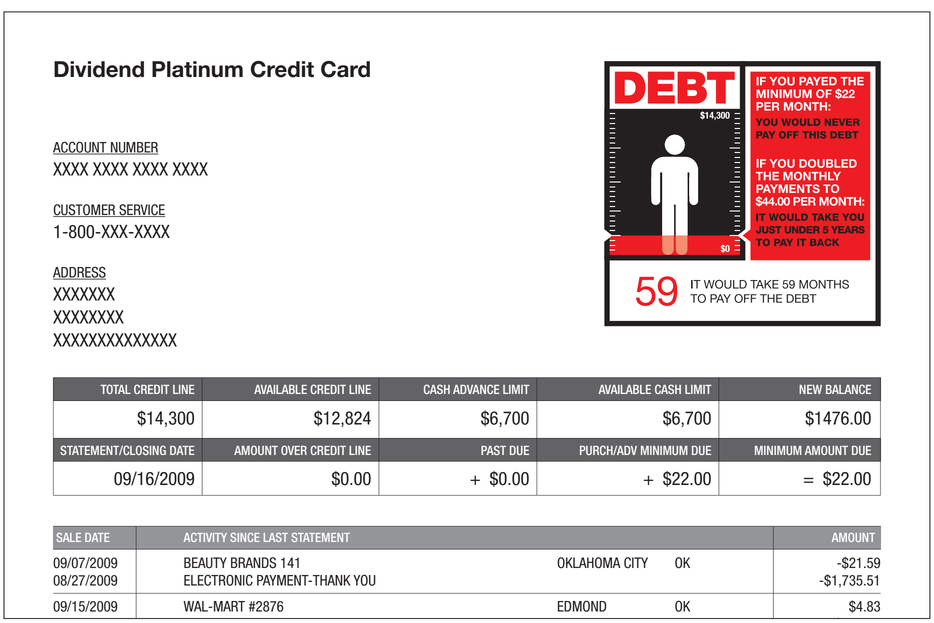
COMPANY CLUB CHECKING, *1234
Current balance: $2,297.25 • Available balance: $2,297.25 • View account information

All transactions for the last 30 days
Show scheduled transactions • Search your transaction history • Redisplay 30-day view

Date	Number	Description	Withdrawals	Deposits	Balance
09/21/2009		ACH W/D MEGA PAYMENT	121.79		2,297.25
09/17/2009		ACH W/D BENEFICIAL LIFE PREM DEBIT	8.66		2,419.04
09/17/2009		ACH W/D BENEFICIAL LIFE PREM DEBIT	11.81		2,427.70
09/16/2009	1150	CHECK	307.00	2,439.51	
09/11/2009		ACH W/D OKLAHOMA NATURAL PAYMT	30.13		2,746.51

Figure 21. The created sign applied to a on-line bank account.

packaging for a television respectively. The scales and information have been changed to fit each application. The sign designated for the credit card statement displays a scale that depicts the credit card holder's credit line, information about minimum payments, and the amount of time it would take to repay the current debt. Likewise, the sign


Dividend Platinum Credit Card

ACCOUNT NUMBER
XXXX XXXX XXXX XXXX

CUSTOMER SERVICE
1-800-XXX-XXXX

ADDRESS
XXXXXXX
XXXXXXXX
XXXXXXXXXXXXXX

TOTAL CREDIT LINE	AVAILABLE CREDIT LINE	CASH ADVANCE LIMIT	AVAILABLE CASH LIMIT	NEW BALANCE
$14,300	$12,824	$6,700	$6,700	$1476.00
STATEMENT/CLOSING DATE	AMOUNT OVER CREDIT LINE	PAST DUE	PURCH/ADV MINIMUM DUE	MINIMUM AMOUNT DUE
09/16/2009	$0.00	+ $0.00	+ $22.00	= $22.00

SALE DATE	ACTIVITY SINCE LAST STATEMENT			AMOUNT
09/07/2009	BEAUTY BRANDS 141	OKLAHOMA CITY	OK	-$21.59
08/27/2009	ELECTRONIC PAYMENT-THANK YOU			-$1,735.51
09/15/2009	WAL-MART #2876	EDMOND	OK	$4.83

Figure 22. Manipulated sign to fit the application of a credit card statement.

Figure 23. Manipulated sign as placed on an actual product package, such as a television box.

designated for the packaging of a television uses a ruler-like scale to show the potential negative affects the purchase could have. The user would be reminded of the debt they currently have. They would realize the potential for more debt, and the effects more debt could have on their financial health. The system of signs could be used in this manner for many different applications to help the consumer become more aware and proactive in managing their debt.

Accompanying scale.

In order for the system of warning signs for debt to become generally recognizable and accepted, it must be accompanied by an explanatory scale. The introduction of a new sign does not automatically suggest that the viewer of that sign will understand its meaning. All signs must be learned (Lester, 2005). For example, motorists recognize the “STOP’ sign because they have learned what it means and what to do when they approach it. In this manner, a consumer needs to learn what the system of warning signs for debt is and what to do when they see it.

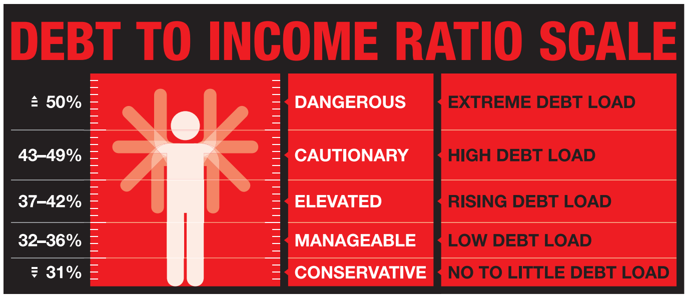


Figure 24. Accompanying explanatory scale to aid in the understandability of the system of signs for debt.

The Debt To Income Ratio Scale in Figure 24, possesses all the elements and information needed to understand the system of warning signs for debt. This scale utilizes the same design elements as the system of signs itself. This helps the viewer make a connection between the two. The scale is divided into five horizontal rows, one for each level of warning. Each row delineates the actual percentage group, the figure's arm movements, trigger word, and accompanying description, to help the viewer learn the system of signs.

Instrument

The instrument used to measure the effectiveness of the system of warning signs for debt was a created online survey (see Appendix B), built and administered using SurveyMonkey.com. It comprises of 33 questions including the first qualifying 3-part question. Each question had to be answered in order for the participant's survey to be included in the final count. Incomplete surveys were filtered out of the total survey count using SurveyMonkey.com's provided tools. Participants could not skip a question, nor go back to previously answered questions. This was done to ensure participants completely finished the survey and that their first impressions were gathered.

The survey utilizes multiple choice and Likert scale questions. An effort was made to generate questions that would not lead the participant toward any preconceived conclusions, but rather allow them to make their own decisions based on the information presented to them. Specific demographic questions were omitted at this time to focus on the thesis question at hand.

The developed system of signs is intended to be viewed by all consumers eighteen years of age and older. Someone is considered a consumer if they acquire and spend money. The acquisition of money can be done through income or borrowing. The outcome, that money is spent, is the same whether money is acquired through earnings or borrowed through a bank.

Participants

A survey was developed (see Appendix B) to test the effectiveness of the system of signs and its application. There were 486 potential subjects who participated in the on-line survey. Only the subjects who completed the survey in its entirety where considered participants for this study. There are 350 participants who completed the survey. They were informed that their involvement was voluntary and anonymous. In order to qualify as a participant and proceed with the survey, subjects had to agree to three preliminary stipulations. These verified whether they were 18 years old, a consumer of goods (someone who acquires and spends money), and if they understood that they could refuse to participate at any time during the duration of the survey. Participants were not asked any personal identifying questions.

Procedure & Data Collection

Subjects were invited to participate in this study through a posting on Facebook and an email blast to the University of Central Oklahoma community. The survey was open for approximately 5 days from Friday, October 23, 2009, to Wednesday, October 28, 2009. Participants were asked to completing a 10–15 minute online survey, where no identifying personal or demographic information was collected. Data was collected from SurveyMonkey.com in the aggregate.

Survey development.

To understand if the proposed system of signs can persuade consumers to become wary of their debt, specific questions concerning the communication of the individual signs and the combined system of signs needed to be asked. Earlier in the methodology, the sign and system of signs was broken down to its basic elements in order to discuss the reasoning behind the decisions that went into their creation. In a similar manner, the questions asked in the survey target specific elements of the individual signs, the message(s) they send and how the system of signs communicates.

As this is a visual survey based on what the participant sees, special attention went into the sequencing of questions. The survey is arranged so each visual element would not influence the next. The first few questions relate to the general understandability of the scale and whether the created sign looks like a warning sign. From there, the five signs were shown individually in an illogical order to see if the participants could accurately place the level of warning with the correct sign. It is not until all the signs have been shown on an individual basis that they appear together, in the correct order. At this point questions concerning the red rising debt box and the central figure's arm movements are asked.

After the system of signs has been shown in its entirety, the complete expanded sign with additional information is presented. The participants now have a chance to rate the effectiveness of a variety of specific elements found on the individual signs, such as readability, color, contrast, etc. After this, they are asked on what applications they might find this system of signs useful. Then, questions based on some specific applications are asked. To conclude the survey, the participant rate the understandability of the scale with the system of signs.

Survey results.

There are 350 completed surveys which are included in the results. The first question in the survey qualified or disqualified the subjects to participate in this study and holds no significant data. All the questions that utilize the Likert scale have a consistent five option range, from 1 being low to 5 being high. The five point scale was chosen to give participants an out, if they happened to be undecided concerning an issue. Even though the middle number of 3 was not labeled, it stood in the exact center of the scale alluding that it could be neutral or undecided. This allowed participants to make the relationships needed to honestly answer the question being asked. The number 3 also represents the fulcrum of the scale and the undecided position. Any answer below 3 will be considered a negative finding, while any answer above 3 will be considered a positive finding. The percentages provided in this section, unless otherwise noted, will be a combination of all participants who chose 4

2. To what degree does the sign above resemble a warning sign?							
	1—No Resemblance	2	3	4	5—Resembles a warning sign	Rating Average	Response Count
Rate the resemblance:	3.1% (11)	15.1% (53)	26.0% (91)	**28.6% (100)**	27.1% (95)	3.61	350
						answered question	**350**
						skipped question	**0**

Figure 25. Summary of results for question 2 based on the third warning level of Elevated.

or 5. These percentages are considered to have positive connotations. Even though the scale is consistent, each question rates something different depending on the particular question at hand. For example the scale for question 1 rates resemblance, while question 4 rates understandability, etc.

Participants were first asked if the presented sign (third level—Elevated) resembled a warning sign (see figure 25). Participants needed to make the connection that the presented sign was indeed an actual warning sign. More than half of respondents (55.7%) chose 4 or 5, the upper 40% of the scale. This indicates that the presented sign has a relationship to a warning sign in general, yet 26.0% of participants chose 3, which also indicates that there might be some confusion with the sign itself.

With the same sign displayed, participants were asked how many main warning levels it contained and if they understood the scale to have incremental steps (see Figure 26). There are five main levels of warning that coincide with the five categories in the Back-End Debt-To-Income Ratio Scale (see Figure 17). Only 33.1% of participants chose the correct amount. Though 5 received the highest percentage of responses, 66.9% of participants chose a different amount. A possible explanation might be that symbols and signs must be learned. Therefore, the scale was misunderstood at the beginning of the survey but became more understandable as the participants became more familiar with the system of signs. Even with this confusion, 63.4% of participants understood the incremental scale.

Figure 26. Summary of results for questions 3 and 4. The correct answer is 5 (highlighted in red).

3. How many main warning levels does the sign above contain?

	Response Percent	Response Count
1	8.6%	30
2	18.9%	66
3	14.9%	52
4	13.4%	47
5	**33.1%**	**116**
6	4.3%	15
More	6.9%	24
	answered question	**350**
	skipped question	**0**

4. To what degree do you understand the sign above to contain an incremental scale of warning?

	1—Don't understand	2	3	4	5—Understand	Rating Average	Response Count
Rate your understanding:	5.7% (20)	14.0% (49)	16.9% (59)	17.7% (62)	**45.7% (160)**	3.84	350
						answered question	**350**
						skipped question	**0**

Questions 5–9 were asked to see if the chosen trigger words depicted the level of warning suggested. In question 5 (see Figure 27), participants were shown the Conservative warning sign (level 1). Only 17.4% chose the correct trigger word, while 50.0% chose Manageable and 28.0% chose Cautionary. Question 6 (see Figure 28) portrayed the Cautionary sign (level 4) with 86.6% of participants choosing Dangerous instead of Cautionary. Question 7 (see Figure 28) displayed the Elevated sign (level 3) with 42.9% making the correct match, while 33.1% chose Cautionary. Question 8 (see Figure 29) presented the Dangerous sign (level 5) with 95.1% of the respondents choosing the correct answer. Question 9 (see Figure 29) presented the Manageable sign (level 2) with the highest percentage choosing the correct answer at only 34.0% with Elevated not far behind with 32.3% of the vote.

The three terms Elevated, Dangerous, and Manageable were all correctly matched to their appropriate sign but only Dangerous received more than 50% of the vote. Both

Figure 27. Summary of results for question 5. The correct answer is Conservative (highlighted in red).

5. Which term most appropriately describes the degree of warning understood from this sign?

		Response Percent	Response Count
Cautionary		28.0%	98
Elevated		2.9%	10
Conservative		17.4%	61
Manageable		**50.0%**	**175**
Dangerous		1.7%	6
		answered question	**350**
		skipped question	**0**

6. Which term most appropriately describes the degree of warning understood from this sign?

	Response Percent	Response Count
Elevated	10.3%	36
Cautionary	2.3%	8
Manageable	0.9%	3
Conservative	0.0%	0
Dangerous	**86.6%**	**303**
	answered question	**350**
	skipped question	**0**

7. Which term most appropriately describes the degree of warning understood from this sign?

	Response Percent	Response Count
Conservative	1.7%	6
Dangerous	14.6%	51
Cautionary	33.1%	116
Manageable	7.7%	27
Elevated	**42.9%**	**150**
	answered question	**350**
	skipped question	**0**

Figure 28. Summary of results for questions 6 and 7. The correct answers are Cautionary and Elevated respectively (highlighted in red).

Elevated and Manageable had another term come in as a close second. Both the Conservative and Cautionary signs produced the worst recognition to the provided terms. The most misunderstood sign was Cautionary with 86.6% of participants choosing Dangerous. The two most confused terms seem to be conservative and manageable amounts of debt. The term

8. Which term most appropriately describes the degree of warning understood from this sign?	Response Percent	Response Count
Cautionary	0.6%	2
Conservative	0.0%	0
Manageable	0.3%	1
Elevated	4.0%	14
Dangerous	**95.1%**	**333**
	answered question	**350**
	skipped question	**0**

9. Which term most appropriately describes the degree of warning understood from this sign?	Response Percent	Response Count
Dangerous	1.1%	4
Manageable	**34.0%**	**119**
Elevated	32.3%	113
Conservative	10.0%	35
Cautionary	22.6%	79
	answered question	**350**
	skipped question	**0**

Figure 29. Summary of results for questions 8 and 9. The correct answers are Dangerous and Manageable respectively (highlighted in red).

conservative was meant to represent someone who handles their money in a more traditional method and would avoid debt as much as possible. The term manageable represented someone who still held true to conservative methods but was more willing to accumulate some debt, while continuing to be aware of there financial situation. This confusion could be due to the term conservative being perceived as negative instead of its intended positive connotation. Even though, three of the five signs were correctly matched to their term, there still seems to be general confusion with regards to the intended degree of warning each term implies.

After the five signs have been introduced and trigger words tested, the signs were shown together in their actual progressive sequence. Question 10 (see Figure 30) asked participants if they understood the rising red boxes to indicate rising levels of debt from one sign to the next. Respondents (94.6%) overwhelmingly understood the presented relationship. Question 11 (see Figure 30) presented the relationship between the figure's arm movements and the rising red boxes. Participants also understood this relationship to mean

Figure 30. Summary of results for questions 10 and 11.

10. To what degree do you understand the rising red boxes to indicate rising levels of debt from one sign to the next?							
	1—Don't understand	**2**	**3**	**4**	**5—Understand**	**Rating Average**	**Response Count**
Rate the understandability?	0.6% (2)	1.4% (5)	3.4% (12)	10.3% (36)	**84.3% (295)**	4.76	350
						answered question	**350**
						skipped question	**0**

11. To what degree do you understand the relationship between the figure's arm movements and the rising red boxes to mean 'drowning in debt'?							
	1—Don't understand	**2**	**3**	**4**	**5—Understand**	**Rating Average**	**Response Count**
Rate the understandability?	1.4% (5)	3.7% (13)	6.3% (22)	12.0% (42)	**76.6% (268)**	4.59	350
						answered question	**350**
						skipped question	**0**

'drowning in debt' with 88.6% of participants choosing 4 or 5. A questions that was not asked but might bring about new meaning is that of the figure's arm movements and whether they add any additional meaning on their own.

These findings emphasize the need for the warning sign to appear in sequential order to be better understood. It also points to the need of education concerning this system of warning signs. The participants could not correctly match the terms to the appropriate signs separately. When the signs were placed in sequential order, each individual sign took on new meaning and started to make more sense. The accompanying Debt To Income Ratio Scale could help with this educational process.

The proposed system of signs would not make sense in all applications unless some changes were made. In order to accomplish this task the Dangerous sign (level 5) was selected to fill this void and act as the general warning sign for debt. This sign was presented in question 12 (see Figure 31) with 70.6% of participants recognizing it as a general warning for debt. According to these findings the Dangerous sign would work as a general warning for debt.

Figure 31. Summary of results for question 12.

12. Rate the effectiveness of this sign as a general warning for debt?

	1—Ineffective	2	3	4	5—Effective	Rating Average	Response Count
Rate the effectiveness:	5.4% (19)	7.4% (26)	16.6% (58)	22.3% (78)	**48.3% (169)**	4.01	350
						answered question	**350**
						skipped question	**0**

The expanded Elevated sign (level 3) with all additional text was displayed for questions 13–21. For question 13 (see Figure 32), participants rated (80.2%) the overall warning sign as readable. For questions 14 and 15 (see Figure 32), they rated both the text within the red box based on color contrast alone (84.0%) and based on the size of the text only (80.6%), as readable.

Figure 32. Summary of results for questions 13, 14 and 15.

13. Rate the overall readability of the sign above as a warning sign for debt?							
	1— Unreadable	**2**	**3**	**4**	**5— Readable**	**Rating Average**	**Response Count**
Rate the readability:	0.9% (3)	3.4% (12)	15.4% (54)	27.1% (95)	**53.1% (186)**	4.28	350
						answered question	**350**
						skipped question	**0**

14. Rate the readability of the text within the red box based only on the color contrast in the sign above?							
	1— Unreadable	**2**	**3**	**4**	**5— Readable**	**Rating Average**	**Response Count**
Rate the readability:	0.0% (0)	3.4% (12)	12.6% (44)	24.0% (84)	**60.0% (210)**	4.41	350
						answered question	**350**
						skipped question	**0**

15. Rate the readability of the text within the red box based on the size of the text in the sign above?							
	1— Unreadable	**2**	**3**	**4**	**5— Readable**	**Rating Average**	**Response Count**
Rate the readability:	0.0% (0)	5.4% (19)	14.0% (49)	22.3% (78)	**58.3% (204)**	4.33	350
						answered question	**350**
						skipped question	**0**

Viewing the same sign (Elevated), 87.2% of participants understood the message being delivered by the text in the red box, in question 16 (see Figure 33). For question 17 (see Figure 33), 83.1% of participants rated the text at the bottom of the sign as readable. In question 18 (see Figure 33), 77.2% of participants understood the message being delivered in the white box at the bottom of the sign.

Figure 33. Summary of results for questions 16, 17 and 18.

16. In the sign above, to what degree do you understand the message being delivered in the red box?							
	1—Don't understand	**2**	**3**	**4**	**5—Understand**	**Rating Average**	**Response Count**
Rate the understandability:	1.4% (5)	3.7% (13)	7.7% (27)	20.6% (72)	**66.6% (233)**	4.47	350
						answered question	**350**
						skipped question	**0**

17. Rate the readability of text at the bottom of the sign above?							
	1—Unreadable	**2**	**3**	**4**	**5—Readable**	**Rating Average**	**Response Count**
Rate the readability:	0.6% (2)	3.4% (12)	12.9% (45)	21.1% (74)	**62.0% (217)**	4.41	350
						answered question	**350**
						skipped question	**0**

18. In the sign above, to what degree do you understand the message being delivered in the white box?							
	1—Don't understand	**2**	**3**	**4**	**5—Understand**	**Rating Average**	**Response Count**
Rate the understandability:	2.6% (9)	6.0% (21)	14.3% (50)	18.9% (66)	**58.3% (204)**	4.24	350
						answered question	**350**
						skipped question	**0**

For questions 19 (see Figure 34), 74.7% of participants said they understood the relationship between the rising debt level and the figure's arm positions. For question 20 (see Figure 34), 69.4% of participants understood the connection between the message being delivered in the white box and the figure's arm positions. For question 21 (see Figure 34),

Figure 34. Summary of results for questions 19, 20 and 21.

19. In the sign above, to what degree do you understand the connection between the rising debt level represented in red covering the figure and the figure's arm positions?							
	1—Don't Understand	**2**	**3**	**4**	**5—Understand**	**Rating Average**	**Response Count**
Rate the understandability:	1.4% (5)	6.9% (24)	12.0% (42)	21.4% (75)	**58.3% (204)**	4.28	350
						answered question	**350**
						skipped question	**0**

20. In the sign above, to what degree do you understand the connection between the message being delivered in the white box at the bottom and the figure's arm positions?							
	1—Don't Understand	**2**	**3**	**4**	**5—Understand**	**Rating Average**	**Response Count**
Rate the understandability:	5.4% (19)	10.6% (37)	14.6% (51)	24.3% (85)	**45.1% (158)**	3.93	350
						answered question	**350**
						skipped question	**0**

21. In the sign above, to what degree do you understand the connection between the message being delivered in the white box at the bottom and the rising debt level represented in red covering the figure?							
	1—Don't Understand	**2**	**3**	**4**	**5—Understand**	**Rating Average**	**Response Count**
Rate the understandability:	2.3% (8)	8.0% (28)	13.4% (47)	24.3% (85)	**52.0% (182)**	4.16	350
						answered question	**350**
						skipped question	**0**

76.3% of participants understood the connection between the message being delivered in the white box and the rising debt level. Based on the results collected in questions 13–21, most participants found the sign to be readable overall. Participants did not have much trouble reading and understanding each specific element found within the sign.

After participants had a chance to analyze the system of signs, they were asked to choose the applications, on which they believed a visual warning sign for debt might actually help them make better monetary decisions (see Figure 35). There were 29 participants (8.3%) who said a visual warning sign for debt would not make any difference in their spending habits. The other 321 participants (91.7%) specified applications they believed would help them

Figure 35. Summary of results for question 22.

22. A visual warning sign for debt might persuade you to make different monetary decisions if found on which of the following? (Check all that apply)

	Response Percent	Response Count
Credit card statement	**78.0%**	**273**
Credit report	66.3%	232
Online bank account	52.9%	185
Products you might purchase	33.4%	117
Mortgage application	52.6%	184
Car loan application	55.1%	193
Online debt calculators	57.1%	200
Other	12.9%	45
Would not make any difference	8.3%	29
	answered question	**350**
	skipped question	**0**

make more informed financial decisions. Having a visual warning sign for debt on an actual product, gathered the least (33.4%) amount of votes. Participants (78.0%) would like to see the system of signs on a credit card statement. Over 50% of all participants selected six of the seven possible applications listed in question 22. This data suggests that a system of warning signs for debt might be widely accepted within a variety of applications. Additionally, the four applications that received the most votes are places where the sign is more likely to be found, such as credit card statements, credit reports, online debt calculators, and car loan applications.

After possible applications had been presented and thought about, showing the sign applied to some of the proposed application followed. Questions 23–25 (see Figures 36 and 37)

Figure 36. Summary of results for questions 23 and 24. The sign applied to a credit card statement.

23. From the images above, how would you rate the effectiveness of the sign placed on a credit card statement in helping the customer become better informed about their minimum payment?							
	1—Ineffective	**2**	**3**	**4**	**5—Effective**	**Rating Average**	**Response Count**
Rate the effectiveness:	1.4% (5)	4.0% (14)	8.3% (29)	18.9% (66)	**67.4% (236)**	4.47	350
						answered question	**350**
						skipped question	**0**

24. From the images above, how would you rate the effectiveness of the sign placed on a credit card statement in helping the customer become better informed about the amount of time it would take to pay off the specific balance?							
	1—Ineffective	**2**	**3**	**4**	**5—Effective**	**Rating Average**	**Response Count**
Rate the effectiveness:	2.0% (7)	3.1% (11)	9.1% (32)	17.1% (60)	**68.6% (240)**	4.47	350
						answered question	**350**
						skipped question	**0**

25. From the images above, to what degree do you understand the adaptation of the warning sign, including the incorporated scale for use on a credit card statement?							
	1—Don't understand	2	3	4	5—Understand	Rating Average	Response Count
Rate the understandability:	0.6% (2)	3.7% (13)	11.7% (41)	17.1% (60)	**66.9% (234)**	4.46	350
						answered question	**350**
						skipped question	**0**

Figure 37. Summary of results for question 25. The sign applied to a credit card statement.

deal specifically with the most popular choice, the sign as applied to a credit card statement. Participants (86.3%) thought the sign would help customers become better informed about their minimum credit card payments. They (85.7%) also said the sign would help consumers become more informed about the amount of time it would take to pay off a specific balance. Participants (84.0%) also said they understood the adaptation of the warning sign and scale for specific use on a credit card statement. The three questions received an average between 4.46 and 4.47. These high ratings portray interest in the credit card application, along with understanding of the manipulated sign to fit this particular application.

For questions 26 and 27 (see figure 38), the sign was placed on the packaging of a television as it would appear on a store shelf. This sign was manipulated to show the consumer how much more they would pay and the monthly payment amount, if they were to purchase this television on credit. Participants (72.6%) said the sign applied in this manner would indeed help inform them on the real costs involved with placing a purchase on credit. Even more participants (74.3%) said the displaying of information,

26. How would you rate the effectiveness of this sign on product packaging, such as a TV box found on a store shelf (see image above), in helping inform the customer of how much more they would pay if they were to purchase this TV on credit?							
	1—Ineffective	**2**	**3**	**4**	**5—Effective**	**Rating Average**	**Response Count**
Rate the effectiveness:	7.7% (27)	6.9% (24)	12.9% (45)	18.9% (66)	**53.7% (188)**	4.04	350
						answered question	**350**
						skipped question	**0**

27. Would additional information such as the extra costs you would pay due to financing a purchase persuade you to reconsider a possible purchase?		
	Response Percent	**Response Count**
Yes	**74.3%**	**260**
Undecided	16.6%	58
No	9.1%	32
answered question		**350**
skipped question		**0**

Figure 38. Summary of results for questions 26 and 27. The sign applied to product packaging.

such as the extra costs one would pay due to financing a purchase, would help persuade them to reconsider a possible purchase. This application also attained a high average of 4.04. These results point to the interest consumers have in a warning sign for debt, directly attached to products they might buy. Participants believed the sign could possible influence their decision making and might help them rethink the need for the products they buy.

For the third application, the sign was displayed on an on-line bank account which encompass questions 28 and 29 (see Figure 39). The sign was not manipulated for this

28. In the image above, how would you rate the effectiveness of the warning sign on an on-line bank account displaying the account holder's current debt to income ratio?							
	1—Ineffective	**2**	**3**	**4**	**5—Effective**	**Rating Average**	**Response Count**
Rate the effectiveness:	5.7% (20)	4.9% (17)	17.1% (60)	23.1% (81)	**49.1% (172)**	4.05	350
						answered question	**350**
						skipped question	**0**

29. Would this warning sign placed on your personal on-line bank account persuade you to be more aware of your debt?			
		Response Percent	**Response Count**
Yes		**62.3%**	**218**
Maybe		29.1%	102
No		8.6%	30
		answered question	**350**
		skipped question	**0**

Figure 39. Summary of results for questions 28 and 29. The sign applied to an on-line bank account.

example. It uses the debt-to-income ratio scale previously discussed. Participants (72.2%) said the sign was effective in portraying the account holder's debt-to-income ratio and would help them (62.3%) be more aware of their debt. The high average of 4.05, points to the possible success of the sign on this application, even though there were a significant number of participants (29.1%) who showed some hesitation. This could be due to unknown factors in the reality of implementing the system of signs.

For questions 30–32 (see Figures 40 and 41), the Debt to Income Ratio Scale was presented to participants for analysis. Overall, 80.9% of participants understood the information presented in the scale, with 38.6% having no confusion over any of the visual elements. The most confusing (44.3%) visual elements were the figure's overlapping arm movements, representing all five levels of warning. To help participants better understand the

Figure 40. Summary of results for questions 30 and 31. The interpretation of the scale.

30. To what degree do you understand the Debt to Income Ratio Scale?

	1—Don't Understand	2	3	4	5—Understand	Rating Average	Response Count
Rate the understandability:	1.4% (5)	5.4% (19)	12.3% (43)	22.0% (77)	**58.9% (206)**	4.31	350
						answered question	**350**
						skipped question	**0**

31. In the scale above, are there any confusing visual elements? (Select all that apply)

	Response Percent	Response Count
Title	6.9%	24
Percentages	14.9%	52
Figure image	**44.3%**	**155**
Warning Scale (on either side of the figure)	4.6%	16
Warning level terminology (in white)	8.9%	31
Warning level descriptions (in black)	5.1%	18
Color	6.3%	22
Contrast	6.3%	22
Other	2.6%	9
No confusion	38.6%	135
answered question		**350**
skipped question		**0**

32. To what degree does the scale improve your understanding of the system of warning signs shown above?							
	1—Unchanged	**2**	**3**	**4**	**5—Improved**	**Rating Average**	**Response Count**
Rate the improvement of understanding:	5.4% (19)	3.1% (11)	9.7% (34)	19.7% (69)	**62.0% (217)**	4.30	350
						answered question	**350**
						skipped question	**0**

Figure 41. Summary of results for question 32. The interpretation of the scale.

figure's arm movements, a connection to the corresponding red rising levels of debt needs to be made. The second most confusing (14.9%) visual elements were the percentages themselves. All other visual elements seemed to be well understood. Participants (81.7%) also said that the scale helped improve their understanding of the system of warning signs in general. These data show the effectiveness of the scale when combined with the system of signs. Some refinement does need to take place to ensure that participants understand all visual elements presented to them.

After being introduced to the created system of warning signs for debt throughout the duration of the survey, participants were asked their opinion concerning the actual

Figure 42. Summary of results for question 33.

33. After viewing the system of visual signs for debt that was created specifically for this research, how would you rate the effectiveness of a system of visual warning signs in persuading consumers to become wary of their debt?							
	1—Ineffective	**2**	**3**	**4**	**5—Effective**	**Rating Average**	**Response Count**
Rate the effectiveness:	1.7% (6)	4.6% (16)	10.9% (38)	29.1% (102)	**53.7% (188)**	4.29	350
						answered question	**350**
						skipped question	**0**

creation and implementation of a warning system for debt in general (see Figure 42). Overall, 82.8% of participants (with an average of 4.29) believe that a system of visual warning signs could be an effective tool in persuading consumers to become wary of their debt.

Discussion and Conclusions

Analysis and Findings

The results of this study support the development of a system of visual signs to persuade consumers to become wary of their debt. After viewing the system of signs created specifically for this research, 82.8% of participants (290 of 350) concluded that a system of visual warning signs for debt could effectively help the consumer become more cautious of their debt. This research also supports the application of a warning system for debt on credit card statements, product packaging, and on-line bank accounts, with an average score between 4.04 and 4.47 for all questions dealing with these applications. There is also much interest in seeing the created sign applied to other applications.

Though there is not much research specifically dealing with the creation of a warning sign for debt, there are plenty of research studies that look into the characteristics of warning labels, colors, and trigger words. Previous research has found warning labels to be successful in attracting consumers' attention and in influencing behavior (Argo & Main, 2004). It has also been found that certain characteristics such as color have the capacity to impact a warning's ability to convey danger (Braun et al., 1995).

Taking a closer look at this research, there are some areas of interest that must be pointed out concerning the created instrument. A correlation can be seen between the averages at the beginning and end of the survey. For instance, the average choice was 3.61 concerning recognition of the created sign, as a warning sign, at the beginning of the survey. By the end of the survey, the average jumped to 4.29 concerning the effectiveness of the sign in persuading consumers to become wary of their debt. The two questions are not identical. The survey points out that participants had trouble identifying the sign, as a warning sign, at the beginning of the survey. By the end of the survey this trouble seems to diminish. Another example is the substantial confusion, at the beginning, concerning the warning levels. Only 4.6% of participants complained that the warning scale was a confusing visual element at the conclusion of the survey. In question 22, there where only 33.4% of participants that said the sign might persuade them to make different monetary decisions, if applied to product packaging. This was contrary to the responses given in question 26 where the average effectiveness rating was 4.04. It seems, as the survey progressed, the participants became more familiar with the system of signs and so did their understanding of the system itself. Therefore, as one becomes more familiar and comfortable with the system of signs, it becomes easier to understand.

Areas that need more attention are the trigger words and accompanying phrases. Mayhorn et al. (2004) pointed out that the Homeland Security Advisory System's trigger words, among other things, should have been tested before it was published to the public. The terms used in this system of signs for debt have the same need for further testing and investigation, to figure out the most effective and appropriate terminology associated with each level of warning.

There was confusion with the chosen terms and their placement with the appropriate signs. The largest margin of error was committed when participants labeled the Cautionary (level 4) sign as Dangerous (level 5). Another sign that had much confusion was the Conservative (level 1) sign, which was labeled Manageable (level 2). The term Conservative seems to have a negative connotation, whereas it was meant to have a positive relationship to low amount of debt. This could be due to the latest presidential race and media blitz, where terms were used as weapons in the fight of words.

The Dangerous sign (level 5) was also used for the general warning sign for debt. It would be interesting to see if participants also viewed the Cautionary (level 4) sign as a general warning for debt, as both the Dangerous and Cautionary signs were labeled Dangerous in questions 6 and 8. They should then be compared to find out which would be most recognizable and effective as a general warning sign for debt.

The attention to detail within the sign itself during the development process paid off. The majority of design elements within the sign itself received high marks with the greater part of participants finding the sign, at its suggested size, readable and understandable. One advantage, that the survey brings, is the lack of other visual elements that normally would surround it. Adding this visual clutter could possibly redirect the desired attention away from the sign, influencing the effectiveness of the sign to communicate its message. The system of signs needs to be tested in its actual environment to figure out if this potential problem would influence its attention grabbing qualities.

The data from this study also suggests that a system of warning signs for debt might be accepted within a variety of applications as suggested in the survey. The system of signs also has the potential to be accepted in applications yet to be suggested. The credit card application received raving reviews. It is evident that common applications, which might not have the best of reputations, could become successful applications.

The Debt to Income Ratio Scale was easily understood with an average of 4.31, but had one issue of confusion. The image of the figure, with its arms flailed out in all five warning level positions, fostered uncertainty. It will need to be rethought, redesigned, or taken out of the Debt to Income Ratio Scale completely (not the system of signs).

Implications

The research study implies that a system of warning signs for debt does have the potential to assist the consumer in becoming more mindful of their debt. It could also assist the consumer in changing their behavior and attitude concerning debt in general. This could also aid the consumer in reevaluating what they consider to be needful versus something they want. A new outlook on debt and spending might also help the consumer foster a desire to increase their savings for those times in life where money becomes less plentiful.

Another possibility is the creation of a campaign for self-regulation such as the Explicit Lyric Parental Advisory Label. Displaying a warning sign or system of warning signs for debt could become a service that banks, lenders, credit report companies, retailers, etc., use to promote their own services, mingled with a public awareness message. The notion would be to sell this idea as a public service, much like the ‘green’ movement. Many businesses have affiliated themselves with this movement to show their support for the environment, meanwhile, gathering brownie points with their customers and the public.

Limitations

The system of warning signs, created specifically to persuade consumers to become more aware of their debt, should be tested on multiple planes, such as the hypothetical applications found within the instrument and actual applications yet to be tested. One possible limitation of this study is the created instrument itself, as it has only been used this one time. Because the test itself is under scrutiny, the questions it utilizes need to be tested on an individual basis. The testing of the survey and system of signs is also similar to that of usability testing where a product is given human interaction to see if it meets the intended intentions. Usability tests are typically conducted on web applications, interfaces, or any product that relies on interaction between human and device. Similarly, the interaction between participants and the system of signs should be observed in order to better understand how they respond to the sign and its application.

Other limitations include the population and their preconceived views concerning debt, the accumulation of it, and consumer spending. If the subjects don't believe debt is something to avoid, a warning sign for debt might not effect them. Although the system of signs itself might be used to educate them about the detrimental effects of debt.

Suggestions for Further Research

There are many aspects of this study that could be broken down further and studied in more detail. Some include: the chosen terms (trigger words) themselves and the levels of warning each portrays; the refinement of the language (text) that was chosen for the system of signs; and a more in-depth study of the applications and their related sign manipulations.

Another point of interest is the figure's arm movements. The figure and coinciding arm positions should be tested by themselves. They might communicates additional messages or information to the viewer that were unforeseen.

Level 1 (Conservative) and level 2 (Manageable), within the created warning scale, are both satisfactory and manageable levels of debt. Because of this, the first two levels could be combined to form four main levels of warning. Four levels could be found to be more effective than five in communicating the desired levels of debt hazard.

The applications (credit card statement, product packaging, and on-line bank account) suggested in this study are just the beginning of possible uses for the created system of signs. Each application necessitates individual testing to determine whether or not the applications are effective in persuading the consumer to make changes concerning their monetary behavior. The actual implementation of the system of signs will also require further research and cooperation with other industries.

Personal demographic questions could also bring up interesting patterns of participants that could be more likely to accumulate or avoid debt. Correlations between sex, age, race, ethnicity, household income, marital status, dependents, and living situation might also reveal some interesting data. These provide additional reasons to continue researching and pursuing this subject.

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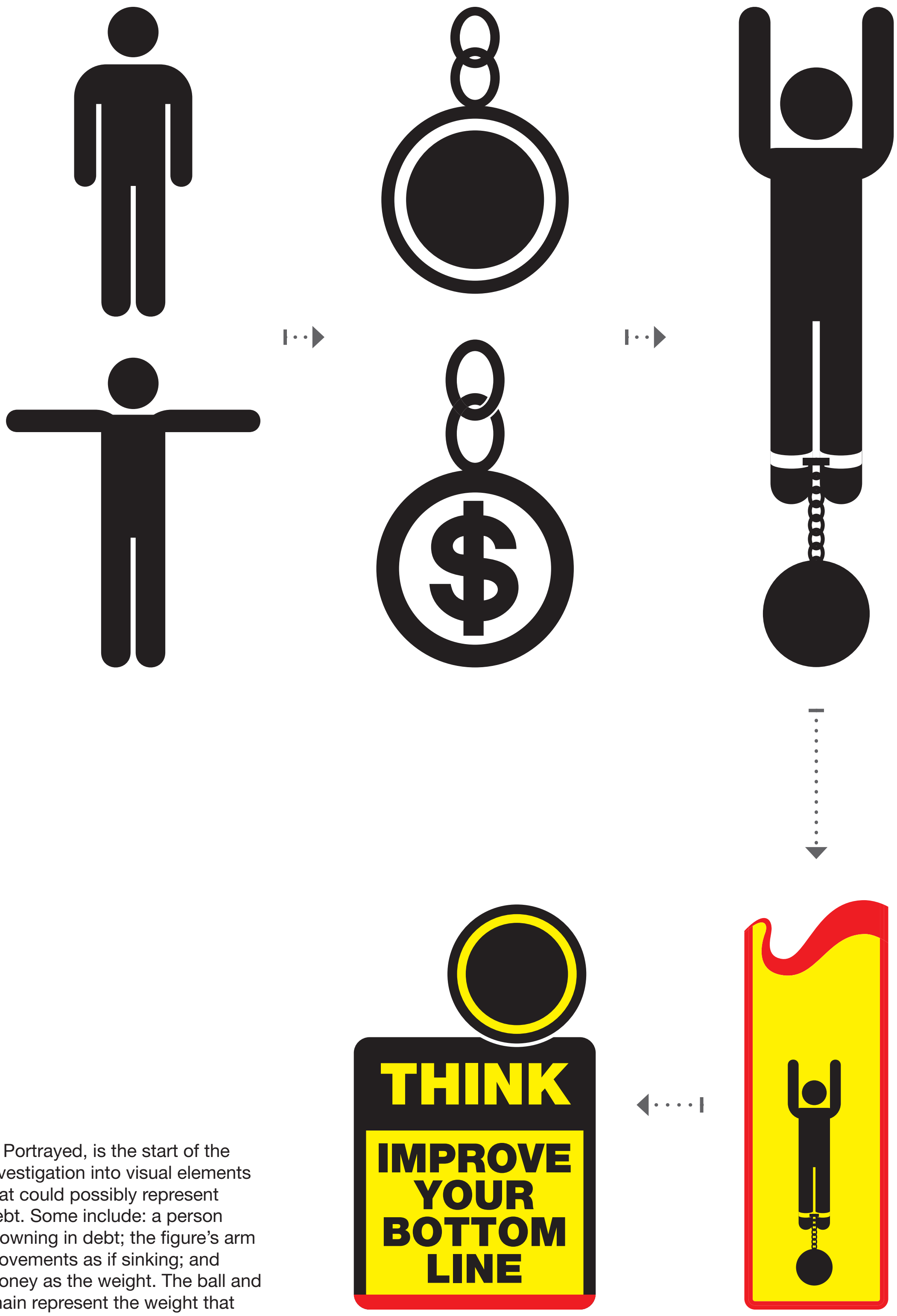
Appendix A

Warning Sign & System Development

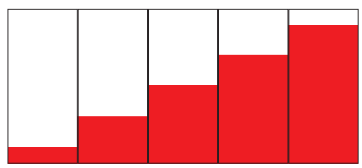
1. At the beginning of the design process many typical warning signs were viewed for reference. Their characteristics were then applied with an investigation into color, language, and terminology that dealt with the areas of warning and debt.

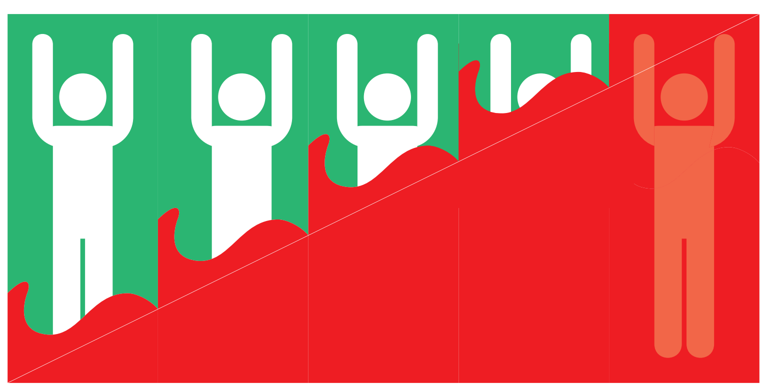


2. Portrayed, is the start of the investigation into visual elements that could possibly represent debt. Some include: a person drowning in debt; the figure's arm movements as if sinking; and money as the weight. The ball and chain represent the weight that debt can have.

3. The drowning figure is now placed in a container. A wave is applied to the top of the container along with the word 'DEBT', on the right side, to enhance the idea of drowning in debt. The message and wave are expanded upon.

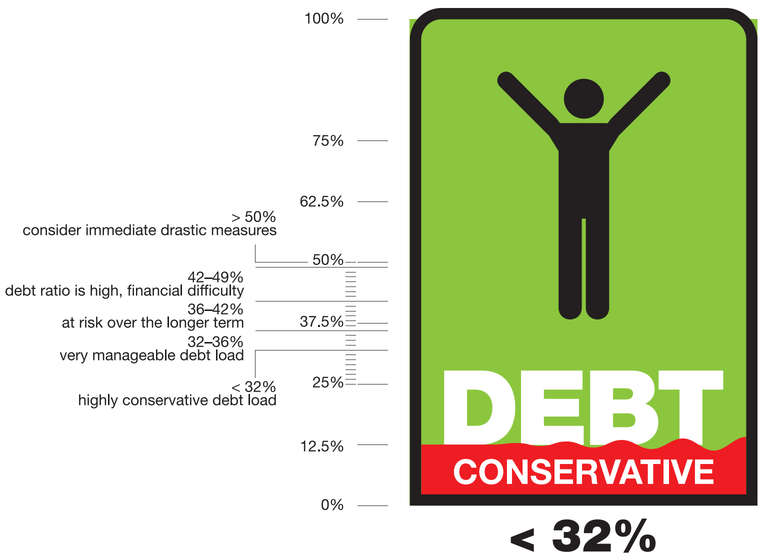
4. More exploration with the relationships between the figure, water, and idea of drowning. Experimentation with a system of signs is bought into the equation.



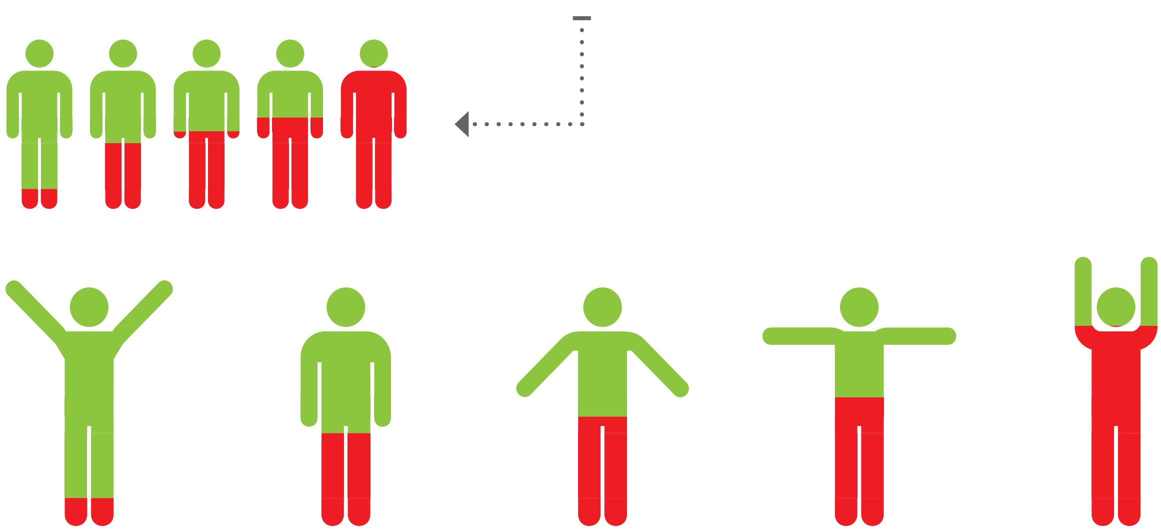


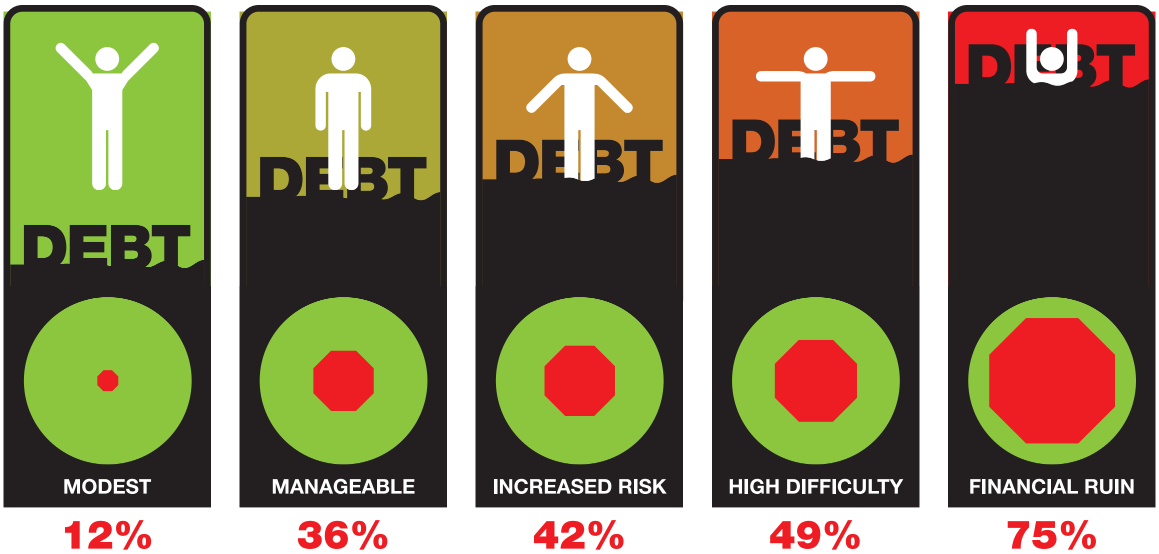
5. Severity in level is being explored. The idea of calm versus rough waters is investigated. The idea of rising and falling is also introduced. The colors worked with are yellow and red for warning, black and white as neutral, while green represents money. The figure and water are combined with verbiage to form a system of signs.

6. More exploration with the combination of elements, such as the border and the shape of the container. Variation concerning color is looked into. The placement of a trigger words is incorporated. Percentages are also introduced.



7. A preliminary scale for the system of signs is introduced. Potential problems with the scale are realized. The scale is also applied to the figure images.





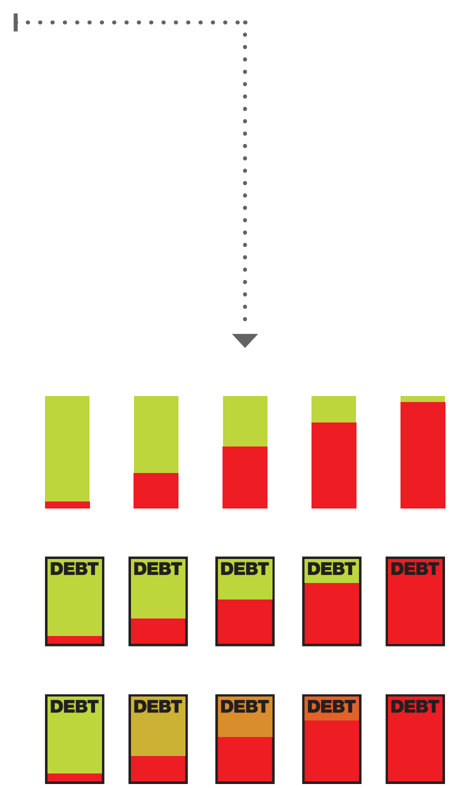
8. The scale is portrayed in multiple ways within each level of the system. More exploration of scale and compositional elements have been accomplished. New elements are explored, such as the literal dollar sign to represent debt. The sign's shape is also manipulated.

9. Previous exploration is combined with the most recent investigations. The rising debt level is applied to the dollar sign. Green is representing money and red debt or danger. Money, as a representation for debt, is introduced but quickly thrown out due to the mixed messaged it sends.

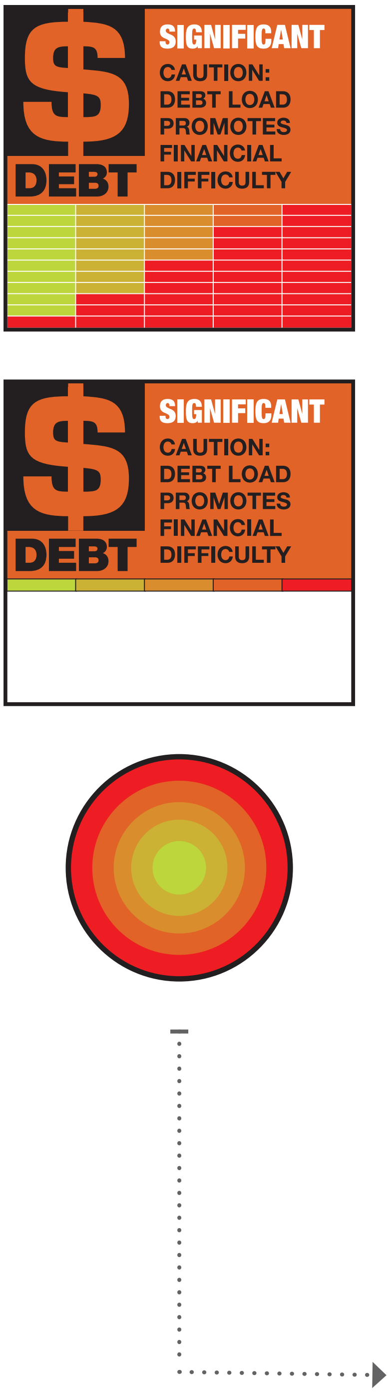
10. More possible representational symbols are explored. The dollar sign is expanded upon. A color scale is created. The ideas of debt as a weight and the growing amount of debt from one level to another are also explored.

11. More variations using the dollar sign and color are explored. Green is representing money or positive cash flow. The hanging weight is introduced, along with size changes for each level. The more debt one has the bigger the burden.

12. The system of signs is starting to take shape. Trigger words are being incorporated. Compact and expanded shapes are materializing. There is still exploration of color, scale, and danger level.



13. Descriptions for each level of warning are being created to accompany the trigger word and help the understandability of the particular level. The figure and percentages are being brought back in.

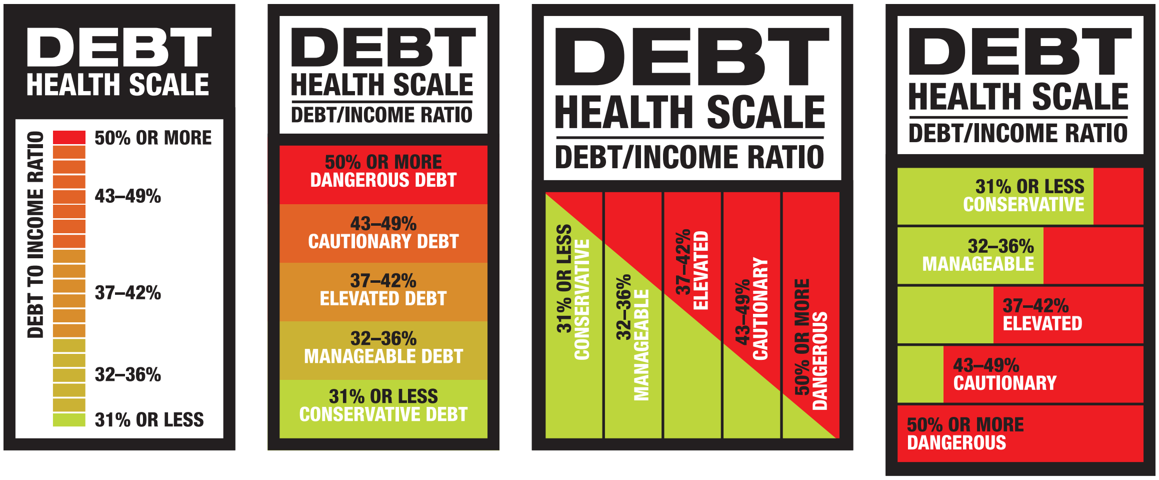


14. More exploration with the understandability and readability of the warning signs and their accompanying warning levels. Informative messages are being explored and introduced.

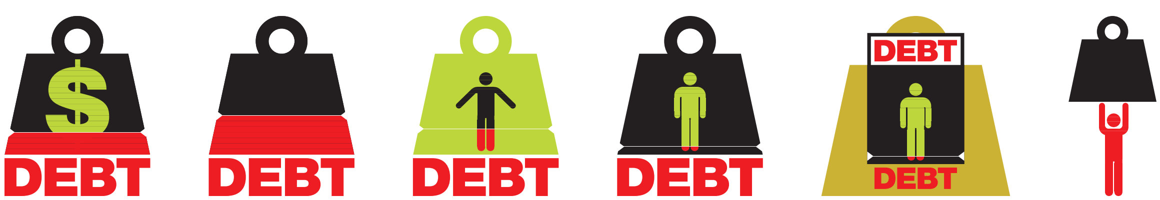
15. The created scale is simplified to enhance the message and create urgency within the system of signs. New methods to portray the scale are explored.

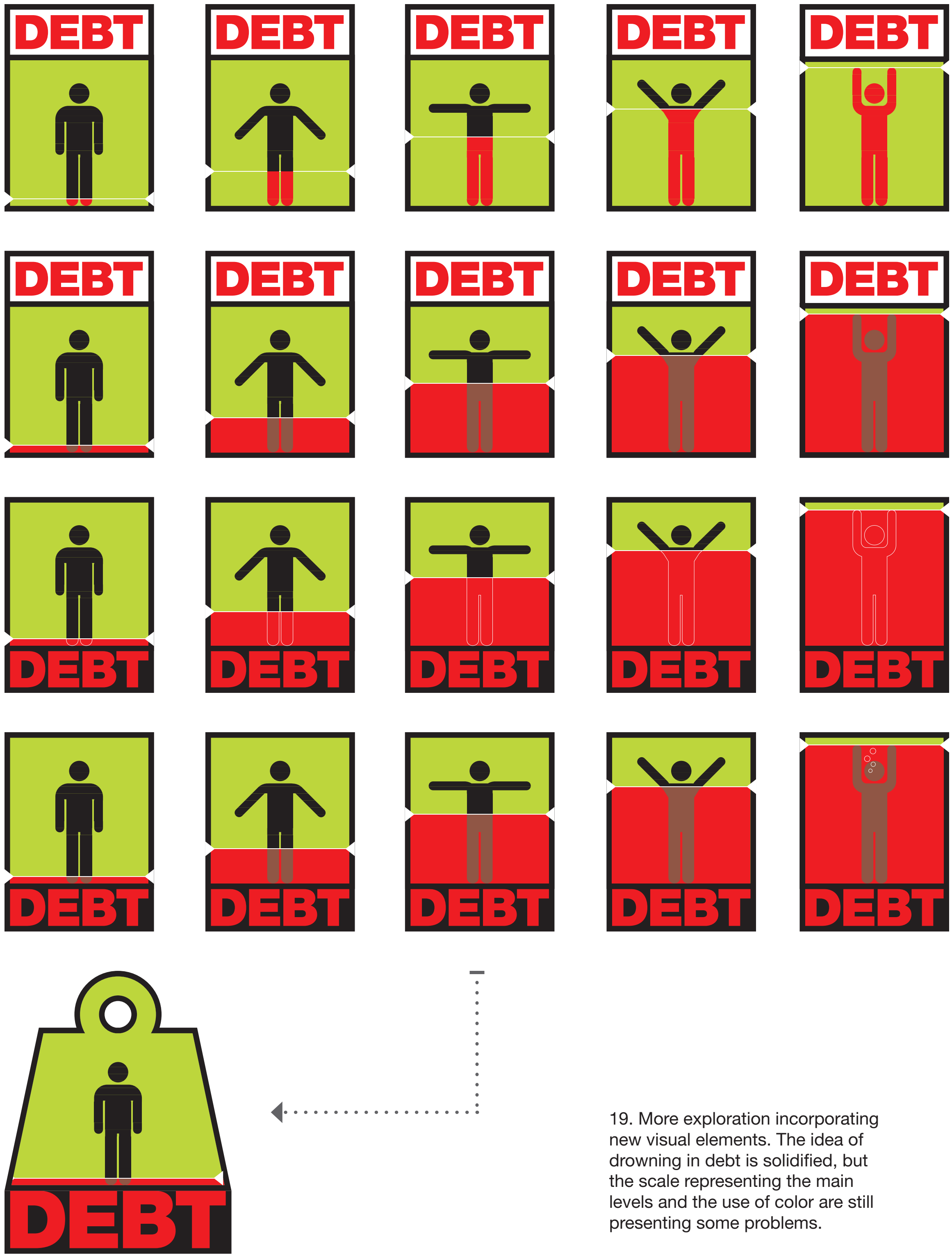
16. Some of the previously explored signs are reintroduced and fixed with the manipulated scale. Elements are combined to forms new systems of signs.

17. The scale is heavily examined and applied in different ways to find the execution that most clearly communicates the intended message. The sign is manipulated to incorporate more text.



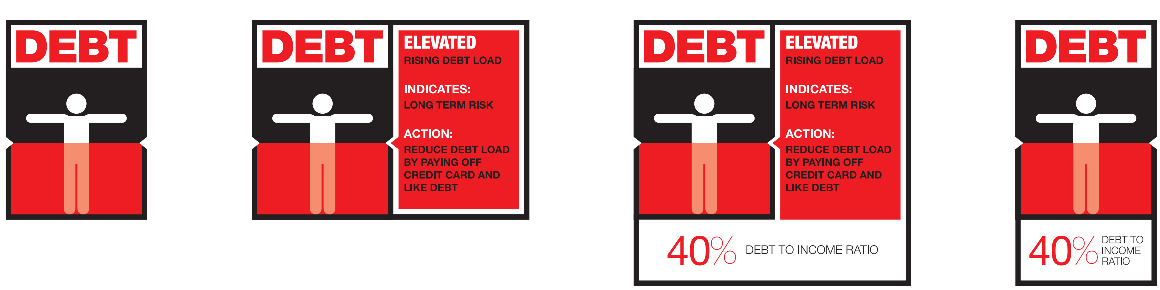
18. A scale must accompany the newly created system of warning signs. This scale will help the consumer learn the system. Possible scales are created. New symbols are also created to represent debt.

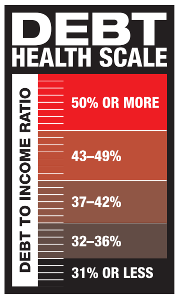


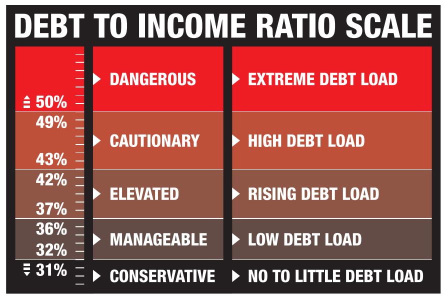


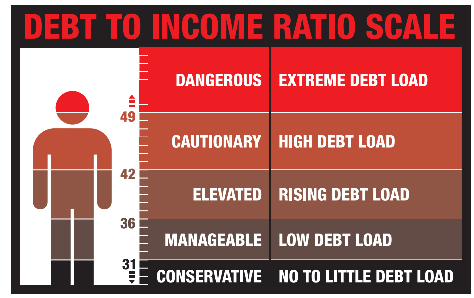
19. More exploration incorporating new visual elements. The idea of drowning in debt is solidified, but the scale representing the main levels and the use of color are still presenting some problems.

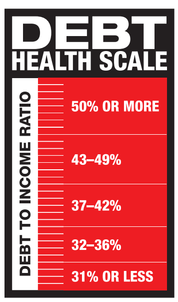
20. The system of visual signs for debt continues to be refined. The color palette has been reduced to red—representing danger, black—representing no debt ('in the black') and white—as a nice contrasting color. The sign is also manipulated into four separate signs depending on the application and amount of information needed to be displayed.



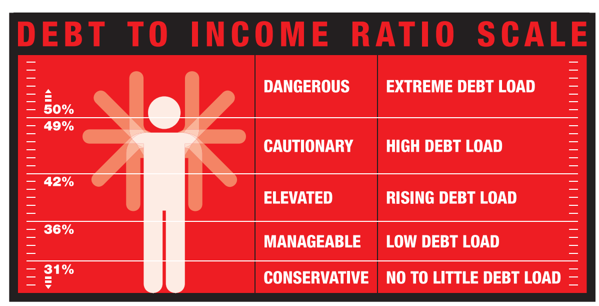


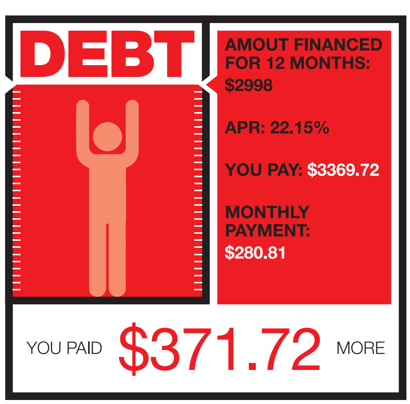






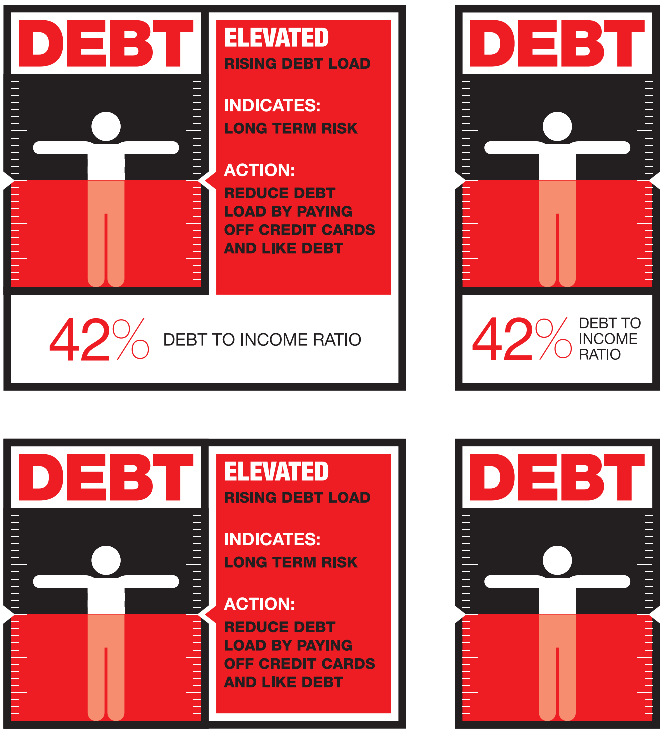
21. The accompanying Debt To Income Ratio Scale continues to be refined, placing all elements in an easy to understand table-like composition. Signs for specific applications are also created.





22. The final set of Conservative signs (level 1).

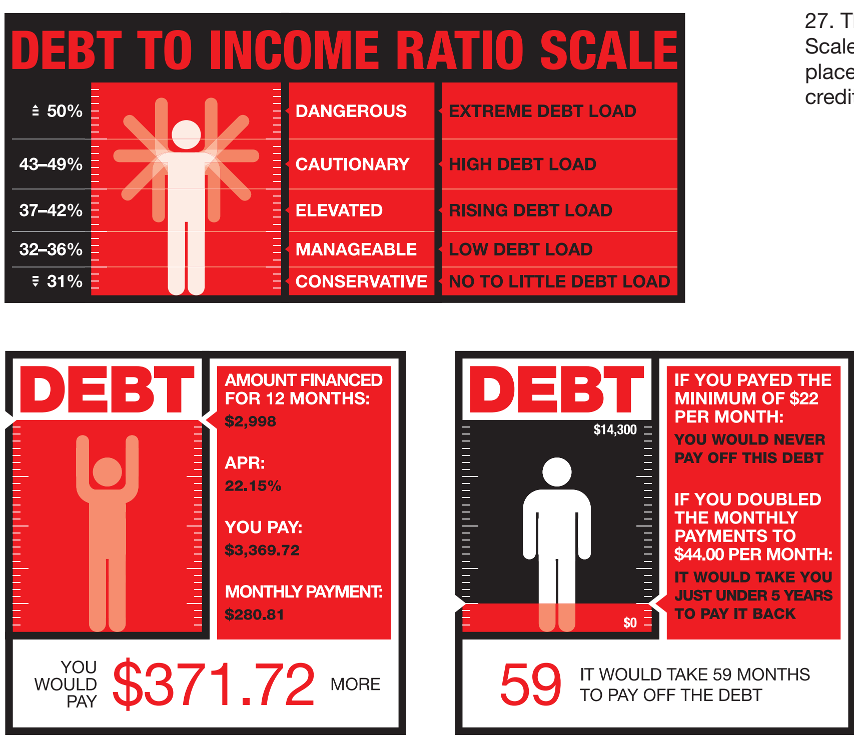
23. The final set of Manageable signs (level 2).



24. The final set of Elevated signs (level 3).

25. The final set of Cautionary signs (level 4).

26. The final set of Dangerous signs (level 5).



27. The final Debt To Income Ratio Scale and manipulated signs to be placed on product packaging and credit card statement respectively.

Appendix B

Survey

Warning System for Debt

Eligibility—Question 1

Thank you for choosing to participate in this survey. Your feedback will help determine if the proposed system of visual warning signs has the potential to persuade consumers to become wary of their debt. To be eligible to participate in this study, you must agree to the following three criteria:

1. Select all that apply.

- [ ] I am at least 18 years of age
- [ ] I am a consumer of goods (I acquire and spend money)
- [ ] I understand that I am free to refuse to participate in this survey and may withdraw at any time

Warning System for Debt

Questions 2–4

2. To what degree does the sign above resemble a warning sign?

	1—No Resemblance	2	3	4	5—Resembles a warning sign
Rate the resemblance:	◯	◯	◯	◯	◯

3. How many main warning levels does the sign above contain?

- ◯ 1
- ◯ 2
- ◯ 3
- ◯ 4
- ◯ 5
- ◯ 6
- ◯ More

4. To what degree do you understand the sign above to contain an incremental scale of warning?

	1—Don't understand	2	3	4	5—Understand
Rate your understanding:	◯	◯	◯	◯	◯

Warning System for Debt

Question 5

5. Which term most appropriately describes the degree of warning understood from this sign?

- ◯ Cautionary
- ◯ Elevated
- ◯ Conservative
- ◯ Manageable
- ◯ Dangerous

Warning System for Debt

Question 6

6. Which term most appropriately describes the degree of warning understood from this sign?

- ◯ Elevated
- ◯ Cautionary
- ◯ Manageable
- ◯ Conservative
- ◯ Dangerous

Warning System for Debt

Question 7

7. Which term most appropriately describes the degree of warning understood from this sign?

- ◯ Conservative
- ◯ Dangerous
- ◯ Cautionary
- ◯ Manageable
- ◯ Elevated

Warning System for Debt

Question 8

8. Which term most appropriately describes the degree of warning understood from this sign?

- ◯ Cautionary
- ◯ Conservative
- ◯ Manageable
- ◯ Elevated
- ◯ Dangerous

Warning System for Debt

Question 9

9. Which term most appropriately describes the degree of warning understood from this sign?

- ◯ Dangerous
- ◯ Manageable
- ◯ Elevated
- ◯ Conservative
- ◯ Cautionary

Warning System for Debt

Questions 10–11

10. To what degree do you understand the rising red boxes to indicate rising levels of debt from one sign to the next?

	1—Don’t understand	2	3	4	5—Understand
Rate the understandability?	◯	◯	◯	◯	◯

11. To what degree do you understand the relationship between the figure’s arm movements and the rising red boxes to mean ‘drowning in debt’?

	1—Don't understand	2	3	4	5—Understand
Rate the understandability?	◯	◯	◯	◯	◯

Warning System for Debt

Question 12

12. Rate the effectiveness of this sign as a general warning for debt?

	1—Ineffective	2	3	4	5—Effective
Rate the effectiveness:	◯	◯	◯	◯	◯

Warning System for Debt

Questions 13–22

13. Rate the overall readability of the sign above as a warning sign for debt?

	1—Unreadable	2	3	4	5—Readable
Rate the readability:	○	○	○	○	○

14. Rate the readability of the text within the red box based only on the color contrast in the sign above?

	1—Unreadable	2	3	4	5—Readable
Rate the readability:	○	○	○	○	○

15. Rate the readability of the text within the red box based on the size of the text in the sign above?

	1—Unreadable	2	3	4	5—Readable
Rate the readability:	○	○	○	○	○

Warning System for Debt

16. In the sign above, to what degree do you understand the message being delivered in the red box?

	1—Don't understand	2	3	4	5—Understand
Rate the understandability:	◯	◯	◯	◯	◯

17. Rate the readability of text at the bottom of the sign above?

	1—Unreadable	2	3	4	5—Readable
Rate the readability:	◯	◯	◯	◯	◯

18. In the sign above, to what degree do you understand the message being delivered in the white box?

	1—Don't understand	2	3	4	5—Understand
Rate the understandability:	◯	◯	◯	◯	◯

Warning System for Debt

19. In the sign above, to what degree do you understand the connection between the rising debt level represented in red covering the figure and the figure's arm positions?

	1—Don't Understand	2	3	4	5—Understand
Rate the understandability:	◯	◯	◯	◯	◯

20. In the sign above, to what degree do you understand the connection between the message being delivered in the white box at the bottom and the figure's arm positions?

	1—Don't Understand	2	3	4	5—Understand
Rate the understandability:	◯	◯	◯	◯	◯

21. In the sign above, to what degree do you understand the connection between the message being delivered in the white box at the bottom and the rising debt level represented in red covering the figure?

	1—Don't Understand	2	3	4	5—Understand
Rate the understandability:	◯	◯	◯	◯	◯

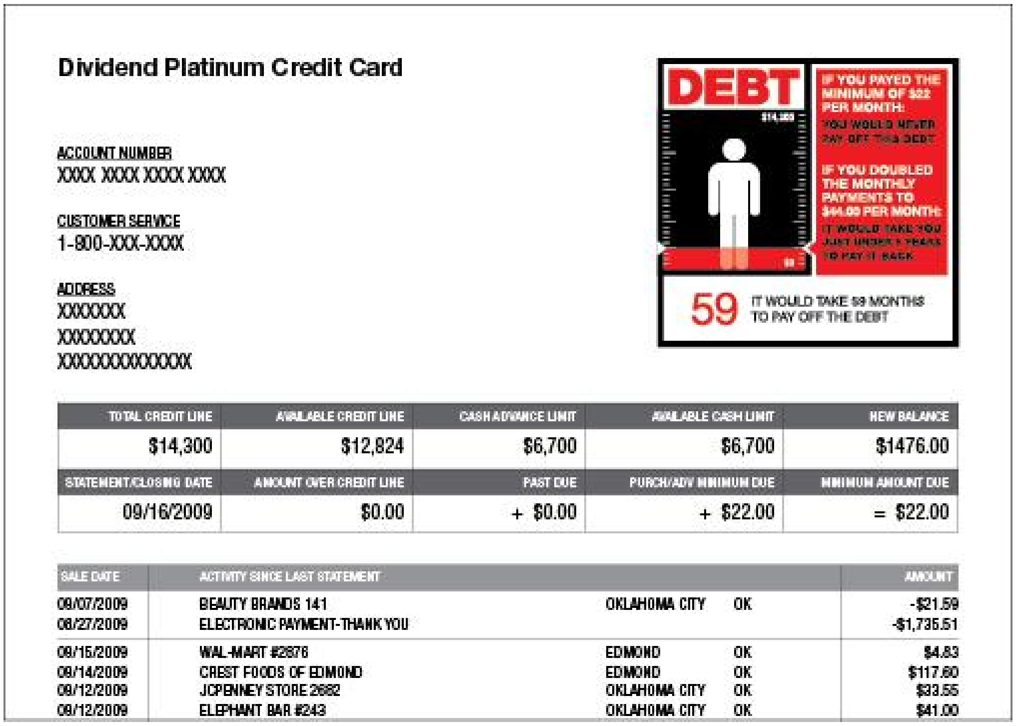
Warning System for Debt

22. A visual warning sign for debt might persuade you to make different monetary decisions if found on which of the following? (Check all that apply)

- [ ] Credit card statement
- [ ] Credit report
- [ ] Online bank account
- [ ] Products you might purchase
- [ ] Mortgage application
- [ ] Car loan application
- [ ] Online debt calculators
- [ ] Other
- [ ] Would not make any difference

Warning System for Debt

Questions 23–25



Dividend Platinum Credit Card

ACCOUNT NUMBER
XXXX XXXX XXXX XXXX

CUSTOMER SERVICE
1-800-XXX-XXXX

ADDRESS
XXXXXXX
XXXXXXXX
XXXXXXXXXXXXXX

TOTAL CREDIT LINE	AVAILABLE CREDIT LINE	CASH ADVANCE LIMIT	AVAILABLE CASH LIMIT	NEW BALANCE
$14,300	$12,824	$6,700	$6,700	$1476.00
STATEMENT/CLOSING DATE	AMOUNT OVER CREDIT LINE	PAST DUE	PURCH/ADV MINIMUM DUE	MINIMUM AMOUNT DUE
09/16/2009	$0.00	+ $0.00	+ $22.00	= $22.00

SALE DATE	ACTIVITY SINCE LAST STATEMENT			AMOUNT
09/07/2009	BEAUTY BRANDS 141	OKLAHOMA CITY	OK	-$21.59
08/27/2009	ELECTRONIC PAYMENT-THANK YOU			-$1,735.51
09/15/2009	WAL-MART #2876	EDMOND	OK	$4.83
09/14/2009	CREST FOODS OF EDMOND	EDMOND	OK	$117.60
09/12/2009	JCPENNEY STORE 2682	OKLAHOMA CITY	OK	$33.55
09/12/2009	ELEPHANT BAR #243	OKLAHOMA CITY	OK	$41.00

23. From the images above, how would you rate the effectiveness of the sign placed on a credit card statement in helping the customer become better informed about their minimum payment?

	1—Ineffective	2	3	4	5—Effective
Rate the effectiveness:	○	○	○	○	○

Warning System for Debt

24. From the images above, how would you rate the effectiveness of the sign placed on a credit card statement in helping the customer become better informed about the amount of time it would take to pay off the specific balance?

	1—Ineffective	2	3	4	5—Effective
Rate the effectiveness:	◯	◯	◯	◯	◯

25. From the images above, to what degree do you understand the adaptation of the warning sign, including the incorporated scale for use on a credit card statement?

	1—Don't understand	2	3	4	5—Understand
Rate the understandability:	◯	◯	◯	◯	◯

Warning System for Debt

Questions 26–27

26. How would you rate the effectiveness of this sign on product packaging, such as a TV box found on a store shelf (see image above), in helping inform the customer of how much more they would pay if they were to purchase this TV on credit?

	1—Ineffective	2	3	4	5—Effective
Rate the effectiveness:	◯	◯	◯	◯	◯

27. Would additional information such as the extra costs you would pay due to financing a purchase persuade you to reconsider a possible purchase?

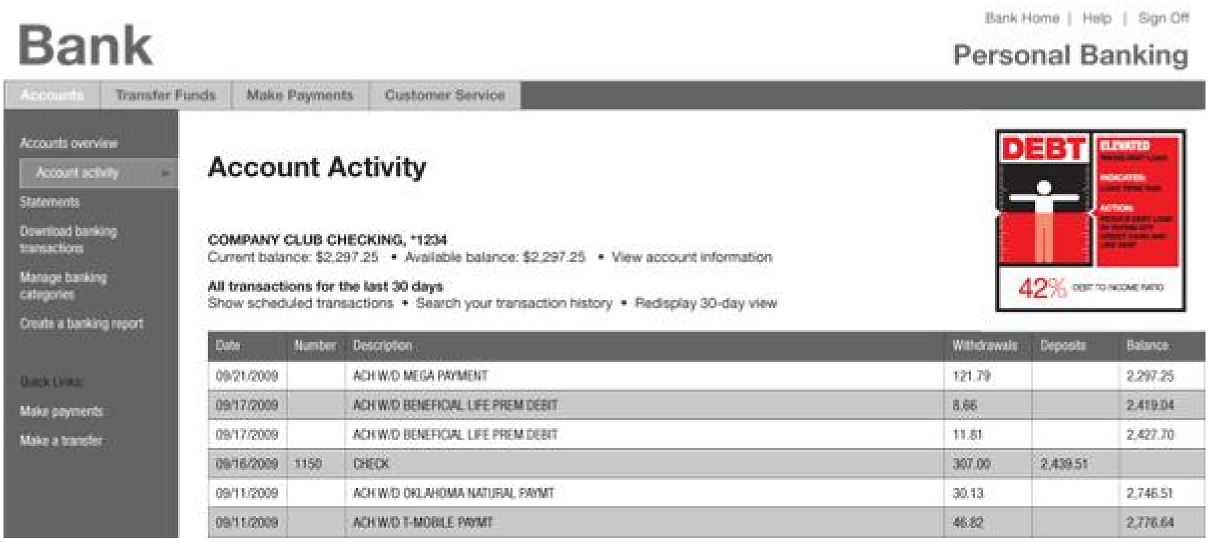
◯ Yes

◯ Undecided

◯ No

Warning System for Debt

Questions 28–29



28. In the image above, how would you rate the effectiveness of the warning sign on an on-line bank account displaying the account holder's current debt to income ratio?

	1—Ineffective	2	3	4	5—Effective
Rate the effectiveness:	◯	◯	◯	◯	◯

29. Would this warning sign placed on your personal on-line bank account persuade you to be more aware of your debt?

◯ Yes

◯ Maybe

◯ No

Warning System for Debt

Questions 30–33

30. To what degree do you understand the Debt to Income Ratio Scale?

	1 — Don't Understand	2	3	4	5 — Understand
Rate the understandability:	○	○	○	○	○

31. In the scale above, are there any confusing visual elements? (Select all that apply)

- ☐ Title
- ☐ Percentages
- ☐ Figure image
- ☐ Warning Scale (on either side of the figure)
- ☐ Warning level terminology (in white)
- ☐ Warning level descriptions (in black)
- ☐ Color
- ☐ Contrast
- ☐ Other
- ☐ No confusion

Warning System for Debt

32. To what degree does the scale improve your understanding of the system of warning signs shown above?

	1—Unchanged	2	3	4	5—Improved
Rate the improvement of understanding:	◯	◯	◯	◯	◯

33. After viewing the system of visual signs for debt that was created specifically for this research, how would you rate the effectiveness of a system of visual warning signs in persuading consumers to become wary of their debt?

	1—Ineffective	2	3	4	5—Effective
Rate the effectiveness:	◯	◯	◯	◯	◯