



Does Good Design Matter in the Seedstock Advertising Business? Effects of Graphic Design in Beef Seedstock Ads on Cattle Producers' Trust and Credibility

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Does Good Design Matter in the Seedstock Advertising Business? Effects of Graphic Design in Beef Seedstock Ads on Cattle Producers' Trust and Credibility

Abstract

Designers are trained professionals who understand how to effectively visually communicate based on executing principles of design and an understanding of their audience. Within the beef seedstock industry, ad design varies widely in terms of technical effectiveness, but how do those differences affect potential customers? This study tested the effects of seedstock ad's graphic design on the viewer's trust and credibility among 561 Angus cattle producers. Our results show the graphic design of a beef seedstock ranch ad promoting an upcoming bull sale did not influence producers' perceptions of trust and credibility. However, results did reveal better designed ads are positively related to producers' trust of that brand. We suggest the study results were influenced by a first impression established through the brand description presented to all treatment groups, which illustrates beef seedstock buyers may be more reliant on other informational cues than design to inform their purchasing decisions. Future research is needed to parcel out effects of the brand information relative to the design aspects of the ad.

Keywords

Graphic design, design principles, design effects, visual communication

Cover Page Footnote/Acknowledgements

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Introduction

In an era of information overload, garnering attention to ads through effective layout and design is crucial. The beef seedstock industry was singled out for this study because of its growing use of advertising. A beef seedstock operation refers to the sector of the beef industry responsible for providing the breeding stock or genetics to other sectors. Reasons seedstock producers place an ad can include: “to sell livestock, to create brand awareness and recognition, to promote the positive goodwill efforts of a ranch or farm, to create awareness and recognition for a specific animal, to inform the public about a business or product, and to educate clients about the benefits of purchasing animals produced” (Cutrer, 2011, p. 31).

Graphic design is used to communicate ideas, information, and experiences by combining visuals and text into an aesthetic package (In the Box Marketing, 2016). The goal of a print ad is to motivate people to want more information, and, ultimately, make a purchase (Grant, 2002). The design and layout of an ad must reflect the brand, be affordable, and contain consistent messaging and branding elements (i.e., colors, logo, artwork) (Grant, 2002). Livestock producers must consider the following for print ads: design/layout, photographs/artwork, copy, performance and production data of the cattle, size of the ad, use of customer testimonials, and advertisement type (Cutrer, 2011; Grant, 2002). Because beef seedstock ads contain a lot of information (i.e., photographs, pedigrees, brand philosophy, etc.), the design can become difficult to execute well. To date, much literature exhumes the importance of visual communication effectiveness, yet limited research exists whether adherence to design principles successfully influences potential customers in the beef seedstock industry or any other production agriculture sector.

Until this century, livestock producers believed increased profit meant increased production (Cowan, 2012; Cutrer, 2011). Today, success not only results from numbers, but also a commitment to invest in a marketing plan. The following paragraphs will outline how industry professionals have encouraged livestock producers to promote their cattle.

Grant (2002) listed several methods to market seedstock cattle, including print, radio, direct mail, and telephone marketing. With the evolution of technology and innovative ways to promote livestock, Cutrer (2011) supplements Grant’s (2002) list by adding outdoor and web-based advertising, as well as other ways such as apparel, give-a-aways, sponsorships, and even text messages. Perhaps the most well-recognized and utilized method is print advertising. Because print advertising is the most popular method, we have focused on print ads and will discuss best practices in the beef industry in the following paragraphs.

Figure 1. Example of a recently published beef seedstock advertisement. Names of ranches and producers have been blurred to protect their identity.

The goal of a print ad is to motivate people to want more information, and, ultimately, make a purchase (Grant, 2002). The design and layout of an ad must reflect the brand, be affordable, and contain consistent messaging and branding elements (i.e., colors, logo, artwork) (Grant, 2002). Livestock producers must consider the following for print ads: design/layout, photographs/artwork, copy, performance and production data of the cattle, size of the ad, use of customer testimonials, and advertisement type (Cutrer, 2011; Grant, 2002). Because beef seedstock ads contain a lot of information (i.e., photographs, pedigrees, brand philosophy, etc.), the design can become difficult to execute well. Figure 1 shows an example of seedstock ads in a popular beef cattle industry newsletter. The ad is a representative example for what is seen in current beef seedstock ads announcing upcoming production sales.

Beef seedstock ads tend to be cluttered from the use of too many words or copy. It is common for advertising clients to fill up all the ad space they are paying for (Olsen, Precejus, O’Guinn, 2012), but communication professionals advise to choose copy carefully because the breeder should want to leave the viewer wanting more and copy should support the visuals (Grant, 2002). The text components of a livestock advertisement should contain a headline, a short blurb (i.e., one to four sentences) explaining the purpose of the ad (Cutrer, 2011), and a way to contact the livestock producer selling the cattle.

One of the most important pieces of information/copy a seedstock producer can include in an ad are the expected progeny differences (EPDs). The EPDs refer to the difference in performance that can be expected from one bull’s progeny compared to the performance of another bull’s progeny (Select Sires, 2017). Using EPDs is important for producers to make quick genetic

improvement within a herd. Grant (2002) states that an average of 75 to 90% of commercial producers make purchasing decisions after evaluating the EPDs. Besides brand information and EPDs, the remainder of the ad's design is determined by the seller and/or designer.

There are opportunities for improvement within the livestock industry and how information in an ad is presented; however, current design patterns — despite violating general design principles — may signal cultural acuity and belonging to producers (Smith, Glington, & Burrell, 2015). The usefulness of “improving” their design requires empirical examination. Given current ad design practices, we wondered whether beef seedstock ad design aesthetics, despite sometimes violating general design principles, are effective because they fit norms within the culture of livestock production pertinent to establishing belonging and trust, or if they could be more effective if they were to better execute design principles.

Literature Review

Ample research can be found credibility and trust. To create a visually aesthetic design, ad creatives rely on the principles of graphic design. With regards to print advertising, gaps in literature suggest a need to investigate the relationship between the dependent and independent variables under consideration in this study. Because of the limited research published regarding advertising within the animal agriculture industry and livestock producers' perceptions in relation to an ad's design, we made inferences and drew conclusions for what we expected to find through the study.

Advertising Credibility

Advertising credibility has been focused on heavily in advertising literature. Advertising credibility has been based on whether consumers find ad claims truthful (Kavanoor, Grewal, & Blodgett, 1997) and believable (Lutz, 1985). Whenever consumers develop positive attitudes toward a brand, it affects their intent to make a purchase (MacKenzie, Lutz, & Belch, 1986). It has been thoroughly explicated in the medical field (e.g., Cho & Boster, 2008; Huh, LeLorme, & Reid, 2004; Lee, Salmon & Paek, 2007), yet lacking in many other advertising realms.

The product advertised within an ad suggests credibility, but also the medium which the ad is delivered (Kioussis, 2001; Prendergast, Liu, & Poon, 2009). Research supports advertisements presented in a digital format are less credible than print mediums (e.g., Belch & Belch, 2007; Digiday, 2017; Flanagan & Metzger, 2007; Marshal & Na, 2003; Prendergast, Liu, & Poon, 2009). Credibility may be bound to how individuals receive a message, the business represented in an ad (Appleman & Sundar, 2015), social cues (Sundar 2008), and advertisers' motives (Kelley, 1973).

Advertising Trust

Throughout advertising credibility literature, trust is a reoccurring concept. Some scholars claim trust is a component of credibility (Ohanian, 1990; Soh, Reid & King, 2009) but is also recognized to be more complex (Doney & Canon, 1997), as seen through the vast research performed by various disciplines investigating its multiple dimensions (Lewis & Weigert, 1985). According to Fisher, Till, and Stanley (2010), “consumers want to do business with firms they can trust and that they believe will treat them fairly and honestly” (p. 133). Simpler, more straight forward advertisements are more likely to be trusted (Mortimer & Danbury, 2012) because the message is very clear to the view.

Singh and Jain (2015) defined consumer trust as the “emotional security in terms of fulfilment of tangible (i.e., retailer, employees, products, etc.) and intangible (i.e., policies,

communication, relationship quality, etc.) expectations and a belief that dealings with the firm will be reliable, dependable, and safe” (p. 971). Within retail, consumers make purchase decisions after evaluating the perceived risk of purchasing from a seller (Morgan & Hunt, 1994). One of the most common ways to determine trust is through personal referrals (Fisher et al., 2010) and the length of time in business (Fisher et al., 2010; Moorman, Deshpandé & Zaltman, 1993). These forms all relate to economic trust.

Cognitive trust has been found to positively relate to sales effectiveness (Johnson & Grayson, 2005). In support of previous research (e.g., Johnson & Grayson, 2005), Soh et al. (2009) found trust in advertising correlates strongly with cognitive trust because it is a more extensive version of the construct seen in “continuing trust relationships with secondary groups” (p. 99), such as business relationships and social systems. This form of trust is based off predictability (Rempel, Homes, & Zanna, 1985) and reliableness (Johnson-George & Swap, 1982). The cognitive state of trust occurs when someone assumes another’s behavior will not have negative outcomes upon him or her without actual evidence that is what will happen (Pearce, 1974). Based on a seller’s competence and reliability, cognitive trust represents a customer’s willingness to rely on the seller without requiring thought or rationale (Fisher et al., 2010).

Elaboration Likelihood Model

According to Petty and Cacioppo (1986), the elaboration likelihood model supposes two distinct processes of attitude change by taking in information via central and peripheral routes. While the ELM is widely researched for persuasion processing, visual presentation is rarely, if ever, taken into account (Lazard & Akinson, 2015). Copy within an advertisement would be processed through the central route which requires effortful thinking (Petty & Cacioppo, 1986; Petty, Briñol & Priester, 2009). Research supports strong attitudes are formed via central processing, whereas peripheral processing still supports attitude formation, just less enduring (Petty et al., 2009).

For years, researchers have found visuals will overpower words for attitude formation (Griffin, 2008; Messaris, 1994). This holds true for specific design elements (Juni & Gross, 2008). For this study, the message within the ad should be the strongest influence on attitudes formed, while the visuals and design should play a role in peripheral processing and garnering attention (Lazard & Akinson, 2015). Lazard and Atkinson (2015) claim visual content and text are rarely empirically tested together because “visuals are assumed to play a heuristic or peripheral role in message processing” (p. 10). “Theoretical frameworks about message processing tend to focus on message content as text-based information” (Lazard & Atkinson, 2015, p. 9) rather than the visuals that accompany the copy. What really occurs is a combination of imagery and text being initially processed as “one constructed unit” (Lazard & Atkinson, 2015, p. 10).

Visuals in Advertising and Design Principles

Ads are one communication strategy businesses use to create company/product awareness, establish initial impressions and particular attitudes among consumers, and ultimately persuade consumers to act. Before an ad can be evaluated, it first must catch the viewer’s attention. Effective advertising should include larger ads because they are more easily remembered (Homer, 1995), visuals and copy within ads are capable of eliciting positive attitudes from viewers (Rossiter & Percy, 1980), and ads with pictures are more likely to be remembered (Childers & Houston, 1984). To reach these positive outcomes, the ads must be visually aesthetic, which is derived from the effective application of graphic design principles. However, there is a lack of existing research investigating graphic design principles and the role it plays in advertising.

An important design element to mention, especially in ad layouts, is white space. Increased white space is effective at clearing the clutter in an ad (Feasley & Stuart, 1987), resulting in the ad being noticed because it helps direct the eye (Olsen et al., 2012). White space also implies quality (Homer, 1995; Olsen et al., 2012; Pracejus, Olsen, & O'Guinn, 2006). In modern advertising, white space alludes “trust, integrity, reliability, quality, fashionable, nature, leadership, elite nature, modern, and upscale” (Olsen et al., 2012, p. 858). In advertising, white space is not as utilized as it should be because of how much advertisers are investing to place an ad on a page. While previous research regarding white space or empty space surrounding an image will increase an ads effectiveness at reaching the viewer how it is intended (Pracejus et al.), a recent study by Kwan, Dai, and Wyer Jr. (2017) found contradicting results regarding text and empty space (i.e., white space). A message surrounded by empty space is less persuasive and the viewer is “less likely to act on its implications” (Kwan et al., 2017, p. 448).

The principles of design are “formal rules and concepts for optimizing the arrangement and presentation of two-dimensional visual elements” (Costello, Youngblood, & Youngblood, 2013, p. 114). Broad categories of principles can be determined (unity, emphasis, and perceptual forces), each of which are comprised of individual principles.

Unity. Unity of a design refers to how each individual part of a design works in harmony to create a unifying effect without distracting the viewer from the point of interest (Costello et al., 2013). Unity principles include proximity, alignment, similarity, and repetition (Costello et al., 2013).

Proximity refers to the structure and organization of information within an ad (Cutrer, 2011). Objects should be placed close together on a page without over-crowding but leaving enough white space for the viewer to know which items go together based on proximity (Graves, 2005). Alignment refers to the common edge shared by objects within a design, often seen as being aligned to the left, right, center, or justified (Graves, 2005; Costello et al., 2015). According to Costello et al. (2013), “the law of similarity states that the brain will perceive visual objects as belonging together when their style attributes are similar and uniform” (p. 116). Similarly, repetition focuses more on repeating the use of lines, colors, shapes, and patterns (Costello et al., 2013).

Emphasis. Emphasis is the idea that a design has a primary focal point (Costello et al., 2013). Principles that create emphasis include contrast, color, depth, and proportion.

Contrast is the use of dissimilarities within a design to aid in our ability to identify parts of a design (Hekkert, 2006). Applying contrast to colors within a design is one of the easiest and most effective ways to add emphasis. Depth can be created by using techniques such as drop shadows, lighting, and perspective to a graphic (Costello et al., 2013). Depth can also be exhibited by the size of an image or illustration and its placement in relation to another image. The scale of an object in relation to other elements in a graphic design establishes its proportion within a composition (Costello et al., 2013). We perceive an object’s size relative to its position and size compared to other objects in the image.

Perceptual Forces. The perceptual forces we experience when receiving or processing visual communication are derived from psychology. Costello et al. (2013) claim “our brains are constantly processing the relative push and pull of perceptual field forces within the visual space” (p. 121). Perceptual forces are experienced through balance, continuation, figure-ground, and psychological closure (Costello et al., 2013).

Balance in a graphic design can be achieved when both sides of the frame have equal visual weight (Costello et al., 2013). Elements affecting how we view the balance include size, color, and

the position of graphics. The law of continuation describes the way human brains process what we see as “predictable, and free of obstacles, and that don’t abruptly change direction” (Costello, et al., 2013, p. 124). Continuation serves as a directional force within a design, drawing our eyes through a design. Figure-ground is a fundamental law in Gestalt theory because it helps viewers identify objects or words in a design. It can be articulated as two components, the *figure* being an object and the *ground* that surrounds it. Figure-ground relies heavily on contrast (Graham, 2008). Whenever figure-ground is successfully achieved, the viewer is easily able to distinguish the elements in the frame leaving them less confused and overwhelmed (Costello et al., 2013). Psychological closure refers to the ability of our brains to complete gaps in a design (Costello et al., 2013). Psychological closure is our minds working to create meaningful order out of chaos.

Research show that visuals in advertising can positively increase consumers’ attitudes along with verbal content (Rossiter & Percy, 1980). Little literature exists investigating how the graphic design of a print ad effects the viewer’s perception of trust and credibility. In websites, research supports more aesthetically pleasing layouts increase perceptions of credibility and trust (Robins & Holmes, 2008).

Study Aims and Context

The purpose of this study was to assess whether the design of a beef seedstock ad influences producers’ evaluations of the brand’s trust and the ad credibility. Because design has been proven to affect a consumer’s perception of trust and credibility in a website (Robins & Holmes, 2008), we believed the same would apply to print ads. Based on the literature review, we offered the following research question and hypotheses:

Research Question 1: Does the use of strong graphic design principles result in different levels of trust and credibility with the viewer?

Hypothesis 1: Strong use of unity principles will result in higher levels of brand trust relative to weak use of unity.

Hypothesis 2: Strong use of emphasis principles will result in higher levels of brand trust relative to weak use of emphasis.

Hypothesis 3: Strong use of perceptual force principles will result in higher levels of brand trust relative to weak use of perceptual forces.

Hypothesis 4: Strong use of unity principles will result in higher levels of ad credibility relative to weak use of unity.

Hypothesis 5: Strong use of emphasis principles will result in higher levels of ad credibility relative to weak use of emphasis.

Hypothesis 6: Strong use of perceptual force principles will result in higher levels of ad credibility relative to weak use of perceptual forces.

Most evidence from the advertising and visual communication literature supported making these hypotheses; however, other literature points to the importance of the cultural fit of ads to their intended audiences. Although not under direct examination in the proposed study, the cultural aspect of the design of beef seedstock ads was relevant for discussion. As mentioned in the introduction, we wondered whether the current design practices would be effective with target audiences because they demonstrated livestock/agriculture cultural acuity, and perhaps conveyed a sense of belonging to the social group. A social group’s beliefs, values, and norms refers to the knowledge shared by a culture and everyone in the cultural group (D’Andrade, 1987; Resnick, 1991; Rose, 2001). The dominant culture of a society can be further broken down into subcultures (Brumbaugh, 2002). Brumbaugh examined the effects source and nonsource cues in advertising

have on cultural and subcultural knowledge. Source cues relate to the people featured in an ad (i.e., race, hairstyle, facial structure, etc.), while nonsource cues are unrelated (i.e., background, language, etc.). Brumbaugh's (2002) experiment results shows ads containing both the dominant culture and subculture source and nonsource cues make viewers feel a connection with the ad and develop a more positive attitude toward the ad. Interestingly, whenever a viewer's dominant culture was presented alongside a subculture's nonsource cues, the viewer was unfazed by the subculture nonsource cues. Similar results have been seen through advertising professionals. To target a specific audience, ads need to tap into their cultural values, demographics, and schemas (Smith et al., 2015).

Although this study was not measuring the effect culture has on attitude toward the ad, it was driving force behind why the researchers chose this research topic. Farmers and ranchers, the population for this study, can be identified as a subculture within the dominant American culture. Ads used in marketing beef seedstock cattle often employ similar designs, eliciting a nonsource cue effect, which could potentially explain why these ads do not follow modern advertising design aesthetics and principles.

Methods

To investigate the hypotheses and research questions, a post-test only, between-subjects with control group experimental design was used. To operationalize the dependent variables, semantic differential and Likert-type scales were used.

Design of the Experiment Conditions

For this experiment, three independent variables were used drawing from graphic design literature – unity, emphasis, and perceptual forces. Each variable was implemented as a separate design piece created by the primary researcher, with two levels of each – strong unity (X_{1a}), weak unity (X_{1b}); strong emphasis (X_{2a}), weak emphasis (X_{2b}); strong perceptual forces (X_{3a}), weak perceptual forces (X_{3b}).

When creating the stimuli, the primary researcher acted as the graphic designer. Information within the ad was pulled after conducting an unofficial content analysis of ads published Angus Journal issues in 2017. The EPDs were established after consulting the Angus percentile breakdown (American Angus Association, 2018) and pulling from numbers near the top 20th percentile for Angus sires. Bull photos were downloaded from the Angus Association's photo archive and only sires that were 10-years-old or more were used in hopes they would be less recognizable by the study participants. Bull photos that represented moderate phenotype were also chosen to be a more representative example of the quality of bulls within the ad. This was determined by the primary research and pulled from her extensive background in collegiate livestock judging.

For the strong designs each of the graphic design principles was fully applied in the layout, while the weak versions attempted to completely omit the relevant graphic design principles. Drawing from the literature, unity was comprised of proximity, alignment, similarity, and repetition (Costello et al., 2013). Each of the principles comprising unity were manipulated in the

graphic design of an ad to result in what was considered a “strong” representation and a “weak” representation (Figure 2).



Figure 2. Unity stimuli. The ad on the left exemplifies strong unity (X1a) and the ad on the right exemplifies weak unity (X1b).

The second independent variable in this experiment was emphasis, which was comprised of contrast, color, depth, and proportion (Costello et al, 2013). Emphasis was executed as “strong” emphasis and “weak” emphasis (Figure 3).

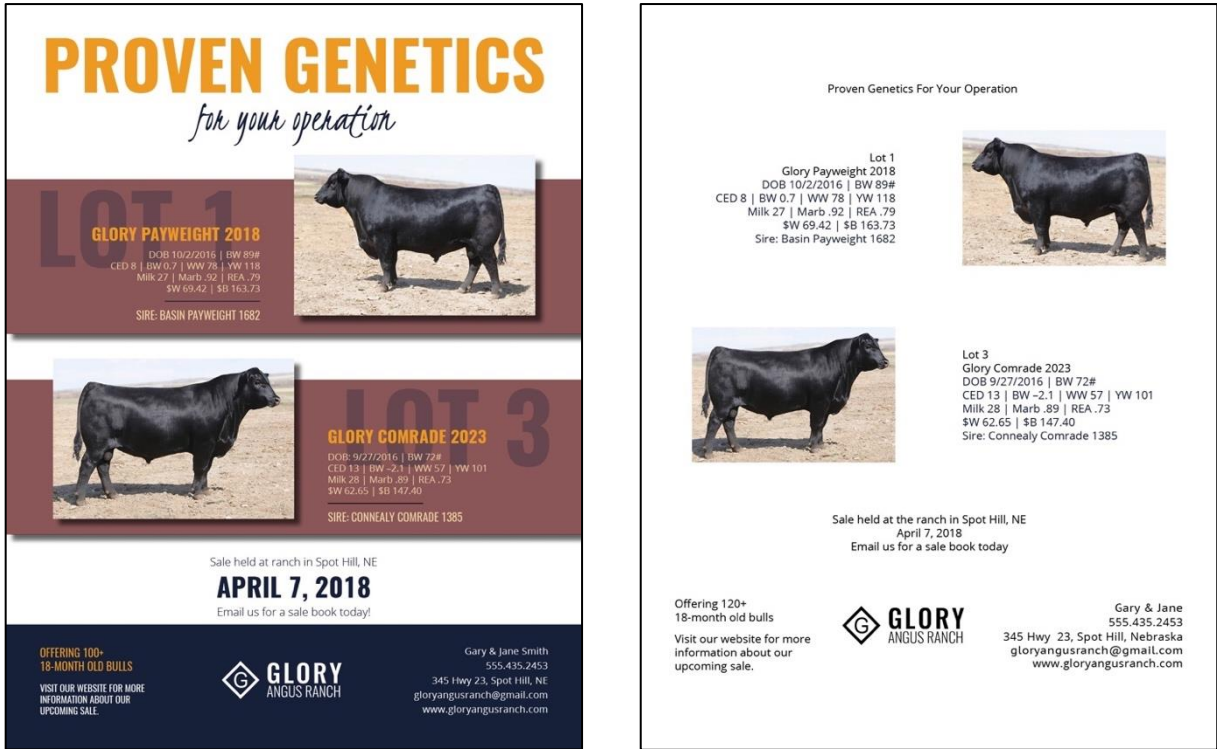


Figure 3. Emphasis stimuli. The ad on the left exemplifies strong emphasis (X2a) and the ad on the right exemplifies weak emphasis (X2b).

The third independent variable was perceptual forces. Perceptual forces were implemented in a design through balance, continuation, figure-ground, and psychological closure (Costello et al., 2013). Two designs were created to exhibit “strong” and “weak” perceptual forces (Figure 4).

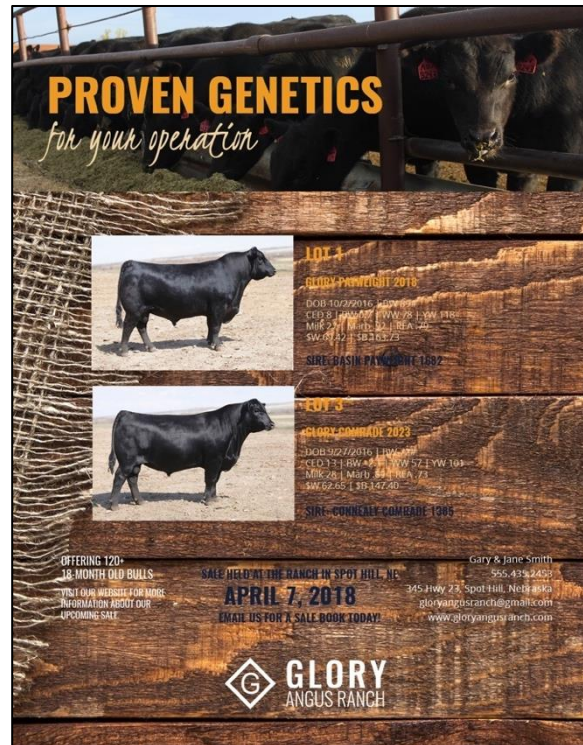


Figure 4. Perceptual forces stimuli. The ad on the left utilizes strong perceptual forces (X3a), while the ad on the right shows weak perceptual forces (X3b).

The control group in the experiment was only shown the brand description before moving directly to answering the questionnaire (Figure 5). They did not see an ad stimulus.

Glory Angus Ranch is a fifth-generation ranch located in Spot Hill, Nebraska. Gary and his wife Jane work together with their three kids and hired-hand to manage a 600-head Angus seedstock cowherd. They are long-standing members in the American Angus Association and dedicate their time to improving the genetics of their herd so they can sell quality bulls to commercial cattlemen and other seedstock producers.

They focus on raising functional, stout, pasture-ready bulls. No matter what you are looking for, Glory Angus Ranch has a bull for you – calving-ease, growth, maternal traits, and docility. All of their cows are bred through artificial insemination to proven bulls ranked in the top 10 percentiles for maternal, growth, carcass, and docility traits within the Angus breed.

They sell approximately 150 bulls a year to stockmen primarily throughout the Midwest. Before bulls are offered for sale, they must pass a rigorous bull test to make sure they are fit and ready for the job. Every spring, the family holds a production bull sale, at which time they sell most of their bulls. Additional bulls are sold private treaty.

Figure 5. Brand description shown to all subjects. This is the only stimuli those in the control group received.

Measures

The dependent variables in this study included ad credibility and brand trust.

Brand Trust. To measure brand trust (referred to as trust), subjects were asked questions reflecting trust in the brand represented in the ad. A 5-point scale was used to measure trust. The scale reported a Cronbach's alpha of .91 (Table 1).

Table 1
Combined brand trust inter-item consistency statistics

	<i>M</i>	<i>SD</i>	Corrected Item-Total Correlation	Alpha if Item Deleted
Glory Angus Ranch is dependable/undependable.	3.64	.91	.84	.89
Glory Angus Ranch is competent/incompetent.	3.70	.95	.80	.89
Glory Angus Ranch has high integrity/low integrity.	3.63	.93	.85	.88
Glory Angus Ranch is responsive/unresponsive to customers.	3.54	.93	.78	.89
How much can you count on Glory Angus Ranch?	3.34	.90	.63	.92
How much do you trust Glory Angus Ranch?	3.36	.88	.65	.91

Note. 5-point scale where lower mean scores correspond to lower trust; $\alpha = .91$ for entire scale

Ad Credibility. To measure ad credibility (referred to as credibility), a 5-point scale was utilized, which was modified from a study conducted by Appelman and Sundar (2016).

Table 2
Ad credibility scale inter-item consistency statistics

	<i>M</i>	<i>SD</i>	Corrected Item-Total Correlation	Alpha if Item Deleted
Information in the ad is accurate/inaccurate.	3.91	.95	.84	.95
Information in the ad is authentic/not authentic	3.82	1.00	.87	.94
Information in the ad is believable/unbelievable.	3.94	1.01	.9	.93
Information in the ad is credible/not credible.	3.84	1.02	.91	.92

Note: 5-point scale where lower mean scores correspond to lower credibility; $\alpha = .95$ for entire scale

Exploratory Questions and Manipulation Checks. Exploratory questions were included in the questionnaire for additional analyses that could provide insight into other effects of the ad design. We measured subjects' expected cost of the bulls presented in the ad, how much they would be willing to pay, and their information channel preferences.

Manipulation checks were included to ensure the independent variables were manipulated appropriately and measured the dependent variables. A Likert-type scale measured the effectiveness of the design manipulation within the ads.

Sample and Recruitment

The target population for the experiment was composed of American Angus Association (AAA) members, Angus breeders, and other cattle industry professionals because the researchers had access and support from the Association to conduct the study with its members. Angus Media, the Association's full-service media component, agreed to distribute the questionnaire to a list of its purebred breeder and commercial breeder subscribers (approximately 11,273 email addresses).

To improve response rate, Angus Media provided two incentives valued at a \$2,500 in total. Angus Media offered incentives through discounted prices in its marketing and advertising services.

The initial invitation to participate in the experiment and two reminders were emailed to the sample by Angus Media, where it then became the potential participant's consideration whether to respond. Correspondence with the sample occurred starting February 28 through March 14, 2018.

Procedure

After entering the online survey tool-based experiment and agreeing to the Institutional Review Board informed consent, subjects were randomly assigned by Qualtrics to one of the seven conditions. All were first shown the brand description (Figure 4) before being exposed to questions and an ad. Then, only those in the treatment conditions were shown a single ad treatment that was displayed for them as they answered questions to measure trust, credibility, willingness to pay,

cost expectancy, and the manipulation checks. The ad was not displayed on pages displaying demographic and other sample characteristics questions. Those in the control were not shown an ad.

Pretest

Prior to executing the full experiment, the researcher ran a pretest of the final version of the experiment to test its design and address outstanding issues from wordiness, question confusion, or any other major issues. It included a series of open-ended questions to invite subjects' feedback. The pretest was distributed to livestock industry professionals who were knowledgeable about livestock ads.

The pretest received 80 responses, of which, 75 were useable and complete. Changes were made to the ads based off feedback before final dissemination, including: changing photos to show two bulls and data of more moderate quality to better reflect the type of ranch represented, bull names were changed to reflect its sire, actual birthweight and date of birth numbers were added, text on how to access a sale book was added, and the sale date was updated.

Results

Sample Characteristics. For others to determine the applicability of our findings to other, similar populations, we analyzed the demographic data of the subjects in this study. Out of 561 subjects, 512 beef producers provided responses through the dependent variables. Table 3 portrays subjects' characteristics as it relates to their involvement in the beef cattle industry and attention to seedstock ads.

Table 3

Subjects' characteristics relevant to beef cattle industry involvement

Demographic Variable		<i>n</i>	%
Manage Beef Cattle	Yes	490	95.7
Operation	No	22	4.3
Primary Decision	Yes	450	92.4
Maker	No	37	7.6
Operation Type	Seedstock	297	58
	Commercial cow/calf	261	51
	Stocker	34	6.6
	Feedlot	33	6.4
	Other	18	3.5
Pay Attention to	Yes	470	91.8
Seedstock Ads	No	42	8.2
Primary Income	Yes	196	39.4
from Beef Cattle	No	298	59.8
Production	I don't know	4	.8

Note. $n = 512$. Operation Type percentages do not add up to 100 because subjects could choose more than one answer.

Exploratory demographic questions gleaned information on subjects' individual cattle operations (Table 4).

Table 4
Breakdown of additional exploratory demographic questions

Demographic Variable	Minimum	Maximum	M	SD
Average Price Paid for an Angus Bull in the Last 5 Years in U.S. Dollars	\$1,000	\$25,000	\$6,368.26	\$4,172.38
Years in the Cattle Business	0	74	29.36	16.41
Operation Size by Head of Cattle	0	13,000	280.86	829.56
Priority Traits Valued		n		
	Carcass	297		
	Growth	373		
	Maternal	399		
	Docility	379		

Note. $n = 512$

Research Question and Hypotheses Results

RQ1: Does the use of strong graphic design principles result in different levels of trust and credibility with the viewer? To analyze RQ1, a univariate analysis of variance was conducted using trust and credibility as dependent variables and strong design treatment groups as the independent variable. Results show a significant difference in trust exists among strong design treatment groups, $F(2, 220) = 4.52, p = .01$. There was a small effect size, partial $\eta^2 = .04$. Post-hoc Tukey HSD comparisons indicated subjects in the strong emphasis group ($M = 3.77, SD = .75$) had a higher level of trust than the strong perceptual forces ($M = 3.41, SD = .73$) group. Therefore, the strong emphasis design was operating as intended in relation to stimulating stronger levels of trust with the viewer. However, results a significant difference in credibility did not exist among strong design treatment groups, $F(2, 220) = 2.39, p = .1$.

H1: Strong use of unity principles will result in higher levels of brand trust relative to weak use of unity. Little variation in trust existed among subjects who were shown the strong unity ad ($M = 3.50, SD = .77$) and subjects shown the weak unity ad ($M = 3.41, SD = .78$). The t -test results no significant differences in mean brand trust scores between the strong and weak unity groups, $M_{diff} = .09$ (95% CI, -.16 to .34), $t(145) = .7, p = .24, d = .11$. Therefore, H1 was not supported.

H2: Strong use of emphasis principles will result in higher levels of brand trust relative to weak use of emphasis. Little variation in trust existed among subjects shown the strong emphasis ad ($M = 3.77, SD = .75$) and subjects shown the weak emphasis ad ($M = 3.58, SD = .79$). The t -test results no significant differences in mean brand trust scores between the

strong and weak unity groups, $M_{diff} = .19$ (95% CI, -.07 to .44), $t(141) = 1.46$, $p = .07$, $d = .24$. Therefore, H2 was not supported.

H3: Strong use of perceptual force principles will result in higher levels of brand trust relative to weak use of perceptual forces. Little variation in trust existed among subjects shown the strong perceptual forces ad ($M = 3.41$, $SD = .73$) and those shown the weak perceptual forces ad ($M = 3.38$, $SD = .76$). The t -test results no significant differences in mean brand trust scores between the strong and weak unity groups, $M_{diff} = .04$ (95% CI, -.21 to .28), $t(142) = .28$, $p = .39$, $d = .05$. Therefore, H3 was not supported.

H4: Strong use of unity principles will result in higher levels of ad credibility relative to weak use of unity. Little variation in credibility existed among subjects shown the strong unity ad ($M = 3.96$, $SD = .93$) and subjects shown the weak unity ad ($M = 3.75$, $SD = 1.08$). Because homogeneity of variances was violated, results were reported from the equal variances not assumed row from the SPSS output. The t -test results no significant differences in mean brand trust scores between the strong and weak unity groups, $M_{diff} = .21$ (95% CI, -.11 to .54), $t(147.74) = 1.31$, $p = .1$, $d = .21$. Therefore, H4 was not supported.

H5: Strong use of emphasis principles will result in higher levels of ad credibility relative to weak use of emphasis. Little variation in credibility existed among subjects shown the strong emphasis ad ($M = 4.14$, $SD = .90$) and subjects shown the weak emphasis ad ($M = 4.00$, $SD = .90$). The t -test results no significant differences in mean brand trust scores between the strong and weak unity groups, $M_{diff} = .19$ (95% CI, -.11 to .49), $t(412) = 1.28$, $p = .1$, $d = .21$. Therefore, H5 was not supported.

H6: Strong use of perceptual force principles will result in higher levels of ad credibility relative to weak use of perceptual forces. Little variation in credibility existed among subjects shown the strong perceptual forces ad ($M = 3.81$, $SD = .94$) and subjects shown the weak perceptual forces ad ($M = 3.79$, $SD = .92$). The t -test results no significant differences in mean brand trust scores between the strong and weak unity groups, $M_{diff} = .02$ (95% CI, -.28 to .33), $t(413) = .15$, $p = .44$, $d = .02$. Therefore, H6 was not supported (Figure 4).

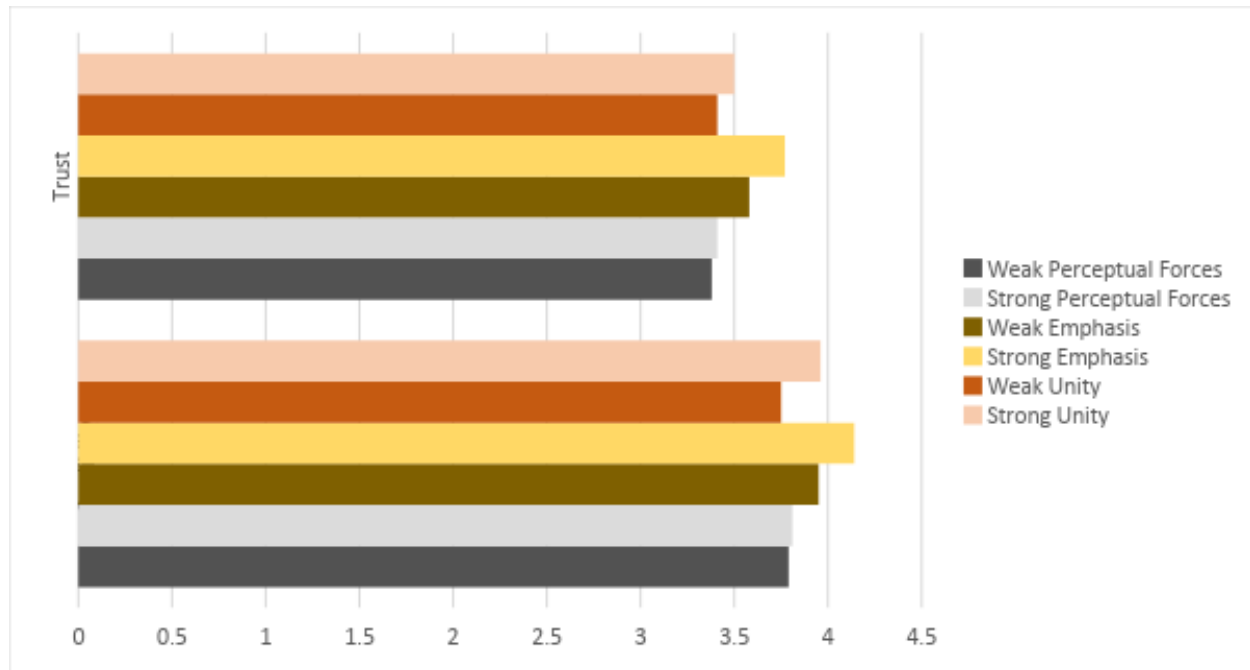


Figure 6. Bar graph showing the effect of design on trust and credibility averages.

Exploratory Analyses

An exploratory analysis was conducted to further analyze data since the hypotheses were not supported. An ANOVA was conducted using trust as the dependent variable and all treatment groups (including control) as the grouping variable. Results showed a significant difference in trust exists among all treatment groups, $F(6, 497) = 2.95, p = .01$. There was a medium effect size, $\text{partial } \eta^2 = .03$. Post-hoc comparisons using the Tukey HSD test indicated the mean score for strong emphasis ($M = 3.77, SD = .75$) was significantly different than the mean score for strong perceptual forces ($M = 3.41, SD = .73$). As was found with RQ1, those exposed to the ad using the strong emphasis principles had greater brand trust than those exposed to the ad using strong perceptual forces. When the same test was ran using credibility as the dependent variable, no significant differences existed among the treatment groups ($p > .05$).

An ANOVA was conducted using willingness to pay as the dependent variable and ad seen as the grouping variable. Results showed a significant relationship exists among treatment groups, $F(6, 499) = 3.41, p = .003$. Results showed a small effect size, $\text{partial } \eta^2 = .04$. Post-hoc comparisons using the Tukey HSD test indicated the mean score for weak unity ($M = .31, SD = 1.46$) was significantly different from strong emphasis ($M = .89, SD = 1.45$) and the control group ($M = .90, SD = 1.32$). This reveals the strong emphasis and control group were willing to pay more than the weak unity group for a bull from Glory Angus Ranch.

Discussion

Our study's findings showed Angus producers evaluated brand trust and ad credibility similarly regardless of a beef seedstock ranch's ad being poorly designed or well-designed. The same was the case for the exploratory measures of willingness to pay and expected price of the seedstock displayed in the ad. However, findings did point to the graphic design principle of emphasis being an important one to execute effectively in ads to induce stronger levels of brand trust. Likely, this stems from effective executions of emphasis making information that is relevant to potential

customer's decision making easier to find (Costello et al., 2013). Initial impressions of a brand seemed to have a role in influencing whether the design of the ads had an effect.

Design principles can guide the manipulation of verbal and visual elements within an ad and serve as building blocks of a composition (Costello et al., 2013). The effective application of design principles may reduce the cognitive effort of the viewer, attract attention, encourage information retention, and induce a favorable attitude toward the ad (Cook, 2006; Costello et al., 2013; Rossiter & Percy, 1980). When creating the ads used in the study, we strictly applied the design principles (unity, emphasis, and perceptual forces) discussed by Costello et al. (2013). In "strong" treatments, the designs theoretically enhanced the relevant product information by making it more easily identifiable and more readable within a clear and natural visual hierarchy compared to the "weak" treatments. Studies have shown white space in an ad can assist in establishing trust with consumers, as well as other concepts related to credibility (Olsen, Pracejus, & O'Guinn, 2012). Sillence and colleagues (2006) found viewers of a website ultimately chose to trust a company based on content rather than look or design alone. Contradictory to this finding, Kuzheleva-Sagan and Suchkova (2016) found the use of graphic design can increase viewers' trust. Likewise, Robins and Holmes (2008) found more aesthetically appealing web content generated higher levels of perceived credibility. The study countered these results by suggesting the design of the ad did not matter, and those who saw an ad did not differ from those who did not (i.e., the control group). Thus, it aligned more with Sillence and colleagues' (2006) findings.

The volume of literature this study was based on suggested our hypotheses should have been supported, but they were not. Therefore, we reflect and discuss other literature that could explain our results and help inform future research in this area.

The discrepancy between the design treatment groups and perceptions of trust and credibility could be explained by the description of brand represented in the ad that each subject was provided at the beginning of the study. The brand description shed a positive light on the ranch represented in the study by stating how long it had been in business and production practices. In designing the experiment, the brand description seemed necessary to provide additional background information on the fictional ranch being presented and to ensure the control group had more natural information to use in responding to the measures (as opposed to a completely unrelated ad). Duration in business can establish trust (Fisher, Till, & Stanley, 2010; Moorman, Deshpandé, & Zaltman, 1993); the brand description stated Glory Angus Ranch was in its fifth generation, which could have been an influencing factor to establish positive attitudes with potential customers. First impressions can further formulate expectations for interpersonal encounters (Evans, Kleine, Landy, & Crosby, 2000). Viewers of ads form brand impressions no matter if attention is paid to ads intentionally or not (Gressel, Carlston, & Oakley, 2013; MacInnis, Moorman, & Jaworski, 1991). In the case of this study, the brand description could have created a positive first impression for study participants. Campbell and Pisterman (1996) stated that a positive first impression may lead the viewer to disregard negative impressions later, called confirmation bias. This first impression leads to the formation of hypotheses, and all new contradicting or supporting information is disregarded (Rabin & Schrag, 1999). Furthermore, Sheeran, Norman, and Orbell (1999) proposed individuals' attitude serves as a predictor of intention and visuals can play a mediating role to intention. This may explain why our participants were presented an ad, but the main analyses indicated the ad did not influence brand trust, ad credibility, willingness to pay, or price expectancy. Their first impressions from the brand description were presumably strong enough that the ads simply did not influence them any further.

Besides the effects of the brand description in potentially establishing brand trust and ad credibility, cultural factors could have also had an influence. Recall that a partial impetus for the study was a question as to whether the current design practices within the beef seedstock advertising industry may be effective with target audiences because they demonstrated livestock/agriculture cultural acuity, and perhaps conveyed a sense of belonging to the social group. Brumbaugh (2002) found so long as an ad viewer's dominant culture was presented via source cues like the people featured or described, nonsource cues like the background did not impact their attitudes or connection felt with the ad. Although not directly examined by Brumbaugh (2002), the ad's layout and design would also be a type of nonsource cue. The photos of the bulls and the description of the ranch advertising the products operated as the source cues to establish cultural fit, and those remained consistent across all groups. We only changed the manipulation of nonsource cues—the layout and design—which had no effect on beef producers' brand trust and ad credibility. Although we suspected the ad design itself to be a strong indicator of cultural affiliation with the beef cattle producers' culture, perhaps it is not, at least as operationalized in this study. Therefore, this study supports Brumbaugh's (2002) findings that cultural source cues are more powerful influencers than nonsource cues.

Although the findings from this study are not what we expected, they still provided important insights to livestock marketing. If the design of an advertisement essentially does not matter, where should producers place added marketing emphasis? A potential customer's perception of trust and credibility toward a brand are important to gain if a producer wants them to seek more information about buying cattle and then “close the deal”. But this study suggests trust and credibility may be gained through other interactions and information, rather than having a well-designed ad.

Recommendations for Practice

If our study's findings do indeed align with Brumbaugh (2002) and literature on first impressions and confirmation bias, then livestock marketers should worry less about ad design and more about strategically communicating information potential buyers desire to see. Ads should emphasize information about who is selling cattle (the ranch), what is being sold is, when the cattle are available or sale date, where the cattle are, how to purchase, and why or what sets the product (the cattle) apart from others available.

The exploratory analyses revealed those exposed to an ad using strong emphasis had greater trust in the brand compared to those who saw an ad using strong perceptual forces. This was a surprising relationship to find, especially since these two groups were both strong design treatments. Throughout all of the analyses, strong emphasis was the closest predictor to influencing trust and credibility. Maybe this was due to information in the ad being easier to distinguish and find because it is emphasized more clearly. This may also point to the importance of the information (i.e., text) contained within the ad over the design in increasing brand trust. Therefore, designers should consider applying strong emphasis in designing ads to foster increased trust while ensuring the necessary information to create trust is communicated.

Recommendations for Research

We recommend conducting an experiment similar to this one, except omitting the use of a brand description. Instead, only use ads as manipulations to the varying treatment groups. The use of the brand description was intended to provide information emphasizing what was in the ads but provided enough for the control group to answer the questionnaire without seeing a design

treatment. Instead of a brand description for the control group, a random, unrelated ad could be used for something outside of the livestock industry. By not using a brand description within the experiment, perhaps the first impression may be alleviated and will encourage responses directly based off the ad seen.

Furthermore, we also suggest conducting the same experiment, but instead of a single brand description, use two different brand descriptions. One of the brand descriptions can describe a well-established, multi-generational ranch similar to the description used in the current study, while the other description can describe a first-generation ranch. Another option could be to describe a ranch that manages a large number of cattle (a few hundred or more cattle) versus a ranch that manages less than 100 cattle. Based off previous literature supporting that length of time in business helps establish trust (Fisher, Till, & Stanley, 2010; Moorman, Deshpandé, & Zaltman, 1993), the differences in the brand description could play a role in establishing varying first impressions.

Finally, as Lazard and Atkinson (2015) pointed out, more research is needed to disentangle how design and visuals are processed in tandem with text or verbal messages within the context of the theoretical tenants of ELM. This study's ads kept all text information the same across treatment conditions and we did not see any persuasion effects on trust or credibility, but we also did not measure or intend to compare central versus peripheral processing. Rather, ELM supported our hypotheses in addition to the other literature in that the better-looking/well-executed designs should have had greater persuasive effects than those with poorer/weaker-executed designs. Future studies should measure or manipulate cognitive processing to better explain how design may interface with this dual-processing model.

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