

## Effecting Change through Storytelling

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**Abstract:** There is evidence that the American agrifood system is a significant contributor to environmental, economic, social, and ethical-animal welfare damage to the earth and to society and is unsustainable, yet the worldview of a substantial percentage of the population conflicts with this assessment. A significant number of researchers, non-governmental organizations, and government entities assert that the detrimental effects of industrial agriculture must be addressed without delay and sustainable agricultural practices implemented. Attempting to change a worldview is not an easy task. A growing body of research in other disciplinary areas suggests that storytelling can serve as an effective method of fostering change. This mixed-methods study examines the role of storytelling in effecting positive change in worldview and attitudes toward sustainable agriculture. The study explores the effects of Story-based versus Information-based treatments on effecting positive change in attitudes toward sustainable agriculture. The hypothesis of the study is that Story-based treatments will be more effective in promoting positive change than will Information-based treatments. The findings of the study provide evidence supporting this hypothesis. The story characteristics found to be associated with positive change included: first-hand personal view, vivid description, and identification with the story narrator.

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## Introduction

A number of researchers contend that the American agrifood system, as it currently functions, exerts a significant negative impact on the environment, the economy, and social conditions. John Ikerd, Professor Emeritus of Agricultural Economics, University of Missouri, acknowledges that although the industrialization of agriculture has increased the availability of food and reduced its costs, “it has done so by imposing significant costs on nature and society through environmental degradation and growing social inequity” (Ikerd, 2009, p. 13). He argues that such practices are not sustainable over the long run. Other researchers express agreement with this assessment (Horne & McDermott, 2001; Krisberg, 2008; Pew Commission on Industrial Farm Animal Production, 2008; Pretty, 2007; Shiva, 2000; Tegtmeyer & Duffy, 2004; Union of Concerned Scientists, 2008).

Numerous researchers assert that we can no longer afford to ignore the negative effects of industrial agriculture and contend that the well-informed and recognized practice of sustainable agriculture has the capacity to meet the food and fiber needs of our citizens as well as those of the global community, along with the added benefits of environmental and resource protection (Badgley & Perfecto, 2007; Badgley, et al., 2007; Horne & McDermott, 2001; Ho, 2007; Ikerd, 1996; Millennium Ecosystem Assessment, 2005; Pretty, Morison, & Hine, 2003; Tilman, Cassman, Matson, Naylor, & Polasky, 2002). In addition, Ikerd (1996) indicates that, “this new paradigm seems capable of creating benefits the industrial model is inherently incapable of creating, such as greater individual creativity, dignity of work, and attention to issues of social equity” (p. 7).

## Current Paradigm and Worldview

Given the growing body of research regarding the negative impacts of modern agricultural practices and the inclusion of this issue in the popular media such as the movie, *Food, Inc.* (Kenner, 2008), and the *Time* magazine article, “America’s Food Crisis and How to Fix It” (Walsh, 2009), it seems logical that a considerable number of Americans would express negative views toward industrial agriculture and demand change. While some do, several Gallup polls have found that a significant percentage of Americans hold positive attitudes toward agriculture. In a 2001 poll, 89% of Americans expressed confidence in the safety of the nation’s food supply (Saad, 2001). In a more recent Gallup poll, almost 56% of Americans had a positive attitude toward industrial agriculture, only marginally exceeded by the restaurant industry with 57%, and the computer industry with a 62% approval rating. Positive attitudes toward such agriculture actually rose six points from 2008 to 2009 (Jones, 2009). How can this contradiction be explained?

In the work of fiction *Ishmael* (Quinn, 1992), the teacher Ishmael, a gorilla who represents the Jungian “Wise Old Man” archetype (Frye, 1971, p. 151), asks his pupil (a young man), “What have people been told that keeps them from becoming excited, that keeps them relatively calm when they view the catastrophic damage they’re inflicting on this planet?” The student answers that he doesn’t know. Ishmael goes on to answer the question himself in the following manner:

They've been told an explaining story. They've been given an explanation of *how things came to be this way*, and this stills their alarm. The explanation covers everything, including the deterioration of the ozone layer, the pollution of the oceans, the destruction of the rain forests, and even human extinction--and it satisfied them. (Quinn, 1992, p. 44)

This statement expresses the essence of "paradigm." Kuhn (1970) first used the concept of "paradigm" to explain the underlying assumptions of scientific debates. He also introduced the term "paradigm shift" to describe a change in the basic assumptions within prevailing scientific theory. Shortly thereafter, in 1974, Pirages and Ehrlich describe paradigm as "a prominent worldview, model or frame of reference through which individuals, or collectively, a society interpret the meaning of the external world" (p. 43), thus transferring the concept to the sociocultural realm. The term "paradigm shift" has come to signify a change from one way of thinking to another. When the term "paradigm" is used, the writer is often using the word to signify a "prominent world view," as described by Pirages and Ehrlich, rather than the underlying assumptions of a scientific debate.

What many Americans have grown up believing, that is our worldview about agriculture, can be found on the website of the United States Department of Agriculture National Agriculture Library's Alternative Farming Systems Information Center:

The prevailing agricultural system, variously called "conventional farming," "modern agriculture," or "industrial farming" has delivered tremendous gains in productivity and efficiency. Food production worldwide has risen in the past 50 years; the World Bank estimates that between 70 percent and 90 percent of the recent increases in food production are the result of conventional agriculture rather than greater acreage under cultivation. U.S. consumers have come to expect abundant and inexpensive food. (Gold, 2007, para.10)

The transition from industrial agriculture to sustainable agriculture will not be a simple one. Attempting to change a long-held worldview is not an easy task. Just the suggestion that change should be considered may raise negative emotions in some people and increase resistance to change. When people disagree with you, giving logical reasons for change rarely works. In fact, it may make them even more opposed to what you are suggesting (Denning, 2007; Festinger, 1957; Kunda, 1990; Lord, Ross, & Lepper, 1979; Westen, Blagov, Harenski, Kilts, & Hamann, 2004). In spite of this, the most common methods among many educators when addressing the need for change remains the use of didactic lectures and/or the distribution of informational factsheets (Grace, 1996; Strong & Harder, 2009).

### **Change through Storytelling**

A number of researchers, educators, and practitioners have discovered that there is power in story and storytelling to effect change. Haven (2007) suggests that this may occur because human beings are "evolutionarily hardwired... to think in story terms" (p. 4). Slater and Rouner (2002) think it is associated with the "suspension of disbelief" that occurs when involved in story (p. 179). Kincaid's (2002) drama theory contends it is because of identification with characters in the story and the emotional response evoked.

The theoretical basis of this study is drama theory and the psychology of narratives. Drama theory, as described by Kincaid (2002), contends that drama impacts audience members as a result of identification with the characters and emotional involvement in the story.

According to Kincaid, “the empathic emotional response in the audience is the motivational force that induces members of the audience to reconceptualize the central problem depicted in the drama and to resolve it in a similar manner in their own lives” (Kincaid, 2002, p.150). This “reconceptualization” can be likened to the concept of an alteration in world view (a.k.a. paradigm shift) since it signifies a change from one way of thinking to another (Kuhn, 1970). It is this shift that leads to changed behavior.

The psychology of narratives describes humans as social information processors. They process stories efficiently, with minimal effort and high recall. Absorption of the material presented is high and counter-arguing is reduced. This blocking of counter-arguing “provides an extraordinary opportunity to influence individuals who would ordinarily be resistant to persuasion” (Slater & Rouner, 2002, p. 180). This may be due to the “suspension of disbelief” which often occurs when one is involved in watching a drama. According to this theory, there is evidence that even fiction can create an opportunity for changes in beliefs.

### **Purpose and Objectives of the Study**

The purpose of this study was to identify the effects of storytelling on college students’ attitudes related to sustainable agriculture in the United States. The specific objectives of the study were: (1) to examine the impact of a carefully crafted story on college student’s attitudes toward sustainable agriculture, and (2) to explore what qualities of the story are associated with change as experienced by study participants. The hypothesis of the study was that Story-based treatments would be more effective in promoting positive change in attitudes toward sustainable agriculture among college students at Virginia Tech than would Information-based treatments. Two groups of students were studied including students in the College of Agriculture and Life Sciences who have had formal coursework in agriculture (n=65) and students from the College of Liberal Arts and Human Sciences without such coursework (n=77).

### **Methods/Procedures**

The design used in this study was an embedded sequential mixed methods design (Creswell & Plano Clark, 2007). In this type of design, one data set, in this case the qualitative, provides a supportive, secondary role in the study based primarily on the quantitative data. A two-phase (sequential) approach is employed and the quantitative and qualitative data are used to answer different research questions within the study (Figure 1).

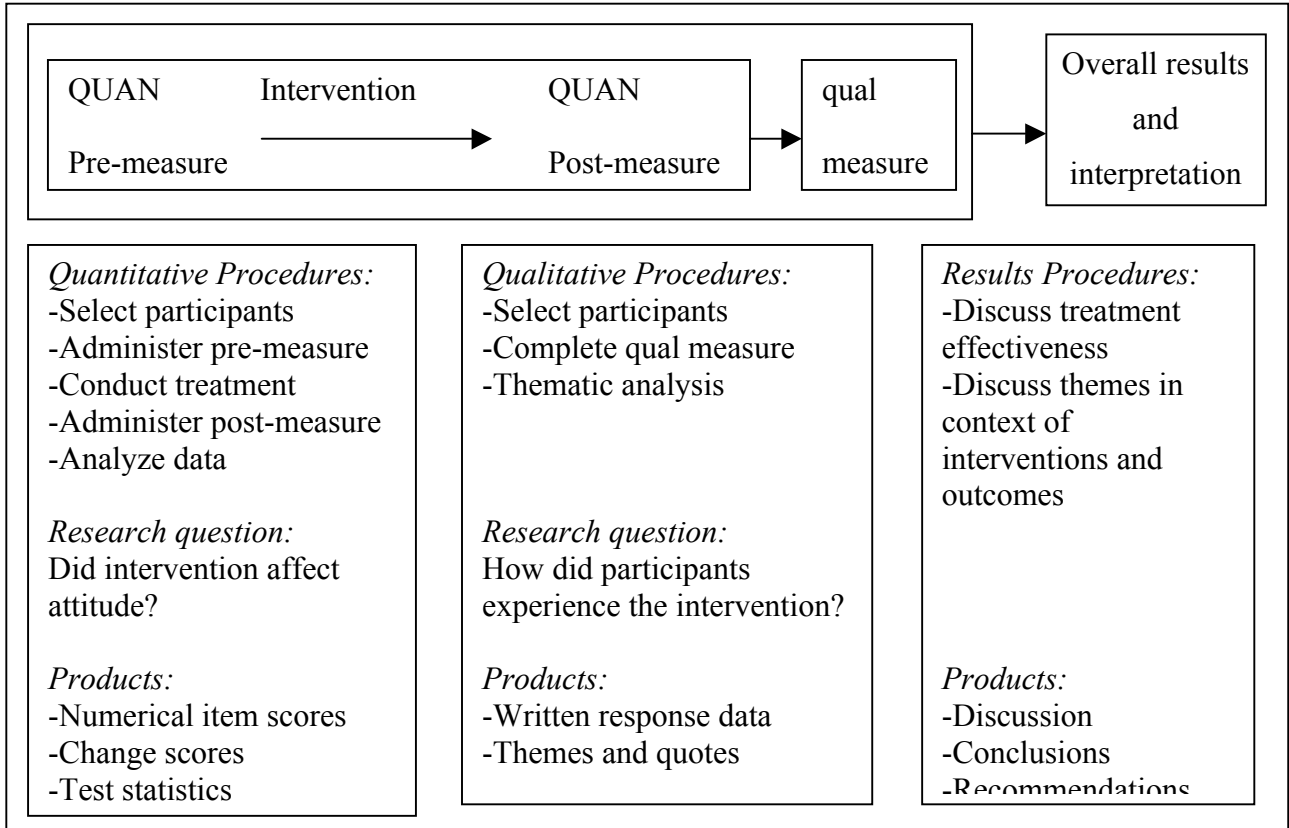


Figure 1: Embedded Sequential Mixed Methods Design Model. Based on components from *Designing and Conducting Mixed Methods Research* (p. 51 & 68), by J. W. Creswell and V. L. Plano Clark, 2007, Thousand Oaks, CA: Sage Publications, Inc.

This mixed-methods study addressed the effects of storytelling on college students’ attitudes related to sustainable agriculture in the United States. Pre-post quantitative data was collected using the Sustainable Agriculture Paradigm Scale developed for use in the study, to test drama theory and the psychology of narratives which predict that drama, embodied here in the form of a story (i.e. narrative), can positively influence worldview and attitudes toward sustainable agriculture. The process used for developing the instrument is shown in Figure 2. The qualitative data, collected through open-ended questions after the intervention, was used to explore what qualities of the story were associated with change as experienced by study participants.

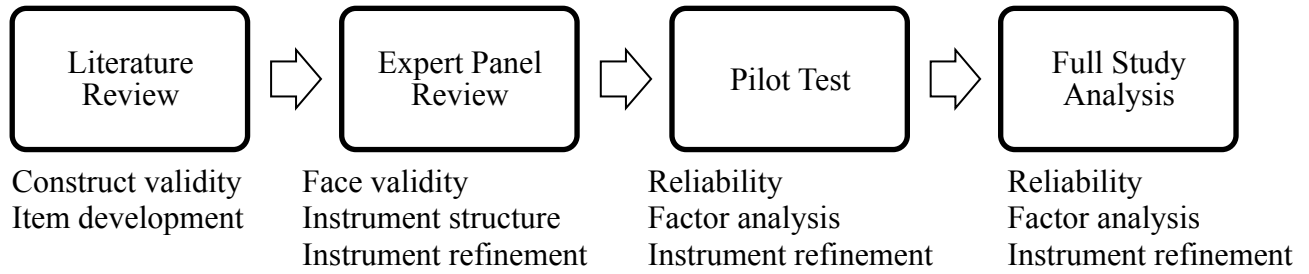


Figure 2. Development process of the Sustainable Agriculture Paradigm Scale.

Working with student subjects from both the College of Agriculture and Life Sciences and the College of Liberal Arts and Human Sciences, we randomly assigned sub-groups from each college to one of four treatment groups (Figure 3). Each treatment group contained students from both colleges. All treatments were conducted during normal class time. The different treatment regimes served as the primary independent variables in the study and consisted of:

- 1) listening to a story told by a storyteller,
- 2) reading the same story individually and silently,
- 3) listening to a didactic lecture containing the same basic information but not in story form,
- 4) individual and silent reading of fact sheets containing the same information.

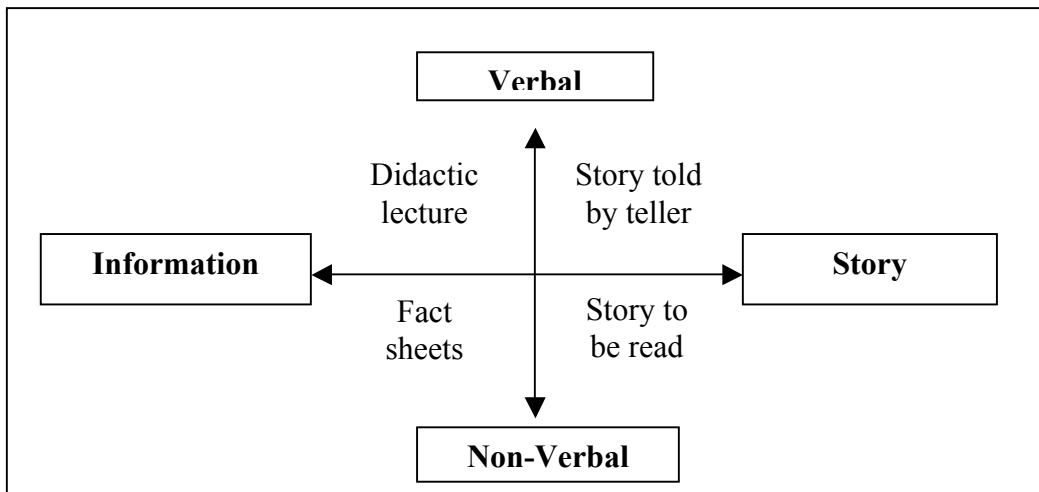


Figure 3: Illustration of the four treatment regimes used in the study. The verbal regimes include a didactic lecture and a story told by a teller. The nonverbal regimes include factsheets read individually and silently, and the silent reading of the same story told by the teller.

### Story Development

At the time of this study, no suitable “story” about sustainable agriculture and the raising of livestock existed. Therefore, we created a story for use in the study and selected an appropriate storyteller. Story development began with a review of the literature to identify the

significant elements of a story designed to effect change and important characteristics to look for when choosing a storyteller. Based on the review, we identified the following important components: structure, time sequence, plot, character, struggles, meaning, emotions, and details. The story created for this study tells of a young man's unplanned visit to a small, rural community in which a Concentrated Animal Feeding Operation (CAFO) had opened several years prior. The abbreviation "CAFO" refers to the practice of raising farm animals in confinement at high stocking densities (i.e., beef cattle > 1,000; pigs > 2,500; chickens > 100,000).

Through interactions with local residents, and a visit to the CAFO, the young man learns of the economic, environmental, and social effects this enterprise has had on the community and on the welfare of animals. He finds himself struggling with his attempts to rationalize the situation but finds that his emotions and conscience will not allow him to reconcile the situation to his satisfaction. He undergoes an intense period of confusion, turmoil, and doubt. He finds that, in order to resolve his inner conflict, he has to rethink the life he lives and the choices he makes (Grace, 2010).

### Selecting the Storyteller

To tell the story, we selected a graduate student colleague, Chaney Moseley. We believed he would be appealing to the college students to whom the story would be told. Chaney is in his early 30's and spent a number of years teaching high school before returning to graduate school. He likes students, and it shows. He wears a somewhat spiked haircut and dresses casually but well. More importantly, however, he is expressive in his speech and physical movements. His enthusiasm is contagious. He possesses what is often referred to as charisma. As pointed out by Gladwell in *The Tipping Point* (2000), "only the charismatic person could infect the other people in the room with his or her emotions" (p. 86). Since the theories underlying this study are concerned with emotion and identification with characters, it was crucial for the storyteller to possess this characteristic.

### Results/Findings

To begin analysis, we applied a paired-samples t-test to evaluate the impact of the Story-based treatment, the Information-based treatment, or no treatment (Control Group) on participants' scores on the Sustainable Agriculture Paradigm Scale. For the Story-based treatment group, there was a statistically significant increase from pre-test ( $M=3.643$ ,  $SD=.613$ ) to post-test ( $M=3.792$ ,  $SD=.656$ ,  $t(65)=-4.656$ ,  $p<.005$ ). The eta squared statistic (.25) indicated a large effect size. There was no statistically significant increase from pre-test to post-test for either the Information-based treatment group or the Control Group. Accordingly, the statistics suggest that the Story-based treatments had a large effect on students' scores on the Sustainable Agriculture Paradigm Scale, whereas the Information-based treatments had no effect.

We conducted a two-way between-groups analysis of variance (ANOVA) to explore the impact of the Information-based versus the Story-based treatment groups, and the Oral versus the Read treatment groups on change in attitude toward sustainable agriculture. The Control Group was included as receiving no treatment. Results indicate a statistically significant main effect for

the Story-based treatment groups [ $F(1, 138)=9.341, p=.003$ ]. The effect size was moderate (partial eta squared=.063). The main effect for Oral versus Read treatments [ $F(1, 138)=1.141, p=.287$ ] and the interaction effect Oral versus Read treatments \*Information versus Story treatments [ $F(1, 138)=.268, p=.605$ ] did not reach statistical significance. Accordingly, the statistics suggest that while the Story-based treatments had a moderate effect on students' scores on the Sustainable Agriculture Paradigm Scale, there was no distinction between Oral versus Read treatments.

### Multiple Linear Regression

To explore which variables in the study had the greatest influence on attitudes toward sustainable agriculture, we analyzed the data using multiple linear regression. Using the enter method, 15 variables were entered into the analysis. These were demographic and study-specific independent variables including: Age, Gender, College, Political Preference, Academic Standing, Food Purchases, Meat in Diet, Race/Ethnicity, Visits to Small Farm, Residence, Visits to a CAFO, and College Major. Additional independent variables entered in the analysis were Pre-test Score, Oral treatment, Story treatment, and Emotional Reaction to treatment. These were included based on the literature review, the theories underlying the research, and the likelihood of their having an effect on the Change Score. The dependent variable was Change Score.

A significant model emerged from the analysis ( $F_{15,108}=1.810, p<.05, \text{Adjusted } R^2=.090$ ). "Visits to a CAFO" and "Story Treatment" emerged as significant variables. Of the remaining variables, Pre-Test Score and Emotional Reaction came closest to significance. Using the enter method, we conducted a second reduced regression analysis including these two variables along with Visits to a CAFO and Story Treatment. The dependent variable was Change Score. From this analysis, a significant model emerged ( $F_{4,121}=5.270, p<.05, \text{Adjusted } R^2=.120$ ). Significant variables included Visits to a CAFO, Story Treatment, and Pre-Test Score (Table 1). Visits to C.A.F.O. emerged as the strongest predictor of Change Score, accounting for 8.8% of the variance. The second strongest factor was Story Treatment, accounting for an additional 5% of the variance in Change Score. The third strongest factor was Pre-Test Score which accounted for 3.7% of the variance. These three variables account for 11.6% of the total variance. Emotional Reaction did not reach statistical significance as a predictor of change in attitudes toward sustainable agriculture.

Table 1  
*Significant Variables from the Reduced Regression Analysis*

Variable	$\beta$	t	Sig.	$sr^2$ (unique)
(Constant)		-.093	.926	.
Visits to C.A.F.O.	-.350	-3.538	.001	.088
Story Treatment	.230	2.655	.009	.050
Pre-Test Score	-.231	-2.291	.024	.037



## Split File Analyses

Because of the possibility of distinct responses to treatment between participants from the College of Agriculture and Life Sciences classes and participants from the College of Liberal Art and Human Sciences class, the data file was split and analyses conducted on each group separately.

We conducted a split file, paired sample T-test to assess the impact of differences between participants from the from College of Agriculture and Life Sciences classes and the College of Liberal Arts and Human Sciences on scores on the Sustainable Agriculture Paradigm Scale across two time periods (pre-intervention and post-intervention). Among the participants from the College of Liberal Arts and Human Sciences, there was a statistically significant increase in scores from the pre-test ( $M=4.0073$ ,  $SD=.45843$ ) to the post-test ( $M=4.0917$ ,  $SD=.46424$ ,  $t(76)=-3.463$ ,  $p<.001$ ). The eta squared statistic (.136) indicated a large effect size. There was also a statistically significant increase in scores among participants from the College of Agriculture and Life Sciences classes from the pre-test ( $M=3.3186$ ,  $SD=.60350$ ) to the post-test ( $M=3.4034$ ,  $SD=.68248$ ,  $t(64)=-2.290$ ,  $p<.025$ ). The eta squared statistic (.075) indicated a moderate effect size. The statistics suggest that students from both colleges experienced change in scores on the Sustainable Agriculture Paradigm Scale

To follow-up, we conducted a split file ANOVA to assess the effect of participation in either the Story-based or Information based-treatment group on change in scores from the pre-test to the post-test on the Sustainable Agriculture Paradigm Scale. There was a statistically significant difference in Change Scores for participants from College of Agriculture and Life Sciences classes who experienced a story based-treatment [ $F(1, 63)=6.071$ ,  $p=.016$ ]. The eta squared statistic (.09) indicated a moderate effect size. There was no significant difference in Change Scores among participants from the College of Liberal Arts and Human Sciences class who had experienced a Story-based treatment as compared to an Information-based treatment. Figure 4 graphically illustrates the differences between treatment groups split by college.

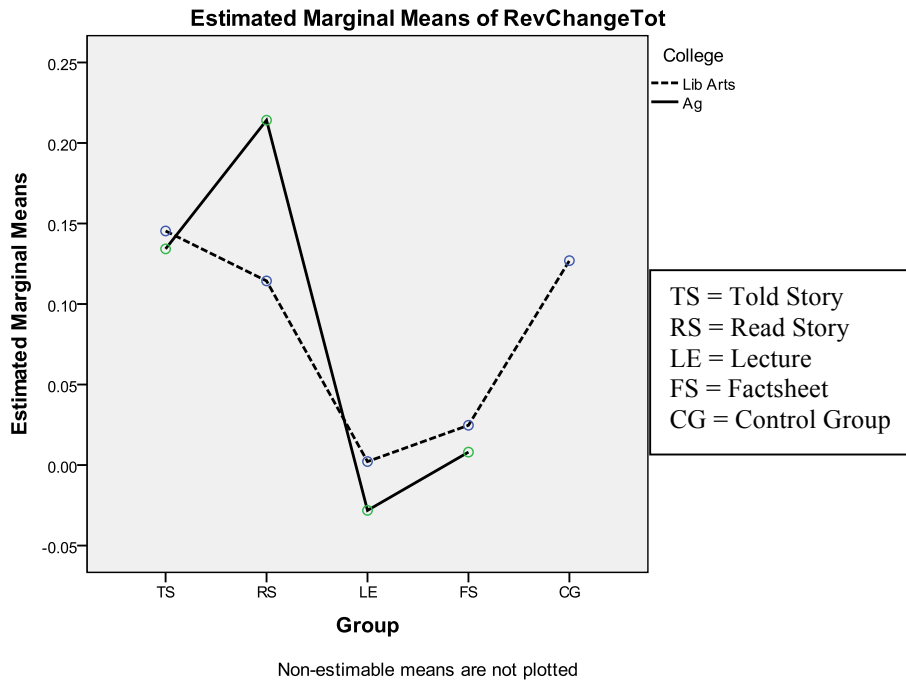


Figure 4. Change scores by treatment group split by college.

## Qualitative Themes

We applied Colaizzi's (1978) phenomenological method in analyzing the qualitative data. We read ritten responses several times to get an overview of their content and then identified significant phrases that referred directly to the participants' experience of the treatment. These phrases clustered into 11 themes:

1. First-hand personal view made it meaningful.
2. Vivid description made it real.
3. Sadness, concern, and empathy for pigs and people.
4. Identification with the narrator.
5. Intended behavior change.
6. Prior knowledge of CAFOs.
7. Don't like CAFOs and want to see change.
8. Information was biased/not true.
9. People are uneducated about agriculture.
10. Need CAFOs to feed population.
11. Angry about treatment content.

## Mixing of the Quantitative and Qualitative Data

To explain connections and/or relationships among the quantitatively derived constructs about attitudes toward sustainable agriculture, we mixed the quantitative data with the qualitative

data about participants' experience during and immediately following the intervention. To facilitate the mixing of the data, Change Scores were broken into quartiles. Scores in the top quartile ranged from +.25 to +.76. This upper quartile was designated as the "High Change" group (n=35). Scores in the bottom quartile ranged from -.12 to -.60. This lower quartile was designated as the "Low Change" group (n=34). Themes derived from the qualitative data were matched to the High Change Story-based treatment group, the Low Change Story-based treatment group, the High Change Information-based group, and the Low Change Information-based group (Table 3).

Table 2  
*Range of Change Scores by Quartile*

Lower Quartile (n=34)	Low Middle Quartile (n=36)	High Middle Quartile (n=37)	Upper Quartile (n=35)
-.12 to -.60	-.10 to +.08	+.10 to +.22	+.25 to +.75

Table 3  
*Mixing Table: Themes by Treatment and Change Group*

	High Change Group (+.25 to +.76, n=35)	Low Change Group (-.60 to -.12, n=34)
Story-Based Treatment (n=35)	<ul style="list-style-type: none"> <li>• First-hand personal view made it meaningful.</li> <li>• Vivid description made it real.</li> <li>• Identification with narrator.</li> <li>• Sadness, concern, and empathy</li> <li>• Behavior change intention</li> </ul>	<ul style="list-style-type: none"> <li>• Information was biased/not true.</li> <li>• People are uneducated about agriculture.</li> <li>• Sadness, concern, and empathy.</li> <li>• Angry about treatment content</li> </ul>
Information-Based Treatment (n=29)	<ul style="list-style-type: none"> <li>• Sadness, concern, and empathy</li> <li>• Behavior change intention</li> </ul>	<ul style="list-style-type: none"> <li>• Information was biased/not true.</li> <li>• Prior knowledge of CAFOs</li> <li>• Want to see change.</li> <li>• Sadness, concern, and empathy</li> </ul>

## Conclusions

Combining the two Story-based treatments (Told Story and Read Story) into the Story-based group, and the two Information-based treatments (Lecture and Factsheet) into the Information-based group, the results of a two-way ANOVA indicated a moderate, statistically significant effect for the Story-based treatment group but not for the Information-based treatment group. There was also no effect for Oral (Told Story and Lecture) versus Read treatments (Read Story and Factsheet) or an interaction between Oral versus Read and Information versus Story. These results provide evidence in support of the study hypothesis that Story-based treatments would have a greater effect on positive changes in attitudes toward sustainable agriculture among the study population than would Information-based treatments.

The regression model resulted in the identification of three significant variables: Visits to a CAFO, Story Treatment, and Pre-test Score. Visits to a CAFO and Pre-test Score were negatively related to Change Score, while the Story Treatment was positively related. In other words, controlling for Visits to a CAFO and Pre-test Score, experience of the Story Treatment was associated with increased change. Similarly, controlling for Pre-test Score and Story Treatment, as the number of Visits to a CAFO increased, the amount of change decreased. Also, controlling for Visits to a CAFO and Story Treatment, as the Pre-test Score increased, the amount of change decreased.

### **Interaction Effects-by College**

We gained further insight by splitting of the data file into College of Agriculture and Life Sciences (CALs) classes and College of Liberal Arts and Human Sciences (CLAHS) students. Participants from the CLAHS class had a large, statistically significant change from pre-test to post-test. They changed in response to the Story-based treatments, but they also changed, albeit to a lesser degree, by participating in the Information-based treatments. There was no statistically significant difference in Change Scores between the Story-based treatments vs. Information-based treatments for these participants from the CLAHS class.

A different picture emerged for participants from the CALs classes. They had a moderate, statistically significant increase in Change Scores from pre to post-test. However, CALs class participants showed a significant change only in response to the Story-based treatments. They did not change significantly in response to the Information based treatments. These findings raise the question, “Why was there a significant difference between participants from the different colleges, and what does it mean?”

By studying the results of the regression model along with participant frequency data, a possible answer to this question begins to emerge. As reported previously, the regression analysis identified the following variables as significant: Visits to a CAFO, Story Treatment, and Pre-test Score. During the data entry process we observed that students from the College of Agriculture and Life Sciences had visited CAFOs at a much higher rate than students from the College of Liberal Arts. In fact, less than 4% of students from the CLAHS class had ever visited a CAFO, whereas 52% of students from the CALs classes had done so. Since Change Scores decrease as Visits to a CAFO increase, it would seem logical that Change Scores would be lower for participants from the College of Agriculture and Life Sciences. This was not the case, however. The overall mean Change Score for participants from both CALs and CLAHS were quite similar (CALs:  $M=0.0848$ ; CLAHS,  $M= 0.0844$ ). We theorize this occurred because of an apparent interaction effect between Visits to a CAFO and Story Treatment. The CALs population experienced significantly more change due to the Story-based treatments than the Information-based treatments. This differential response seemed to offset the effects of the more frequent Visits to a CAFO. For the CLAHS population, there was no significant difference in Change Scores from one treatment to another.

Thus, what appeared to be an effect associated with College affiliation is actually an interaction effect between Visits to a CAFO and Story-treatment. This raises several interesting questions. Do Visits to a CAFO lead to affiliation with the College of Agriculture and Life Sciences, or does affiliation with the College of Agriculture and Life Sciences lead to Visits to a

CAFO? At this point we do not have enough information to respond to these questions. More research is necessary to explore this issue.

### **Conclusions from Mixing the Data**

Qualitative themes tended to be associated with a particular level of change and/or treatment group. The themes, “first-hand personal view made it meaningful”, “vivid description made it real”, and “identification with the narrator” were unique to the High Change, Story-based group. The themes, “people are uneducated about agriculture” and “angry about treatment content” emerged only in the Low Change, Story-based group. Both High Change groups shared the theme “behavior change intention” while both Low Change groups shared the theme “information was biased/not true.” The Low Change Information-based group had one unique theme, which was “want to see change.” All four groups shared the theme which was “sadness, concern, and empathy (*for pigs and people*).”

Returning to the question regarding why multiple visits to a CAFO seem to activate defensive responses, the mixed data provides some insight. Participants falling in the Low Change group seemed to have a personal connection or particular interest in industrial livestock production. Some students reported working at a CAFO or knowing people who do, or having superior knowledge regarding agricultural practices. This strong connection to industrial agriculture as a way of life may have elicited defensive responses from these individuals. Their worldview was defined by their relationship with industrial agriculture. When their worldview was challenged by the presentation of contradictory information, their defenses were triggered.

### **Final Reflections and Insights**

Based on the findings of the data presented here, the study was successful in providing evidence in support of the hypothesis that Story-based treatments would be more effective in promoting positive change in attitudes toward sustainable agriculture than Information-based treatments. A number of additional insights emerged from the data as well.

One particularly significant lesson is the importance of knowing and understanding your audience’s perceptions and attitudes toward a subject prior to planning an effective intervention. As was seen in this study, participants from the College of Liberal Arts and Human Sciences class responded with changed attitudes to all treatments, including the lecture and the factsheet, albeit to a lesser extent. Students from the College of Agriculture and Life Sciences classes, who were more resistant to change based on their visits to a CAFO, only responded to the Story-based treatments. The lesson being: If you have an audience that is open to the subject you are discussing, both Information and Story-based treatments may produce change. On the other hand, if you have an audience that is resistant to your message, Story-based treatments would be a far better choice.

The Regression Analysis, derived from quantitative self-reports, did not identify “emotional reaction” as a significant variable in the model. It is worth mentioning, however, that in the qualitative follow-up data, participants in the Story-based treatment groups reported experiencing a greater number and more extreme emotional reactions than participants in the Information-based treatments. Their responses to the open-ended questions were longer, more

detailed, and displayed a depth of thought not present in the responses from the other treatment groups. As the work of Westen et al. (2004) clearly demonstrates, emotions are highly involved in the decision making process. Thus, it is important to engage the emotions to foster change. The storytelling treatments did this effectively.

It is important to note that we were not successful in changing the attitudes of the most resistant study participants, identified as those who had visited a CAFO more than three times. Reviewing theories underlying this research, there are some clues as to why this was the case. The psychology of narratives contends that, in order for a drama to be effective in fostering change, it must be compelling enough to cause awareness of persuasive content to fade into the background. Slater and Rouner (2002) refer to this as “absorption” (p. 174). Similarly, Green and Brock (2000) propose that “transportation” is a mechanism through which narrative can affect beliefs. They define transportation as “absorption into a story” and specify that it involves imagery, affect, and attentional focus. The manner in which these two theories relate to the study is in terms of the story used, “Visiting Jewel: A Porcine Tragedy” (Grace, 2010). After reading through the qualitative data from the “Low Change” group, it seemed as if the story did not succeed in allowing the persuasive content to fade into the background sufficiently. One such comment from a participant in the “Low Change” group was particularly notable in highlighting this. He wrote, “I knew what he was going to describe before he even said ‘pig farm.’” Such preconceived thoughts remain a challenge when attempting to effect change.

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