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Using Interesting Text to Communicate Complex Natural Resources Issues

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Abstract: The research reported here examined the strategy of using specificity, quotes, characters, and case studies to increase the interest level of informative text about using wood for energy. Focus groups were used to gain in-depth understanding of how citizens perceive information conveyed through this style of text. The text accomplished its goal of sharing information and encouraging future involvement, but themes expressed in the focus groups highlight the challenges of creating interesting materials on complex issues for citizens. This article explains these concerns of mistrust, bias, and misconceptions to help others overcome similar challenges.

Introduction

As environmental issues become more complex and involve increasingly diverse stakeholders, Extension's role as a provider of research-based information remains critical. For example, the decision of whether or not to use woody biomass for energy requires that community planners, elected officials, energy representatives, resource managers, and interested citizens have access to and understand a wide array of technical information. Ideally, for citizens to develop informed opinions, they need to be aware of the issue, better understand the related factors, and be motivated to become further involved (Yankelovich, 1991). Extension agents are often called upon to conduct these outreach tasks, which can be especially challenging when the issue is unfamiliar and controversial.

Since written materials can quickly reach large audiences (Rodewald, 2001), many outreach programs use fact sheets or brochures to provide information. Fact sheets are typically written in an academic style for

audiences who seek knowledge about a particular topic. However, a nonacademic and more personal tone may be helpful to attract audiences to a new topic and invite them to become engaged, while still conveying science-based factual information. The purpose of the qualitative study reported here was to explore the use of specificity, quotes, characters, and case studies to increase the interest level of informative text about using wood for energy—a complex, technical, and locally controversial environmental issue.

Literature Review

Using wood for energy is an emerging issue that is gaining attention as communities across the United States explore alternative energy options. Americans know little about energy resources, use, and demand (NEEFT, 2002) and perhaps even less about using wood as an energy source. For example, 54.5% of respondents in a mail survey of residents in Alachua County, Florida considered themselves "not at all knowledgeable" about using woody biomass for energy. In addition, respondents held mixed attitudes toward supporting a local wood-to-energy proposal (Plate, Monroe, & Oxarart, 2010). Mixed opinions about this subject are found even within environmental organizations, where one might expect more uniform attitudes to exist (Monroe, Plate, McDonell, & Oxarart, 2011). In some instances, a lack of public support has led to renewable energy proposals coming to a standstill (Upreti, 2004). The unfamiliar and potentially controversial nature of this issue requires careful planning of education and communication strategies.

Public issues education developed in the early 1990s as an approach to help communities gain the knowledge, capacity, and skills necessary to effectively address different viewpoints (Dale & Hahn, 1994; Patton & Blaine, 2001). While Extension agents regularly access and provide research-based information, they may not be as familiar with adapting this information to better accommodate stakeholder values and perspectives. Presenting accurate, balanced information that includes all stakeholder viewpoints is an important component of educating the public about complex, controversial issues (Dale & Hahn, 1994; Patton & Blaine, 2001). The North American Association for Environmental Education's Guidelines for Excellence (2004) provides guidance for creating balanced educational materials. The fairness and accuracy guideline suggests that "materials should reflect sound theories and well-documented facts about subjects and issues, a range of perspectives should be presented in a balanced way, and materials should encourage learners to explore different perspectives and form their own opinions" (NAAEE, 2004, 5-6).

While many programs utilize written materials, the technical nature of environmental information can be overwhelming, abstract, and boring for readers (Kearney, 1994). In fact, research has found that text about natural resource topics can be ineffective at increasing comprehension and changing perceptions (George & Crooks, 2006). In addition, Toman, Shindler, and Brunson (2006) found that while more people were exposed to mass media than interactive communications concerning fire outreach programs, the mass media were generally rated as less helpful.

Alternatively, text that provides information in an understandable and memorable manner may be more helpful for learning (Young & Witter, 1994; Monroe & De Young, 1994). Interesting text, or text-based interest, is created through the use of "action, mystery, imagery, and meaningful characters" (Monroe & De Young, 1994, 244). This style of text takes advantage of characteristics that facilitate information transfer and is especially useful for topics that are distant or seem irrelevant. The following characteristics can increase text-based interest (Kearney, 1994; Monroe & De Young, 1994):

- Characters: Realistic, identifiable characters or real people.
- Mystery: The promise of new information, which leads the reader to seek answers.

- Vividness: Action-oriented, relevant, imaginable, and personalized text.
- Concreteness: Specific examples, numbers, and details.
- Storyline: Explanation over time of the problem, potential solutions, complications, and problem resolution.
- Relating to prior knowledge: Connections to the reader's existing knowledge, beliefs, and experiences.

A study by Young and Witter (1994) tested several communication characteristics by evaluating educational brochures about a natural resource management issue. Of the four characteristics determined to be the most effective at increasing knowledge, two increased text-based interest—mystery and vividness. The other two characteristics were legibility (text that is easy to understand and lacks jargon) and inclusion of motivational information (text that encourages the reader to be involved in the issue and specifically states the importance of their personal involvement).

Indeed, if program goals include enhancing public involvement in the issue, written materials should make the issue personally relevant, motivate the readers to act, and provide procedural information for how to act. Strategies such as provoking curiosity through questions and using relevant examples to promote interest can create conditions where the reader is "desirous of information, knowledge, insight, and skill" (Wlodkowski, 1999, 69). Focusing on intrinsic motivations of competence and participation gives people proximal, self-satisfying reasons to become engaged in natural resource issues (De Young, 2000; Kaplan, 2000).

Methods

Written text (hereafter called the "article") that explained the option of using wood for energy was developed specifically for the study reported here (Figure 1). Informational content was compiled from several Extension fact sheets and case studies from the Wood to Energy Outreach Program (Monroe, McDonnell, & Oxarart, 2007). The article was designed to

- Contain simple, understandable information about using wood for energy
- Address common questions and concerns
- Include differing perspectives
- Provide motivational and procedural information about public involvement in energy issues
- Contain vivid, concrete information
- Include examples of industries and businesses using wood for energy
- Include quotes from experts, professionals, and citizens

This style of written text differs from a typical Extension fact sheet and is more similar to a magazine article or feature story. Prior to using the article, a team of nine communication experts reviewed and rated the article on the text characteristics. This team consisted of professors, graduate students, and professionals

who conduct natural resource and agricultural education and communication. The article was revised based on review results in order to better meet the desired text characteristics.

Figure 1.
Sample Text from Article Reviewed in Focus Groups

How can wood be used for energy?

A community can use woody biomass to produce energy for residential, commercial, and industrial purposes. Wood-fueled facilities are typically smaller than most coal and natural gas facilities and produce less than 80 megawatts (MW) of electrical power, which is enough to power more than 32,000 homes per year. Craven County Wood Energy is an example of a facility that produces 50 MW of electrical power from biomass every day. This power plant is located near New Bern, North Carolina, a quaint historic town of about 25,000 residents just outside of the Croaton National Forest. Forests surround the power plant, and about 61 percent of the county consists of timberland. Plant Manager Paul Garrett explains that his facility uses more than 500,000 tons of waste wood per year. Standing near a massive pile of wood chips and several conveyor lines, Garrett proudly speaks of how his plant uses a waste resource. "Much of this wood would have ended up in county landfills. Instead we use it to supply energy, offsetting the demand on fossil fuel resources," he explains.

Focus groups were used to gain in-depth understanding of how readers perceive the information in the article. Since generalizing results to the population is not the goal of qualitative research, collecting data from segments of the population who can provide rich information about the research topic is important. Therefore, participants are selected because of similar characteristics, which relate to the research topic at hand (Krueger & Casey, 2000). For this research, we wanted to learn more from people who are likely to see and read fact sheets about an environmental community topic. This target audience of interested or civically active adults was reached by recruiting participants in Gainesville, Florida at community and environmental organizations, such as Kiwanis Club, League of Women Voters, the Sierra Club, and Friends of Nature Parks. In addition, we recruited participants from a local retirement community who were interested and/or active in community issues, because these potential participants had the available time to participate.

Interested volunteers completed a screening survey, which asked about their level of community interest and involvement, along with general demographic characteristics. Only volunteers who responded that they were at least "somewhat interested" and/or "somewhat active" in community issues were asked to participate. Respondents were assigned to three scheduled focus groups so that each group contained similar characteristics, making the groups as homogenous as possible (Krueger & Casey, 2000). Each group contained a mix of participants representing different community organizations, environmental organizations, and the retirement community.

At the beginning of each focus group, participants were asked to read the article and complete a short worksheet, which helped ensure they thoroughly read the article. After reading the article, participants were asked questions by the focus group moderator about their perceptions of the text, characteristics of the text, and interest in becoming further involved in the issue. The same interview guide was used for each group.

Several steps were taken to ensure the validity of this research (Krueger, 1998):

- Testing the interview questions in a pilot focus group
- Creating a comfortable group atmosphere
- Verifying key points in a summary during each group
- Debriefing with the focus group assistant
- Analyzing data in a systematic manner

The data analysis process included the following steps:

- Audio-recording and transcribing the focus group discussions verbatim
- Becoming familiar with the data through reading and listening to the discussion
- Coding the transcripts based on participants' similar ideas, perspectives, and research question topics
- Using the "long-table approach" to arrange portions of the transcripts containing the same codes (Krueger, 1998; Krueger & Casey, 2000)
- Refining, revising, or eliminating codes through a process of comparison
- Interpreting the descriptive codes and code groups to develop themes
- Displaying data in an easy-to-access matrix (Miles & Huberman, 1994)
- Sharing and confirming key results with research associates familiar with this study

Results

In December 2007, three focus groups were conducted in Gainesville, Florida (n=16). Most participants were white and non-Hispanic, over 50 years old, female, and had at least a bachelor's degree. These participants represent a select fraction of the public—most discussed concern for environmental issues and all participants considered themselves somewhat to very interested in community issues. Four themes developed from the focus groups: perceptions of text characteristics, mistrust, the information they expect, and biased information.

Perceptions of Text Characteristics

While some participants said the interesting text "doesn't help, but doesn't hurt" their understanding of the information, participants in all groups used the vivid and concrete examples from the text to discuss the local use of wood for energy. In addition, examples and places from the text that were familiar to participants were frequently mentioned, whether the example was concretely and vividly described or not. One participant summed up the benefits of interesting text by saying, "If we don't relate to [the text] somehow, whether the name, people, or place, then we're going to lose interest.... You need to make sure it reaches out to a bunch of different individuals and different personalities."

Many participants agreed that the people (characters) described in the article were not as memorable to them as the examples of facilities that use wood. The exception was one character who was mentioned by some participants as playing a role in making the information seem opinionated. This character was described in the text as smiling, and participants perceived that this made the article seem "real happy and positive about burning wood."

Participants also discussed how the examples, locations, and people provided opportunities to learn from others. One participant expressed this sentiment by stating:

My first reaction when they said using wood, was those forests...and was very anti. And as I read it and how they were doing it in certain places, it opened my mind a bit to say: well, in certain places where they have a facility and they have enough supply and people who know what they are doing, it might work.

Participants could imagine themselves taking part in the comfortable and informal actions that were suggested as motivational information in the article (e.g., learning more, touring power plant). Most participants were interested in learning more about the issue. One participant expressed, "One thing I did like is the reference to how to search for it on the Internet. I like putting the power to the person to continue their own research."

Mistrust

As participants discussed the text, they expressed feelings of mistrust and skepticism toward information sources and the industries that might be involved with a wood-to-energy project. Participants in all groups discussed the possibility that even though the university is a credible source of "fact-based" information, it may not be "objective" due to research funding. This feeling of a hidden agenda can be summed up by one participant's comment, "The [university] helps me, but I am also familiar with...their commercial interests and that kind of thing too."

Many participant comments reflect a basic lack of trust in industry. One participant expressed skepticism toward the actual use of good forest management practices by referring to an expert quoted in the article, "He says 'through good forest management practices the environment can not only be protected' and that's just an ideal because everybody hopes there is going to be good management practices, and we all know how that often works out." Other participants in the group agreed with this comment.

For some participants, no text would be able to overcome their skepticism of experts:

Even though they claim to be an expert on a subject, I don't think that they know what they are talking about. It's very scary. I'm very, very skeptical about things....So I just don't believe people always know what they are talking about.

The Information They Expect

This theme revolves around participants' discontent with the information that was or was not provided in the article. While the article contained information to address several aspects of using wood for energy, one participant strongly stated:

I got a lot of facts. But as I continue reading, my head kept telling me it's not answering the questions that I have in my mind. And I got to the end and my questions were still not answered.

Participants wanted more information to address their specific ideas and questions.

In addition, participants questioned information that disagreed with their prior knowledge and in some cases revealed misconceptions. For example, in reference to information about air pollution and carbon-neutrality of wood, one participant stated:

I was puzzled by the section on how is wood carbon neutral...I have always assumed that when you have a forest fire, everything is smoky. I have pulmonary problems, so I am aware of this. And they tell you 'go inside, don't go out.' And so now when they are saying its carbon neutral, I am puzzled at the discrepancy at the warnings we get about forest fires.

The article specifically tried to address this misconception by discussing why wood is considered carbon neutral and the difference between burning wood at an energy facility with emission controls and burning wood in uncontrolled environments (e.g., wildfire, fireplace), but this was not enough to address these participants' prior conceptions.

Biased Information

Participants in all groups provided unsolicited comments that the text seemed "more pro for using wood for energy" and "made short shrift of the negative." Primarily, participants felt the article was biased for the following reasons:

- The benefits of using wood for energy were well explained, while the concerns were not given enough consideration.
- The article only discussed woody biomass and did not contain information about other potential energy sources (e.g., wind, solar).
- The article's opposing viewpoint was a "token opposition" or easy to dismiss.

Participants were left feeling as though they need to find out more information about opposing viewpoints. One participant expressed this by saying:

If I were going to seriously think about using wood for energy, I would find someone who wrote a paper against wood for energy before I made up my mind. I mean I don't know if I'm for or against it.

Another participant wanted "more of the negative" examples. This need for differing viewpoints can be summed up by one participant's statement, "Well, I don't care if it's biased, as long as I get both biases, for and against, I could form my own conclusions."

Discussion and Recommendations

These results show that the use of interesting and motivational text has potential to build understanding and encourage future public involvement. Including a variety of concrete, vivid examples allows a range of readers to create meaningful connections to information that otherwise may remain technical and abstract. However, for complex issues, the interesting text should be carefully planned. In this case, situating facts and research-based information within a story-like context, where real characters show emotion or value-based information, probably contributed to themes of bias and mistrust.

While bias may be unintentional and unrecognized by the educator, perception is reality for the reader.

Some programs carry inherent value, because the act of developing a program means that it is worth the organization's time and consistent with their mission and goals (Blaine & Patton, 2000). Thus, the mere existence of a fact sheet about using wood for energy implies that the option is a viable one for some communities to consider—a point that may be incongruent with some readers' beliefs. In addition, participants with underlying feelings of mistrust approached the provided information with skepticism, which may have exacerbated their perceptions of bias. Wondolleck and Yaffee (2000) explain that feelings of mistrust can increase one group's suspicion and skepticism of another group's motives, methods for data analysis, and interpretation of data.

Finally, whether a result of mistrust or perceived bias, the text was unable to break down some participants' misconceptions. Misconceptions persist in one's cognitive framework, and they influence how new information is processed until they are confronted and new understandings are constructed (CUSE, 1997; Jacobson, McDuff, & Monroe, 2006). Sometimes learners may correct simple misconceptions by themselves when they learn new information; however, some misconceptions are deeply held by individuals and must be addressed through interaction between the educator and the learner (CUSE, 1997).

Before Extension professionals transfer these results to other issues and audiences, their issue's context and target audience should be compared to those described in this research (Krueger, 1998). The participants of the study reported here were concerned about environmental issues. While they were not very knowledgeable about using wood for energy, they were very knowledgeable about other environmental problems and had opinions about industry that influenced their perceptions.

For issues with a similar context to the option of using wood for energy and with audiences that resemble the research participants, the following lessons learned may be helpful:

- Provide transparency about the agendas of both the information source and any associated parties (e.g., funding agencies).
- Acknowledge that there are multiple questions and concerns that cannot be adequately covered in the text and provide several methods for the reader's continued learning.
- Adequately think through the concerns that are addressed within the text, making sure to fully consider the underlying problems, potential solutions, and consequences.
- Provide the same amount of space and equal weight for differing viewpoints and positive and negative examples.
- Avoid using text with emotional overtones when the topic is controversial.
- Pilot-test the text with the target audience to identify and reduce potential areas of perceived bias.
- Use written text in combination with interactive educational strategies that build trust, answer questions, acknowledge and consider concerns, and overcome misconceptions.

Scholarship of engagement invites Extension professionals to provide insights and assistance to communities. How this knowledge is conveyed can affect how audiences respond. Text with personal and vivid examples can increase knowledge competence, but can also suggest inappropriate bias. Careful consideration of misconceptions, level of trust, and multiple perspectives will help authors more effectively communicate with citizens.

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