Evaluation Solutions

Impact Statements, Public Value & Public Support

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Introduction

This publication is designed to help Extension professionals prepare effective impact statements, understand public value, and communicate to increase public support for Extension programs. I like this work for many reasons. I feel it allows me to express a principle of democracy and a personal value. I believe people have a right, and public agencies have an obligation to explain, in lay terms, what results from public investments.

As I prepare this publication, I take breaks to review the President’s FY 2018 Budget Request with these proposed decreases: 21% decrease in funding to the National Institutes of Health, 11% decrease to the National Science Foundation, 71% decrease to the National Endowment for the Humanities, and 16% decrease to the Bureau of Justice Statistics, among others. The National Agricultural Statistics Service has a proposed increase of nearly 9% in preparation for the FY 2018 Census of Agriculture while other USDA programs, including Rural Health and Safety and Women and Minorities in STEM Fields, are proposed for elimination (Consortium of Social Science Associations, 2017). The accountability business is hard work. We can do everything right in demonstrating the impact of our programs, but political will may result in a loss of funding. This paradox emphasizes the need to coordinate our evaluation to show public value and build public support.

This publication contributes to these Extension professional competencies:

- Use basic data analysis to describe program results.
- Select evaluation approaches to show public value.
- Create effective impact statements.
- Use basic data visualization to improve communications.
- Communicate impact statements to stakeholders to build public support for Extension.

Definitions of Major Concepts

- Program Evaluation – asking questions for the purpose of learning about our program. Our goals in conducting a program evaluation are to (1) continually improve our programs, and (2) communicate program outcomes to our clients and stakeholders.
- Public Value – showing results to our clients and stakeholders that justify the investments made in our programs by showing how these programs enhance the public good beyond the direct benefits to participants.
- Accountability – The responsibility of program staff to provide evidence to stakeholders and sponsors that a program is effective and in conformity with its coverage, service, legal, and fiscal requirements (Rossi, Lipsey & Freeman, 2004).
- Public Support – Public recognition regarding the value of a public agency or program. Support is expressed in many ways including goodwill and advocacy.
Basic Data Analysis

General Principles

- To have any meaning, numbers must be interpreted.
- Interpretation of a number is a human process.
- Be selective and avoid drowning your audience with data!
- Clarify and report so that data can be understood. Ask yourself if the data is presented accurately, fairly, and with clarity.
- Statistics is divided into two forms:
  - Descriptive Statistics are used to describe basic attributes of the data. They are used to summarize.
  - Inferential Statistics are used to establish the relationships, differences, or parameters between sample and population. All inferential statistics are based on descriptive statistics.
- This is not designed as a statistics course! All content has been tailored for impact statements, public value, and public support!

Descriptive Statistics

Descriptive statistics comprise the basic data analysis needed for effective communications among Extension professionals, clients, and stakeholders. Descriptive statistics include:

- Frequency (distribution)
  - Of the 50 4-H poultry project members this year, 10 had previous experience raising poultry and 40 had no experience.
  - The majority of participants (71%; 50 of 70) were 60 years old or older.
  - Of the 70 participants, 7 in 10 were 60 years old or older.
- Percentage (distribution)
  - For impact communications, no decimal places are preferable:
    - 75% is preferable.
    - 75.2% is OK. You may go one place past the decimal point, but no more.
    - 75.256% is not cool for impact communications.
  - Percentages appear understandable when placed in parenthesis with no decimals:
    - Nearly one-half (49%) of participants had been farming their entire working lives.
- Mean (central tendency)
  - This is the average.
  - The way the mean is used is key.
  - Consider this example: “The average score for effectiveness of this training was a 4.” This example tells the reader nothing. What was the scale? 4 of what? What is the meaning of the number 4?
  - In Extension, many of the cases where mean is used should actually be number of responses or percentage of responses for the different response categories.
- Median (central tendency)
  - This is the mid-point.
- Mode (central tendency)
This is the most frequent score, and it is normally used in reporting categorical data.

Before the program, 20 of 30 male participants were drinking less than the Institute of Medicine’s recommended three liters of water per day. The mode was two liters. After the program, 25 of 30 were drinking the recommended amount (a 60% increase).

Before the program, only 10 of 30 male participants were drinking the Institute of Medicine’s recommended three liters of water per day. After the program, 25 males were drinking the recommended amount (a 60% increase).

Range (dispersion)

- The range of acres managed by participants was 5–250 acres with a mean of 100 acres.
- The range of children cared for by participants was 1–20 with a mean of four children.

Using Statistics, Example One

You educated eight members of the Wildlife Judging Team this year. Last year, you had three members on this team. What calculation is needed to report the percentage increase?

- 8 minus 3 equals 5 divided by 8 equals 0.625
- Move the decimal point two places to the right, 62.5
- Round up, 63%

So you would report: “The Wildlife Judging Team increased from three to eight participants over the past year, a 63% increase.”

Common Statistical Symbols & Abbreviations

The symbols below are for quick reference as you use this guide and participate in instructional sessions that use this guide. It’s not appropriate to use statistical symbols for impact communications except for percentage where it is preferable to use the symbol.

- Mean for the Sample – \( \bar{x} \)
- Mean for the Population – \( \mu \)
- Mode – Mo
- Median – Mdn
- Frequency – \( f \)
- Population – N
- Sample – n
- Percentage – %
Using Statistics, Example Two

The survey shown in Figure A was used to evaluate a recent parenting education program.

<table>
<thead>
<tr>
<th>General Learning</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Somewhat Disagree</th>
<th>Somewhat Agree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I gained new parenting ideas as a result of this program.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. I gained knowledge of child development as a result of this program.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure A. Parenting Education Survey

The scale is as follows: 1=strongly disagree, 2=disagree, 3=somewhat disagree, 4=somewhat agree, 5=agree, and 6=strongly agree. Frequencies and means are shown in Figure B.

<table>
<thead>
<tr>
<th>General Learning</th>
<th>1=Strongly Disagree</th>
<th>2=Disagree</th>
<th>3=Somewhat Disagree</th>
<th>4=Somewhat Agree</th>
<th>5=Agree</th>
<th>6=Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I gained new parenting ideas as a result of this program. (N=100; μ = 4.47)</td>
<td>f=0 0%</td>
<td>f=9 9%</td>
<td>f=30 30%</td>
<td>f=1 1%</td>
<td>f=25 25%</td>
<td>f=35 35%</td>
</tr>
<tr>
<td>2. I gained knowledge of child development as a result of this program. (N=99; μ = 3.91)</td>
<td>f=0 0%</td>
<td>f=0 0%</td>
<td>f=20 20%</td>
<td>f=71 72%</td>
<td>f=4 4%</td>
<td>f=4 4%</td>
</tr>
</tbody>
</table>

Figure B. Frequencies and Means for Parenting Education Survey
How would you report this data for impact communications?

100 people attended the recent parenting meeting. Participants scored the following on a 1-6 scale:
  - The mean for gaining new parenting ideas was 4.5.
  - The mean for learning about child development was 3.9.

This approach communicates confusion. What was the scale? What does the 4.5 represent? Is there something better about item one since the mean is higher than item two? A better approach would be to collapse the agree responses and report number and/or percentage of participants as follows:

100 people attended the recent parenting meeting. Participants completed post-program surveys that showed the following:
  - 61% gained new parenting ideas.
  - 80% gained knowledge of child development.

Or, this approach would also work:

100 people attended the recent parenting meeting. Participants completed post-program surveys that showed the following:
  - 61 parents reported that they gained new parenting ideas.
  - 79 parents reported that they gained knowledge of child development.
Evaluation Approaches for Public Value

Impactful Questions

The following questions are from Martin (2003).
- In what way was this program useful to you, if at all?
- What was the result of your participation?
- What skills did you learn today in this program that you can use?
- What goals have you set based on today’s program?

Commercial Horticulture

Consider this original impact statement:

Challenges facing the commercial horticulture industry include marketing, integrated pest management, sustainable cultural practices, environmental and human health risks, invasive species, regulations, and profitability. Extension agents and area specialists taught better methods of production and landscape management practices at approximately 175 group meetings and over 400 on-site visits. Observations by Extension Agents showed these impacts:

- 716 professionals practiced proper plant selection and installation practices.
- 774 professionals implemented recommended management practices for pest control.

Now, notice how the re-worked statement makes an appeal to public value and advocacy:

Extension agents and area specialists helped commercial landscape and nursery professionals to improve their skills at nearly 600 group meetings and on-site visits. Our observations showed that 716 professionals are now planting correctly for optimal growth. In addition, 774 are now using pesticides correctly, and this reduces possible threats to human and environmental health. Funding for the coming year will allow Extension to tackle the varied challenges of this industry, including marketing, invasive species, and profitability.

More Impactful Questions

The following questions are drawn from the appreciative inquiry approach (Preskill & Catsambas, 2006):
- Think back on your experiences with the Beef Marketing program, and remember a time when you felt most proud to be part of this program. Tell a story about that time. What happened? What were you doing? What were other doing? What contributed to the success you experienced?
- What do you value most about this program?
- As you reflect on your experience with this program, tell me a story about a highpoint.
- When did you know it was working? How did you know it?
- What have you done to make the biggest difference?
- What were major milestones along the way?
- What kept you going and what was nurturing to you?
- Were there times when you said to yourself, “this is working!” What was happening during those times?
Forage Systems

Consider that data is collected via a retrospective post-then-pre questionnaire, see Figure C.

Please think about your forage management practices now and before this program. Please check which, if any practices you do now (left) and then check which, if any, practices you were doing before this program (right).

<table>
<thead>
<tr>
<th>Now</th>
<th>Before This Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐</td>
<td>1. Sprayed for broadleaf weed control.</td>
</tr>
<tr>
<td>☐</td>
<td>2. Planted clover in pastures</td>
</tr>
<tr>
<td>☐</td>
<td>3. Stockpiled tall fescue.</td>
</tr>
</tbody>
</table>

Figure C. Forages Retrospective Post-Then-Pre

An effective impact would be expressed as follows:

Beef producers in a recent UT/TSU Extension program gained knowledge and took action to improve their forages and their profits. Questionnaires completed by producers showed that before the program, very few completed any of the best management practices. After the program, the 50 producers reported that:

- 100% sprayed for broadleaf weed control.
- 90% improved their pastures with clover.
- 80% stockpiled tall fescue.

Or, another approach would be:

Beef producers in a recent UT/TSU Extension program gained knowledge and took action to improve their forages and their profits. Questionnaires completed by producers showed that the numbers of producers who:

- Sprayed for broadleaf weed control increased from 0 to 50, a 100% increase.
- Improved their pastures with clover increased from 5 to 45, an 88% increase.
- Stockpiled tall fescue increased from 10 to 40, a 75% increase.
Food Safety

Consider that for a food safety program, information is collected via a checklist as shown in Figure D.

<table>
<thead>
<tr>
<th>Preventing Cross-Contamination between Meats and Ready-to-Eat Foods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site: ____________________</td>
</tr>
<tr>
<td>Number Served Daily: ____________________</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>1. Uses separately labeled or color-coded cutting boards.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2. Changes disposable gloves between tasks.</td>
</tr>
<tr>
<td></td>
<td>3. Washes hands before and after, when working with raw foods.</td>
</tr>
<tr>
<td></td>
<td>4. Cleans and sanitizes food contact surfaces that touch contaminated food before they come in contact with cooked or ready to eat food.</td>
</tr>
<tr>
<td></td>
<td>5. Stores raw or contaminated food below cooked or ready to eat foods to prevent them from touching or dripping fluids.</td>
</tr>
</tbody>
</table>

Figure D. Checklist for Food Safety Practices

An effective impact would be expressed as follows:

As a result of Extension food safety programs, 30 assisted living facilities, prisons, senior citizen centers, and schools reported more educated employees and food service managers. In a follow-up evaluation, five sites were observed with 100% following all food safety actions taught in the Extension course. This results in healthier lives for the 10,000 people served daily in those institutions.
Effective Impact Statements

Publication


Professional Writing

The following tips are summarized from Bowen (1997):

- Wordiness is a huge problem! Rather than stating “A total of 14 fields” use “14 fields” for clarity. Rather than stating “for this very reason” use “because” for clarity.
- Avoid words associated with values such as very, extremely, and phenomenal.
- Learn to appreciate and use a style guide.
- Capitalize proper nouns, but be mindful that most words are not proper nouns!
- Comparisons need more than one item. “Citizens are more willing to volunteer” is a vague and confusing statement. “Citizens are more willing to volunteer now rather than before our community development program” compares two time periods.

Evaluation Resources

A number of evaluation resources are available to assist Extension professionals on the ALEC evaluation resources page:

https://ag.tennessee.edu/alec/Pages/EvaluationReports.aspx

- Statewide economic impact assessments for FY 2007 through FY 2016
- UT Extension productivity measures
- Video impact reports
- Impact reports for various programs from 4-H healthy living to beef
- US House District impact reports
- Exemplary county accountability reports
Data Visualization

General Principles
- Your text should clarify, describe, and provide your analysis.
- The text should tell what the numbers mean.
- Graphics grab attention and help people understand our programs and the results produced. Graphics help people commit to their long-term memory.
- Report the quantity.
- Text and graphics should stand alone.

Fonts
- Readability is paramount.
- Serif for narrative, like an impact report.
- Sans Serif for headings and any electronic projection.
- If you have a sidebar, or you need to place text in a small space, use a different sans serif font that is tall and skinny. It may have the abbreviation “cond” for condensed or perhaps the word narrow (see Figure E).
- When choosing fonts and designs, one question to ask yourself is “What percentage of people who see my impact communications are looking at it on their phone?”
- Consider the fonts shown in Table 1. When would you use the fonts? What is your overall disposition (for example: happy face, sad face, or apathetic face) toward using the font for impact communications? Jot down your ideas.

Serif has little lines on the letters like this Times New Roman. Readable in narratives.

San Serif has no lines like this Franklin Gothic Medium. Great for Headlines!

Sans serif condensed like this Arial Narrow for a sidebar.

Figure E. Sans and Sans Serif
Table 1. *Fonts and Discussion for Impact Communications*

<table>
<thead>
<tr>
<th>Fonts</th>
<th>Discussion</th>
<th>Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Kristen ITC also known as Child’s Handwriting</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Comic Sans</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Harrington</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Calibri</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Times New Roman</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Arial</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Garamond</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Gill Sans</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Data Visualization Tools
- fontsquirrel.com
  - Find free and low-cost fonts.
- color.adobe.com
  - This site creates color schemes for your data visualization projects.
  - You can browse for color combinations.
- colorbrewer2.org
  - Evaluate the different color schemes you may want to use in a graph.
- vischeck.com
- colororacle.org
  - These software tools allow you to see how your graphics appear to a color-blind person.
- thenounproject.com
  - Check this out for free icons.

Bar Chart
- Bar charts are great when a single number is important or when you need to show survey results.
- In Figure F, a bar chart shows the survey results for a value-added program for producers. The color combination was selected from colorbrewer2.org.

Figure F. A Bar Chart Highlights Extension’s Value-Added Agriculture Programs
Small Multiples

- Small multiples of bar charts can be very helpful when understanding how two numbers are similar or not.
- In Figure G, small multiples are used to show survey results for 4-H leadership programs (note the combination of gray and action colors).

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>Maybe</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>I have learned more about the democratic process.</td>
<td>22%</td>
<td>32%</td>
<td>46%</td>
</tr>
<tr>
<td>I have learned more about personality and leadership.</td>
<td>34%</td>
<td>45%</td>
<td>21%</td>
</tr>
<tr>
<td>I am better able to understand different cultures.</td>
<td>38%</td>
<td>57%</td>
<td>5%</td>
</tr>
<tr>
<td>I am willing to share what I learn with others.</td>
<td>45%</td>
<td>39%</td>
<td>16%</td>
</tr>
<tr>
<td>I have improved teamwork skills.</td>
<td>47%</td>
<td>39%</td>
<td>13%</td>
</tr>
<tr>
<td>I volunteer in the community.</td>
<td>50%</td>
<td>32%</td>
<td>18%</td>
</tr>
<tr>
<td>I am better able to explain community issues.</td>
<td>60%</td>
<td>35%</td>
<td>5%</td>
</tr>
</tbody>
</table>

4-H connects youth to their community.
Our leadership programs grow volunteers and leaders.

Figure G. Small Multiples Highlight 4-H Leadership Programs
**Big Numbers**
Big numbers are useful when a single number is the most important result. Note the number is in an action color (Figure H).

![Big Number for 4-H Leadership Programs](Image)

**Icon or Stock Photo Representative**
Icons (Figure I) and stock photos (Figure J) help to drive the key concepts to long-term memory.

![Icon for 4-H Leadership Programs](Image)

![Stock Photo Representative for 4-H Leadership Programs](Image)

More than 60% of farmers reported that they increased profits due to our programs.

More than 95% of Benton County youth are better able to explain community issues because of their 4-H participation.
Communicating Impact for Public Support

Publication

Refer to the following publication:


Accountability Reports

Accountability reports are helpful in communicating the value of Extension to industry leaders, advisory groups, legislators, county commissioners, and other stakeholders. Many of you produce exceptional Extension accountability reports annually, and in many cases more frequently, to communicate our results. Here are some tips for effective reporting:

- Use the standard introduction: “We provide education that produces solutions to societal, economic and environmental issues. We teach Tennesseans in the places they live, work and play through hundreds of programs. Our efforts are based on local needs, research and a commitment to improve the quality of life.”
- Use the standard economic impact statement: “The total economic impact of UT Extension’s statewide educational efforts in 2016 was more than $512 million. For every $1 in public funds invested in UT Extension programs, an estimated $8.03 is returned to the people of Tennessee.”
- Include the best overall outcomes.
- Tell your story with a one-page report.
- Include high-quality photos.
References


Appendix A – Key Resources

UT ALEC Extension Program Planning
https://ag.tennessee.edu/alec/Pages/ProgramPlanning.aspx

UT ALEC Extension Evaluation Tools
https://ag.tennessee.edu/alec/Pages/EvaluationTools.aspx

UT ALEC Extension Evaluation Reports
https://ag.tennessee.edu/alec/Pages/EvaluationReports.aspx

UT ALEC Extension Federal Plans & Reports
https://ag.tennessee.edu/alec/Pages/FederalPlansReports.aspx

UTIA Marketing Toolkit Logo Guidelines
https://utia.tennessee.edu/ext/SitePages/Marketing-Toolkit.aspx
# Appendix B – Fonts and Discussion for Impact Communications

<table>
<thead>
<tr>
<th>Fonts</th>
<th>Discussion</th>
<th>Overall</th>
</tr>
</thead>
</table>
| **Kristen ITC also known as Child’s Handwriting** | • Suggests that the topic requires no more than Pre-School education or is intended only for young children.  
• Overall, this font communicates immaturity, and it is never acceptable for impact communications. | 😞      |
| **Comic Sans**                     | • This font is over-used.  
• It communicates immaturity, and it is never acceptable for impact communications.                                                                  | 😞      |
| **Harrington**                     | • Old-fashioned and decorative.  
• Suggests a social event in the summer.  
• Not appropriate for impact communications.                                                                                                        | 😞      |
| **Calibri**                        | • Default for Microsoft Office since 2007.  
• Designer Luc de Groot has described it as having a “warm and soft” character.  
• Potentially, this is a good choice for impact communications especially for on-screen reading.                                               | 😊      |
| **Times New Roman**                | • Formal.  
• Somewhat old-fashioned as it suggests newspapers.  
• OK for impact communications.  
• A potential alternative is Bodoni.                                                                                                               | 😞      |
| **Arial**                          | • Popular since it has been on Windows since 1992!  
• Still used frequently, but replaced by Calibri.  
• OK for impact communications.                                                                                                                     | 😞      |
| **Garamond**                       | • Great alternative to Times New Roman.  
• Readable, clean  
• A good choice for impact communications.                                                                                                           | 😊      |
| **Gill Sans**                      | • Direct and easy to read.  
• Suggests new and fresh.  
• A similar typeface would be Franklin Gothic which also earns a smiley-face. Franklin Gothic is especially good for headlines.  
• A good choice for impact communications.                                                                                                           | 😊      |

*Note. Smile, Sad, and Apathetic by chiara ardenghi from the Noun Project.*