Human Capital Office Learning Center

Participant Manual

***Date Last Edited:***
**July 2013**

*Class Date:*

_____

# Content Analysis: Principles and Practices

GAO
Accountability + Integrity + Reliability

GAO Highlights

Highlights of COAN909, an elective course for all band levels.

July 2013

# THINKING CRITICALLY

# Content Analysis: Principles and Practices

### Why This Course is Important

This course is on using content analysis to sift through the myriad of qualitative data collected on an engagement. At GAO, we don't separate this task out from everything else we know about planning and engagement design. Data analysis needs to be fully integrated with the rest of what we are doing on an engagement.

Our analysis needs to make sense in terms of answering our researchable question, using the appropriate information we have collected, and leading us to the types of statements we expect to be able to make in our product.

### Questions to Ask the Learner after Class

- Is there a segment of data on your current engagement that could benefit from content analysis? What resource issues would come into play if we conducted this type of analysis?
- What are some of the key validity and reliability questions that should be taken into account?
- How could you ensure better inter-rater reliability?

For more information, contact Training at training@gao.gov.

### The Knowledge and Skills This Course Covers

This course covers four key objectives:

- Defining content analysis,
- Identifying its strengths and weaknesses,
- Summarizing key steps in conducting the analysis, and
- Introducing coding of items.

Content analysis is an approach to quantify qualitative information by systematically sorting and comparing items of information in order to summarize them. Often this process entails turning a large set of raw data into useable evidence through data reduction methods.

In conducting content analysis, we can focus on either key words or key concepts. Limitations apply to which we choose. Through exercises, course participants practice developing categories in which to place data and discuss how validity and reliability come into play.

Participants also discuss the key steps in content analysis, including (1) selecting items based on researchable questions, (2) creating and refining categories, (3) ensuring an objective and accurate categorization process, (4) placing items in categories, (5) summarizing/analyzing results, and (6) documenting steps taken.

Finally, the participants discuss the advantages, disadvantages, and resource considerations of content analysis.

# Registrar Information

| | |
|---|---|
| **Content Analysis: Principles and Practices (COAN909)** | Content analysis is an approach to quantify qualitative information by systematically sorting and comparing items of information in order to summarize them. |
| **Who Should Enroll** | All GAO Staff |
| **Prerequisite** | None |
| **Advanced Preparation** | None |
| **Recommended Related Courses** | None |
| **Course Objectives** | This course covers four key objectives:<br>• Defining content analysis<br>• Identifying its strengths and weaknesses<br>• Summarizing key steps in conducting the analysis<br>• Introducing coding of items |
| **Competencies** | Thinking Critically |
| **Instructional Method** | Classroom |
| **Length** | 2 Hours |
| **CPE Credits** | 2 (all government-related) |
| **Course Manager** | Linda Hawkins, (202) 512-3094 |
| **Course Evaluation** | The first business day after the class ends, participants will receive an electronic evaluation. The first question on the evaluation asks whether or not the participant attended and completed the entire course. Marking "yes" and going on to complete the course evaluation will automatically update training records to reflect completion data and CPE credit. **Note:** Participants must attend and participate in the **entire** class to be eligible for CPE credit. |

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# Agenda

**Section I - Introduction**

- What is Content Analysis?
- Collection or Analysis?
- Steps in Content Analysis
- Exercise: Conduct a Content Analysis

**Break**

**Section II – Validity and Reliability**

- Words or Ideas
- Key Validity and Reliability Concerns for Content Analysis
- Considerations for Developing Categories
- Considerations for Conducting and Documenting the Coding Process
- Reporting on Content Analysis Results

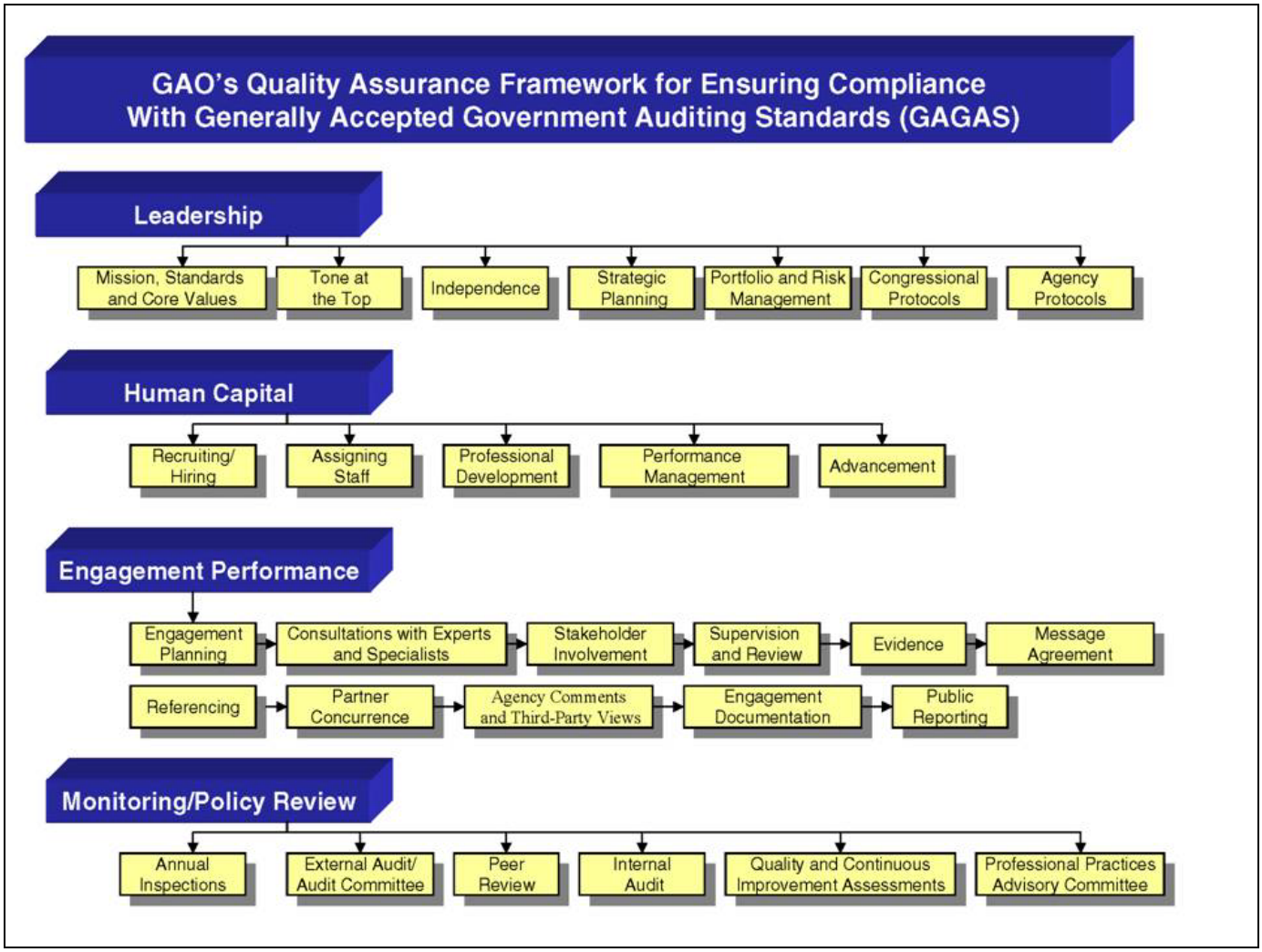
**Section III - Advantages, Disadvantages, and Resource Considerations**

- Advantages of Content Analysis
- Disadvantages of Content Analysis
- Resource Considerations

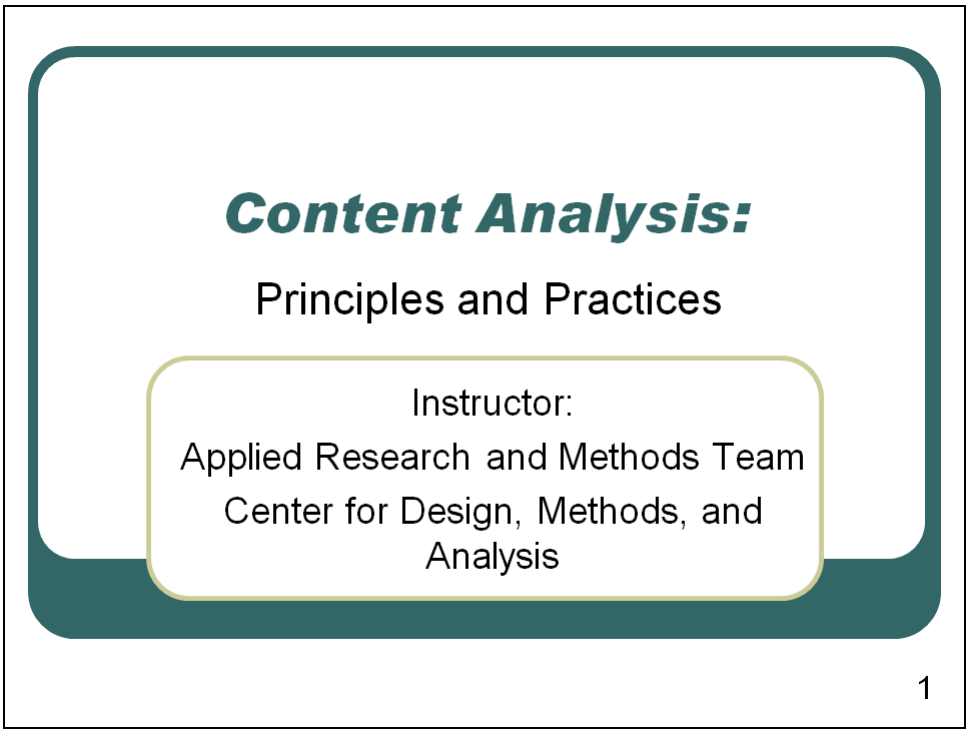
**Section IV – Content Analysis Coding Example**

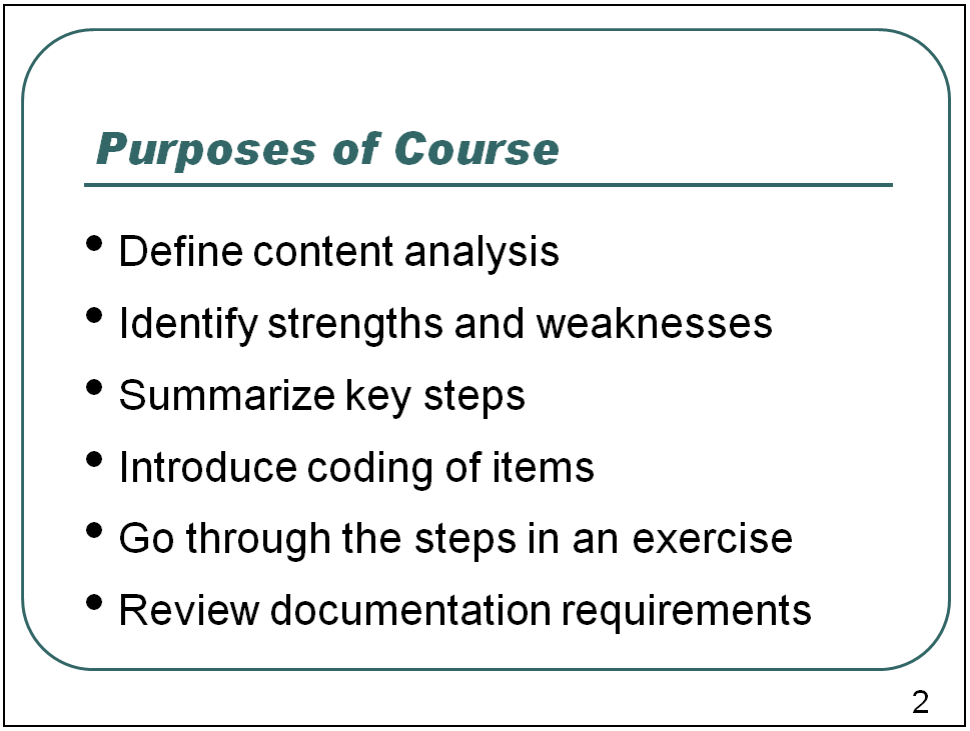
**Agenda**

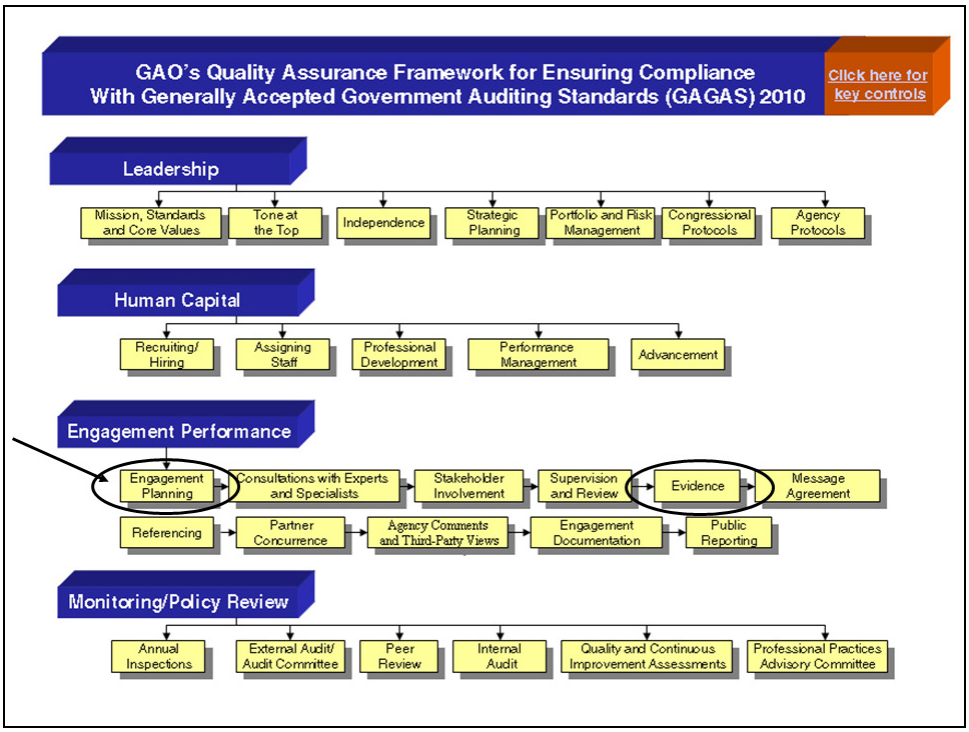
# Quality Assurance Framework

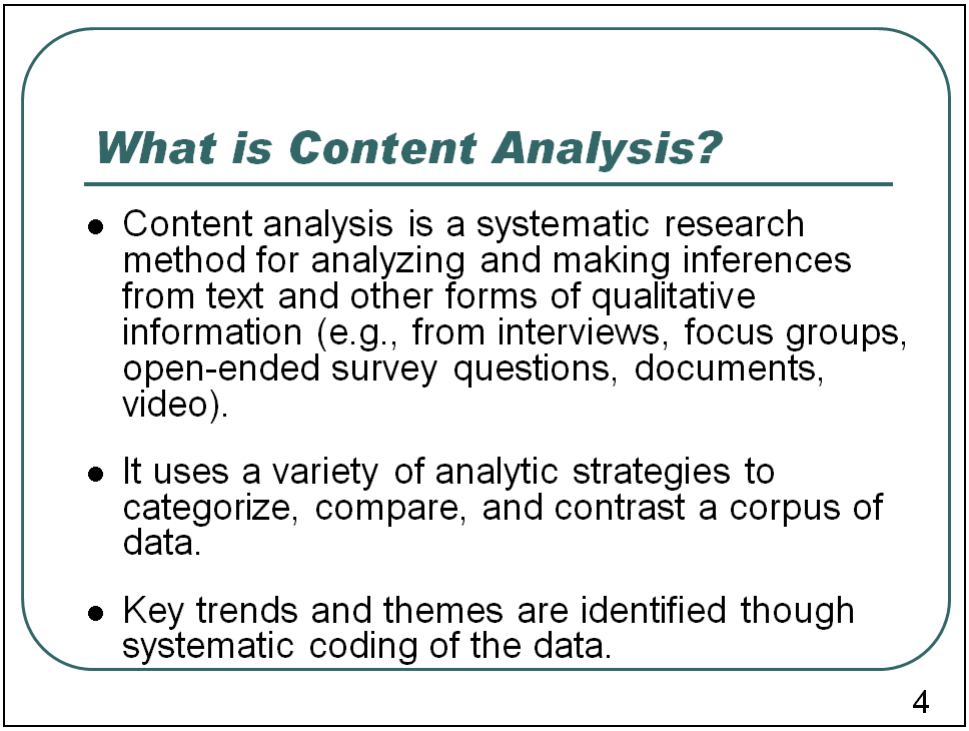


# Module 1 PowerPoint Slides




GAO's Quality Assurance Framework for Ensuring Compliance With Generally Accepted Government Auditing Standards (GAGAS) 2010
Click here for key controls
Leadership
Mission, Standards and Core Values
Tone at the Top
Independence
Strategic Planning
Portfolio and Risk Management
Congressional Protocols
Agency Protocols
Human Capital
Recruiting/ Hiring
Assigning Staff
Professional Development
Performance Management
Advancement
Engagement Performance
Engagement Planning
Consultations with Experts and Specialists
Stakeholder Involvement
Supervision and Review
Evidence
Message Agreement
Referencing
Partner Concurrence
Agency Comments and Third-Party Views
Engagement Documentation
Public Reporting
Monitoring/Policy Review
Annual Inspections
External Audit/ Audit Committee
Peer Review
Internal Audit
Quality and Continuous Improvement Assessments
Professional Practices Advisory Committee


What is Content Analysis?
Content analysis is a systematic research method for analyzing and making inferences from text and other forms of qualitative information (e.g., from interviews, focus groups, open-ended survey questions, documents, video).
It uses a variety of analytic strategies to categorize, compare, and contrast a corpus of data.
Key trends and themes are identified though systematic coding of the data.
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## Words or Concepts

- We can focus on:
  - Key words (e.g., “efficient,” “fear of”)
  - Key concepts (e.g., references to types of improvements, positive or negative mentions)

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## Key Validity and Reliability Questions

- Are the source data valid and reliable?
- Are the categories the right ones? Do they “make sense”?
- Do the categories accurately represent the substance of the data?
- Can we generalize beyond the data we have coded?
- Are the results trustworthy across different raters?

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## Steps in Content Analysis

1. Identify data sources
2. Develop categories
3. Code data
4. Assess reliability
5. Analyze results

Documentation occurs throughout the process

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## Step 1. Identify data sources

- Identify appropriate data sources based on researchable questions
- Consider source and format of the information as well as its validity and reliability
- Decide upon unit of analysis - items to be coded (items from a survey, comment field from agency database, etc)
- Decide on selection of items to be analyzed – sample versus universe

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## Step 2. Develop categories

- Develop useful, valid categories based on researchable questions.
- Test a few items as a team (either independently or as a group) to identify items that may be ambiguous or still need further clarification.
- Code a subset of items using two independent analysts.
- Calculate preliminary inter-rater reliability.
- Refine categories, defining specifications about what should be included as well what should not be included when there may be uncertainty to ensure reliability of coding

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## Step 3. Code data

- Establish decision rule as to whether items should be coded to one category or multiple categories based on preliminary review of data and testing of coding.
- Decide how many analysts will code data, if two analysts will independently code the same data, or if a less rigorous method will be performed in that one analyst will code the data and another analyst will verify.
- Code data.

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## Step 4. Assess Reliability

- Upon completion of coding, assess inter-rater reliability
- For items in which there was disagreement, analysts should meet to discuss final disposition of coding by item
- For instances in which an agreement cannot be reached, a third person (e.g. AIC or AD), should review and arbitrate (blind reviews of previous coding recommended)

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## Step 5. Analyze results

- Based on coding scheme, review items by category – number of items, percentage of items coded to this category, themes that emerge
- Decide if categories should be "rolled up" to broader categories or themes
- Discuss categories that may be of special interest.

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## Class Exercise

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## Documentation of steps

Document steps taken throughout process, including:

- Selection of data sources
- Development of categories and subcategories
- Steps taken to ensure validity and reliability of both the data sources as well as categories used
- Steps taken to test and refine the categories
- Data analysis strategies
- Decisions made regarding the unit of analysis and number of items coded

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## Selected Qualitative Research Tools

- White Board
- Paper
- Sticky Notes
- Excel
- Access
- QPL
- NVivo

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## Reporting on Content Analysis Results

- Consider the level of specificity of the categories you report
- Keep results in the context of other findings
- Always report on the methodology used
- When using comments in a GAO report, pay attention to objectivity, fairness of the selection

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## Advantages of Content Analysis

- Systematic, transparent approach to using qualitative data
- Can make use of data that already exist
- Can use respondents' words to create reporting categories
- If documentary evidence is most appropriate, can use it in a systematic way

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## Disadvantages of Content Analysis

- Selected items may be incomplete or non-representative
- Bias may exist in creation of items (e.g., who answers open-ended survey items?)
- Inter-rater reliability may be difficult to achieve
- No "right/wrong" categories

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## Resource Considerations

- Can be very intensive effort
  - How many items and categories
  - Complexity of topic and wording
- Need multiple coders and reviewers
- Training and monitoring during process
- Iterative process to attain agreement; may be hard to predict how long it will take

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An Example of Content Analysis of an Open-Ended Survey Question

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## Developing categories (buckets)

Management Issues

Job Satisfaction

Organizational Culture

Travel Policy

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## We decided on 21 buckets

- advancement opportunities
- amount of support from hq
- amount of work
- audit/report process
- behavior/prof of ig
- changes in hq mgmt
- communication from hq mgmt
- communication from lower mgmt
- communication from mgmt (unspecified)
- cr/budget
- general climate
- general comments about OIG
- how problem employees are dealt with
- independence (unspecified)
- independence of ig
- job satisfaction
- leadership/direction from hq mgmt
- morale
- training/equipment/office
- travel policy
- work making a difference

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## Issue of Tone

- I love my job
- I hate my job
- My job is okay

Job Satisfaction Bucket

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## Questions/Discussion

- Follow up questions or issues you'd like to raise
- Closing comments by instructor

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Thank you …
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# Appendix 1 Steps and Considerations in Conducting and Reporting Content Analysis

**Steps in Content Analysis**

**1. Identify data sources based on researchable question(s) or sub-question(s) to be answered**

What is the source of the information?

Will you use a sample or content analyze the population?

How will you obtain the information, and what kind of format will it be in? What is your unit of analysis? (For example, you might choose items from a survey, or comment fields from an agency database.) Once you've decided on your unit of analysis, decide on selection of items to be analyzed. Will you do a content analysis of a sample or the entire population?

**2. Develop and refine categories**

This step often takes a while, and is arguably the most important step in content analysis. It requires a similar amount of effort no matter which content analysis approach or tools you are using.

Category development requires iterations and multiple people are generally involved in identifying the categories.

**Inter-rater reliability** is important; you need to make sure the categories are the right ones, that is, useful given the researchable questions, and that more than one person would agree on the categories and their meanings. After a trial phase on a sample of the data to develop the coding categories (and before full coding begins), a work paper should be developed which contains explicit definitions of codes and any preliminary disagreement between coders.

An approach for doing this would be to:

- Test a few items as a team (either independently or as a group) to identify items that may be ambiguous or still need further clarification.
- Code a subset of items using two independent analysts.
- Calculate preliminary inter-rater reliability.
- Refine categories, defining specifications about what should be included as well what should not be included when there may be uncertainty to ensure reliability of coding

Pay attention to validity and reliability concerns both in creating/refining the categories and in placing the items into categories. This ensures the content analysis will be defensible and accurate, yielding evidence that will meet GAO's standards.

**3. Code the data**

The third step is to actually code the data. Each coder reads each item and places it into one or more category, depending on the coding scheme that is being used.

The decision on how many analysts will code data should be made with respect to time and resources available to the engagement team, risk level of the job, and if the analysis will provide sole support or corroborative support findings, conclusions, or recommendations.

4. In coding the data, a decision must be made as to whether two analysts will ***independently*** code the same data, or if a less rigorous method will be performed where one analyst will code the data and another analyst will verify each decision made by coder as to whether or not they agree with the code selected. Independent coding tests whether judgment is consistent between coders and ensures objectivity, and therefore requires limited additional corroboration. A less rigorous method likely needs to rely on more corroborating evidence.

**5. Assess Reliability**

The fourth step is to conduct reliability checks to ensure objective and accurate categorization process

Although attention to reliability was given during the first step as categories were developed and refined, overall reliability should be assessed to see how often the coders agreed (e.g. 80%).

Because of the attention in the beginning, the agreement between coders (which we refer to as inter-rater reliability) should be fairly high. The subsequent assessment of inter-rater reliability will determine the extent that the coders agreed on item placement into the categories, and will be used to identify disagreements that need to be resolved.

For items in which there was not agreement, the two analysts should meet to discuss their thinking about the decision-making process and why they each selected the category that they did. Often, this discussion leads to an agreement between the two analysts about which category is most appropriate.

For instances in which an agreement was not reached, a third person who did not participate in the initial coding (such as the AIC or AD), should review and arbitrate. It is recommended that the third person conduct a blind review – in other words, they will see which codes were assigned but they will not know which analyst assigned the corresponding codes. Blind reviews help to minimize subjectivity or biases the adjudicator may have regarding one of both of the analysts.

**6. Summarize/analyze results**

Based on your coding scheme, there are a various ways to summarize the results of a content analysis effort into information that will be useful in a GAO product. Although content analysis is much more than simply counting, you may find it useful to not the number and/or percentage of items in each category as you discuss themes that emerged. For example, noting number or percentage of items that have correlated responses (for example, do people who report being satisfied with their jobs also report higher raises?)

If there are a lot of categories, you may want to "roll up" the categories into broader categories, each capturing several subcategories – this is defensible, as long as you keep validity and reliability in mind, for example, by ensuring that more than one person would agree on the "roll up," and making sure the items still fit into the larger categories. The level at which you report your findings should be consistent with your researchable questions.

Also, depending on your research and findings, you may want to focus on or highlight the contents of one or two categories that may be of special interest.

**THROUGHOUT THE PROCESS - Document steps taken**

All steps need to be documented for the workpapers, including how items were selected, how categories were developed and finalized, what steps were taken to ensure validity and reliability of both the categories themselves and the placement of items in them, and how the results were summarized.

**Considerations for Developing Categories**

- How many categories? (Should agree with goals of the job)
- Do you want to "double code" items that may fall into more than one category, or make the categories mutually exclusive (and/or exhaustive)?
- Inductive versus deductive approach (That is, do you know the categories ahead of time or not? For example, if you know you're going to code opinion statements based on whether they are in favor of or opposed to a particular policy, you are likely to have two categories that you can identify up front (maybe three, if you want an 'undecided' or 'mixed' category. On the other hand, if you will be looking for what themes come up in open-ended comments, you probably know very little about possible categories ahead of time.)
- What is the best unit of analysis (e.g., the respondent or the idea)? (For example, if survey respondents give three or four answers, do you want to give each item its own category, or use the category that best captures everything the respondent said?)
- Using a sub-sample of the responses to develop the categories (A very good practice, particularly when there are a lot of items to be coded)
- You may want to start with small categories and aggregate into larger ones, or vice-versa. Either is fine. Note that the categories you use to code items may be rolled up later for reporting purposes, if you want.

**Considerations for Conducting and Documenting the Coding Process**

- Keep track of decision rules to avoid ambiguity – both to make sure all coders are clear about category definitions, and to make sure categories are transparent and defensible. Document and save all decision rules and discussions of category meanings for the work papers. This is the same GAO standard as if you are

doing computer runs on an agency database; all definitions and any changes have to be recorded.

- May need to revise categories during coding process – this is not unusual. However, avoid letting one or two weird items drive the whole category structure. Also note that if you change the meaning of a category you need to revisit all items previously coded in order to be sure the new category structure is still accurate for all items. (A good reason to work with a sample of items at the beginning, particularly if there are a lot to code).

**Reporting on Content Analysis Results**

- Pay attention to the level of specificity of the categories you report (Avoid rolling up some categories, but not others; this may bias results unintentionally.)
- Always report on the details of the methodology used, including how issues of external validity and inter-rater reliability could affect the results.
- When using comments in a GAO report, pay attention to objectivity, fairness of which comments are chosen. The context of the comment is important; make sure comments are fairly selected and that the reporting context is accurate.

# Appendix 2 Class Exercises

Appendix 2 contains:

1. Exercise instructions
2. Excerpt from the Customs and Border Protection Pamphlet
3. 25 passenger letters

Class Exercise: Content Analysis--Principles and Practices (last revised 4/07)

The purpose of this exercise is to analyze the evidence and report the findings for a research objective that assesses DHS's Customs and Border Patrol (CBP) regulations and procedures for selecting passengers and conducting searches. The method you are using to analyze the evidence is a content analysis.

For this exercise, you will content analyze letters that passengers who went through customs wrote to the U.S. Customs and Border Protection (CBP) about the treatment they received from a CBP officer.

Background
Read the CBP Pledge to Travelers.

Steps in the content analysis:
Each table should:
1. **Read the letters**

2. **Determine how to categorize the content of the letters**

3. **Sort, or code, the content of the letters into the identified categories**

4. **Summarize the results and record on the flip chart in a report-ready format**

5. **Be ready to discuss the results and the issues that you encountered while performing the content analysis**

From page 44 of "Know Before You Go: U.S. Customs and Border Protection Regulations for U.S. Residents"

CBP's Pledge to Travelers

- We pledge to cordially greet and welcome you to the United States.
- We pledge to treat you with courtesy, dignity, and respect.
- We pledge to explain the CBP process to you.
- We pledge to have a supervisor listen to your comments.
- We pledge to accept and respond to your comments in written, verbal, or electronic form.
- We pledge to provide reasonable assistance due to delay or disability.

If you have a concern or need help understanding CBP regulations and procedures, ask to speak with the passenger service representative on duty. There are passenger service representatives available to travelers on a full-time basis at selected international airports. The representatives' major purpose is to help travelers clear CBP. Photos of the passenger service representatives are posted wherever the program is operating, to make it easy for you to recognize them if you need assistance.

If you have any questions about CBP procedures, requirements, or policies regarding travelers, or if you have any complaints about treatment you received from CBP officers or about your CBP processing, please write to:

**Customer Service Center**
**Office of Public Affairs**
**U.S. Customs and Border Protect on**
**1300 Pennsylvania Avenue, NW**
**Washington, DC 20229**

Or call 1.877.CBP.5511 (1.877.227.5511).

Allegations of criminal or serious misconduct may be reported to the Joint Intake Center by telephone at 1.877.2INTAKE (1.877.246.8253), by email to ***Joint.Intake@dhs.gov,*** by fax to 202.344.3390, or by mail to:

**U.S. Customs and Border Protect on**
**P.O. Box 14475**
**1200 Pennsylvania Avenue, NW**
**Washington, DC 20044**

To Whom it may Concern:
As I entered the customs area, I was in a hurry and started to walk past the guard. He came over and grabbed me and threw me against the wall. When I asked him what it was all about, he told me to shut up. He did not explain why I was being held, although I asked repeatedly. After 20 minutes they let me go since it was all a mistake.
-1-

20 Sept. 06

Dear CBP rep:

I am writing to express my grave displeasure with the treatment I received from the CBP officer who cleared me through customs at LAX yesterday. He asks me suggestive and inappropriate questions about the contents of my luggage, was extremely rude, and delayed me long enough that I missed the premiere of my film. -2-

I had an awful experiences going through customs. Not only were there an insufficient number of agents on duty leading to a 2 hour delay getting through, but I was also treated rudely. The agent answered my questions w/ barely audible grunts. -3-

The CBP agent smelled really bad--making it difficult for me to stand near him, let alone trying to answer his questions. -4-

Customs official was rude and abusive, mocking my accent - and treated us as if my family and I were guilty of smuggling w/o first determining the facts. They took my young children to separate rooms for grilling and body searches. They were really upset, as was I. They took my artificial leg and wouldn't give it back. -5-

The CBP agent spilled coffee all over my passport, distorted the picture and laughed. I had to replace my passport and pay for it. -6-

When I returned from a trip abroad last week, I went through customs and had a horrible experience. The customs officer was rude and argumentative. He ask me why I had been traveling in the countries I visited (Middle Eastern countries) because they were all "terrorists." I was extremely offended and explained that I was visiting family and that it was none of his business to question my travels. -7-

Customs officials did not clearly explain the process to me. When I asked to speak to a passenger representative one officer simply said “She’s not here." and offered no additional explanation. -8-

**I feel like I am being unfairly screened because I have a Muslim name. I travel via airline 3xs a month. In the past six months I have been singled out every time I've traveled, while my colleagues receive minimal screening.** **-9-**

**The CBP officer answered a question I asked about a form by saying, "You should have read the instructions first." But then he didn't tell me the answer. So I had to take a few minutes to read the form when he could have given me the answer in 5 seconds.** **-10-**

To Whom It May Concern:
This letter is to complain about the treatment I received by CBP officers/thugs at Dulles Airport. Following my return to the US from Europe customs officers pulled me out of the security line and insisted that I dismantle my crutches. Then upon searching my bags they repeatedly questioned my need for medication. I have never spent a more grueling six hours in my life. -11-

**When I went on my last trip I was selected out of the group to be searched. The officers made me take off my shoes and socks and then made fun of my bunions! I complained and they told to shut up and that they could arrest me! I saw a picture of the customer service rep, but when I saw and confronted him, he stood in front of the picture and said it wasn't him. -12-**

**Recently as I was passing through CBP at Dulles Airport, I had a very horrible experience. First I was not greeted by anyone then I was not told or shown where to go. I was left wandering around for a full hour before finding where I needed to go. -13-**

**ATTN: U.S. Customs & Border Protection**
**To Whom It May Concern:**
**Upon entering the United States last Tuesday, September 19, 2006, I was accosted and harassed by a CBP Officer without cause for over an hour. He mistook my cigar for a Persian rug. Please train your officers better. -14-**

Upon returning from vacation in Europe on September 18th I had a bad experience while going through customs. The customs agent was very rude and condescending when I asked a question about what to put on my form. I also asked to speak to a supervisor but was told they were unavailable. -15-

**To Whom It May Concern,**

**I am writing this letter to relay my deep disgust and anger by the way I was treated on a recent trip through Dulles Airport. On 9/12/06, while waiting for my bags at the baggage claim #8, I was approached by two plain clothes customs officials. They pulled me to the side and stated I fit the description of a known drug trafficker. They asked me if I was carrying any drugs-I responded no. They stated I had not broken any laws, but they wanted to question me & search my bags. (continued) -16a-**

(continuation)

**When I refused they placed me in custody & detained me for almost 4 hours. After 4 hours they returned & stated they had not found any illegal items in my luggage & stated I was free to go. This is a very offensive & disruptive violation of my rights & I want to file a formal complaint against your agency. -16b-**

I believe the U.S. CBP agent stole from me. Upon returning from Russia she confiscated a painting as a “Historical, religious artifact"-saying they were not allowed into the country. When I objected she threatened to have me arrested. -17-

I was not treated well by the CBP officers on arrival at LA. I could not find any of the customer service reps whose pictures were posted. The phone number for customer service was not in service. -18-

I am writing to express my displeasure w/ the treatment I received from CBP@ Dulles. The office was surly and did not even say hello to me. He was brusk w/ me and acted indignant when I asked what he was doing.
The officer brushed aside my questions w/out explaining to me why he was ding what he was doing, and then was very rude when I asked to speak w/ the manager. This delayed me and I missed my flight as a result. -19-

To Whom It Concerns:
I was dismayed at the incompetence and apathy that CBP officers exhibited when I was returning from a trip recently. I asked a CBP to explain what I thought was a basic procedure and she seemed confused. When I asked to speak with a supervisor, I was told there was not one on duty. Please address this matter. -20-

The officers told me a supervisor was not available to speak with. -21-

While going through customs I was frustrated because of the lack of signs and directions. I was asked many questions I didn't understand and by the time I was finished I missed a connecting flight. How are people identified for questioning? -22-

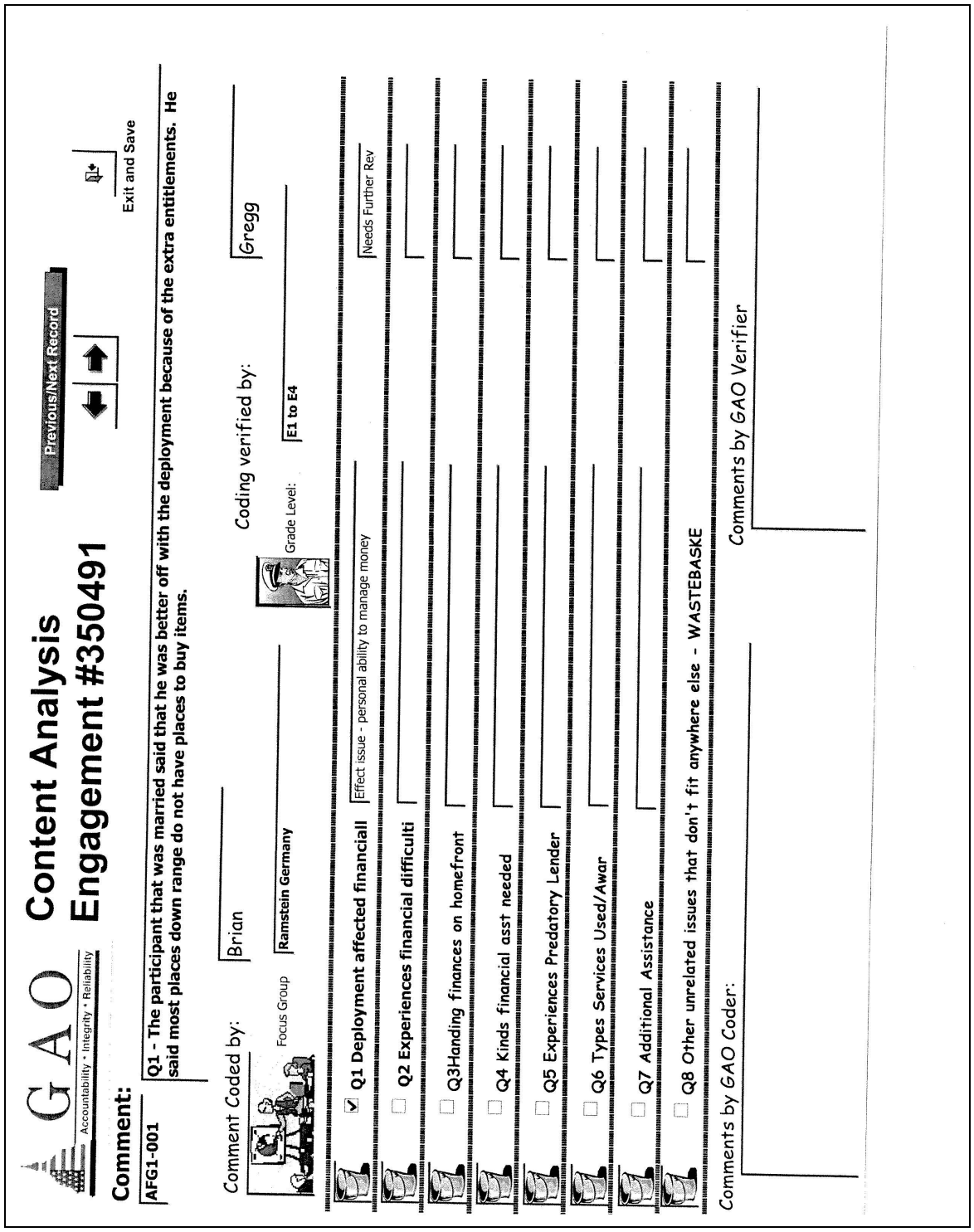
Customs officers/thugs pulled me out of the security line and insisted that I dismantle my crutches. Then upon searching my bag, they repeatedly questioned my need for medication. I have never spent a more grueling six hours in my life. -23-

The CBP officer I spoke with regarding my complaint was unable to explain the procedure that caused me endless delay. He then left me waiting for another officer, who failed to show up – causing me to miss my flight. -24-

**This past Monday, I went through customs and immigration at Miami during my return from a vacation in Belize. Your inspector, Joe Blow, told me that I could take off my shoes. When I did not, he diverted me into the "special treatment" section which took nearly 20 minutes. Also, I don't understand why I have to pay taxes for this privilege when Mexican laborers coming into the U.S. everyday from Tijuana don't pay. I hope that you can address both of these issues. -25-**

# Appendix 3 Access Coding Examples

This appendix contains screen shots of two completed Access coding sheets.



GAO
Accountability * Integrity * Reliability
Content Analysis
Engagement #350491
Previous/Next Record
Exit and Save
Comment:
AFG1-002
Q1 - The two single participants agreed that their finances were better because of the tax-free status, the additional entitlements, and that there were very few places to spend money.
Comment Coded by:
Brian
Coding verified by:
Gregg
Focus Group
Ramstein Germany
Grade Level:
E1 to E4
Q1 Deployment affected financiall
Effect issue - servicemember does not have dependents
Agree with Coding
Q2 Experiences financial difficulti
Q3Handing finances on homefront
Q4 Kinds financial asst needed
Q5 Experiences Predatory Lender
Q6 Types Services Used/Awar
Q7 Additional Assistance
Q8 Other unrelated issues that don't fit anywhere else - WASTEBASKE
Comments by GAO Coder:
Comments by GAO Verifier

# Appendix 4 Resource Guide

## GAO Examples of Content Analysis

| Page | Report | Data type | Tool | Mission team |
|---|---|---|---|---|
| **A4-2** | **Auto Safety:** NHTSA Has Options to Improve the Safety Defect Recall Process GAO-11-603 | Ten focus groups | Excel | PI |
| **A4-3** | **DOD and VA Health Care:** Federal Recovery Coordination Program Continues to Expand but Faces Significant Challenges GAO-11-250 | 150 interviews | NVivo | HC |
| **A4-4** | **Statewide Transportation Planning:** Opportunities Exist to Transition to Performance-Based Planning and Federal Oversight GAO-11-77 | Open-ended survey questions | QPL | PI |
| **A4-5** | **Environmental Health:** High-Level Strategy and Leadership Needed to Continue Progress toward Protecting Children from Environmental Threats GAO-10-205 | Documents: meeting agendas, summaries, and letters | NVivo | NRE |
| **A4-7** | **International Food Security:** Insufficient Efforts by Host Governments and Donors Threaten Progress to Halve Hunger in Sub-Saharan Africa by 2015 GAO-08-680 | Nine recorded panel discussions | Excel | IAT |

**Auto Safety:** NHTSA Has Options to Improve the Safety Defect Recall Process, GAO-11-603, June 15, 2011

Auto manufacturers recalled more vehicles in 2010 than in any other year, according to the National Highway Traffic Safety Administration (NHTSA), the federal oversight authority for vehicle recalls. However, many recalled vehicles are never fixed, posing a risk to vehicle operators, other drivers, and pedestrians.

The Congress raised questions about the auto safety defect recall process, including the sufficiency of NHTSA's oversight authority and whether vehicle owners were effectively motivated to comply with recalls. In response, GAO reviewed laws and documents and interviewed NHTSA and stakeholders about the (1) extent of NHTSA's role in recalls and how its authority compared to that of selected federal and foreign agencies that oversee recalls, (2) benefits and challenges of the recall process for NHTSA and manufacturers, and (3) options for improving it. GAO also conducted focus groups with vehicle owners to better understand their perspectives.

GAO conducted ten focus group sessions with 89 vehicle owners at five geographically dispersed locations. These were structured small-group discussions designed to gain more in-depth information about specific issues than could easily be obtained by another method, such as a survey or individual interviews. The overall objective of the focus groups was to obtain the views, insights, and feelings of vehicle owners regarding their awareness of recalls, their understanding of defect notification letters, and their willingness to comply with defect notices. GAO hoped to meet this objective by including vehicle owners both with and without recent recall experience. All ten focus groups were recorded and transcribed.

**The Content Analysis**

The content analysis was conducted in two steps. In the first step, two analysts independently developed a code book and then worked together to resolve discrepancies. In the second step, each transcript was coded by an analyst, and a second analyst verified the codes. Coding discrepancies were resolved by the two analysts' agreeing on what the codes should be. Since the recall and nonrecall groups did not differ, totals for each question were compiled in a document that was used for the reported findings.

The focus groups were intended to generate in-depth information about the reasons for the focus group participants' attitudes toward specific topics and to offer insights into their concern about and support for an issue. Participants reported that (1) they preferred notification letters with certain elements and might be more likely to comply if the letters included VIN numbers and clarified the severity of the defect and (2) they were unfamiliar with NHTSA's primary means of communicating defect information to the public—its website. The ability to project the information produced by focus groups was limited (nonrandom selection of ten groups). Therefore, GAO used several different methods to corroborate and support its conclusions.

**DOD and VA Health Care:** Federal Recovery Coordination Program Continues to Expand but Faces Significant Challenges, GAO-11-250, Mar. 23, 2011

In 2007, following reports of poor outpatient case management at Walter Reed Army Medical Center, the Departments of Defense (DOD) and Veterans Affairs (VA) jointly developed the Federal Recovery Coordination Program (FRCP) to coordinate the clinical and nonclinical services that severely wounded, injured, and ill service members and veterans needed. This report examined (1) whether service members and veterans who needed FRCP services were being identified and enrolled in the program, (2) staffing challenges FRCP confronted, and (3) FRCP's challenges in coordinating care for enrollees. GAO reviewed FRCP's policies and procedures and conducted over 170 interviews of FRCP officials, Federal Recovery Coordinators (FRC), headquarters officials and staff of DOD and VA case management programs, and staff at medical facilities where FRCs were located.

**The Content Analysis**

For its content analysis, GAO used NVivo, qualitative data analysis software, to analyze more than 150 of 170 interviews with program officials and medical facility staff. The analysis helped GAO identify and quantify interviewees' responses on various topics. The program's coding capabilities made it possible to categorize interviewees' responses and provided a central place for reviewing and analyzing the documents.

GAO took a number of steps to ensure that the analysis was methodologically sound. First, potential categories were defined to organize the views of DOD and VA program officials and medical

facility staff by specific topics, including program eligibility criteria, the interviewees' interactions with the FRCs, overlap and duplication of activities, knowledge of the FRCs' role, and the challenges they faced. These categories were decided on by the themes GAO staff heard during interviews with the program officials and medical facility staff.

A preliminary intercoder reliability check was made to ensure the accuracy of the category definitions. To do this, two analysts coded a sample of 15 interviews into the categories. A methodologist compared the analyses to identify inconsistencies and, as a result, the categories that needed more specific definitions.

The same two analysts divided the final categories between them and coded the categories for all the interview documents. When they had completed the coding, each analyst reviewed all the codes the other had made and indicated whether he or she agreed or disagreed with them. Resolving their differences led to changes. Then they analyzed the Interviewees' responses by the defined categories. This analysis made it possible for the analysts to quantify the interviewees' responses within each category and support their findings on the third objective. That is, by analyzing interviews for common themes, the team was able to demonstrate that many officials viewed program eligibility criteria as unclear and that many officials had not made referrals to the program.

**Statewide Transportation Planning:** Opportunities Exist to Transition to Performance-Based Planning and Federal Oversight, GAO-11-77, Dec. 15, 2010

The states' transportation planning enables them to decide how to spend federal transportation funds—almost $46 billion in fiscal year 2009. Draft legislation to reauthorize federal surface transportation legislation would, among other things, have revised planning requirements to recognize the states' use of rural planning organizations (RPO) and would have required performance measurement.

Subsequently, GAO responded as follows to a request to examine (1) states' planning activities and RPOs' satisfaction that rural needs were considered, (2) states' planning challenges, (3) the U.S. Department of Transportation's (DOT) approach to overseeing statewide planning, and (4) the states' use of performance measurement and opportunities to base statewide planning more on performance.

GAO analyzed planning documents; surveyed departments of transportation in 50 states, Puerto Rico, and Washington, D.C., and 569 RPOs; interviewed officials in 6 states; and held an expert panel on performance-based planning.

To identify the extent to which state transportation departments were using performance measurement for planning, as well as opportunities to base statewide planning more on performance, GAO staff analyzed data collected through its state DOT survey and interviews with state transportation department officials. To gather information on the challenges the state departments faced in their statewide transportation planning, GAO relied primarily on data from the state survey, in which it asked state transportation department respondents to identify in open-ended responses the three most significant challenges to developing both the long-range statewide transportation plans and the state transportation improvement program (STIP).

**The Content Analysis**

GAO staff analyzed the content of the open-ended question responses by first grouping them into the 13 categories of challenges the state transportation departments had identified, including funding, stakeholder involvement, and staffing. Then GAO developed a codebook that defined each category, and two GAO analysts independently assigned codes to each response, resolving differences in their coding to reach consensus in a meeting. Then they removed duplicate responses—instances in which a state DOT reported the same challenge for the same plan more than once—to ensure that state departments reported only unique challenges. Finally, GAO staff analyzed the coded responses to determine how many state DOTs encountered each challenge in developing both the long-range statewide transportation plan and the STIP.

States commonly listed insufficient or uncertain funding for implementing transportation projects among the primary challenges to long- and short-range planning. They also reported that involving the public and addressing transportation data limitations were significant long-range planning challenges. Short-range planning challenges included meeting federal requirements to demonstrate the availability of sufficient project funding and to update the STIP to reflect changes.

**Environmental Health:** High-Level Strategy and Leadership Needed to Continue Progress toward Protecting Children from Environmental Threats, GAO-10-205, Jan. 28, 2010

Children face disproportionate health risks from environmental contaminants such as pollution in air, lead paint in homes, pesticide residues on food, and treatment-resistant microbes in drinking water. The contaminants contribute to asthma, cancer, neurodevelopmental disorders, and other diseases, and many of the nation's 74 million children are exposed to them daily. In 2007, 66 percent of children lived in counties exceeding allowable levels for at least one of the six principal air pollutants that caused or aggravated asthma, contributing to medical costs of $3.2 billion per year, according to the Centers for Disease Control and Prevention.

In 1997, Executive Order 13045 had mandated that agencies place a high priority on children's risks and required that policies, programs, activities, and standards address those risks. In response, the Environmental Protection Agency (EPA) created the Office of Children's Health Protection and convened the Children's Health Protection Advisory Committee.

**The Content Analysis**

GAO began by examining the extent to which EPA had institutionalized the protection of children's health from the environment by (1) establishing agency priorities, strategies, and rules, including implementing Executive Order 13045; (2) using key offices and other child-focused resources, such as the Office of Children's Health and the Advisory Committee; and (3) becoming involved in federal interagency efforts to protect children from current and emerging environmental threats.

GAO analysts then used NVivo, qualitative data analysis software, to analyze 35 Advisory Committee meeting agendas and related summaries derived from meetings held biannually or triannually between December 1997 and July 2009. They used the software also to analyze 74 Children's Health Protection Advisory Committee letters sent to EPA and 53 EPA response letters issued between May 1998 and December 2008.

GAO subject matter and methodological experts developed a coding scheme for identifying (1) recommendations, defined as any and all statements made in Advisory Committee letters that advised, asked, requested, suggested, or urged EPA to take action and (2) EPA requests of the Advisory Committee, defined as formal or incidental requests for advice or input by EPA to its Advisory Committee. They identified recommendations in Advisory Committee letters to EPA. In some cases, a single sentence contained multiple recommendations. For example, the Advisory Committee wrote "EPA should show leadership in applying stringent mercury controls in our own coal-fired power plants and involve the U.S. in technology transfer to improve emissions in other parts of the world"; GAO coded this as two recommendations. EPA's requests to the Advisory Committee were identified in meeting summaries, which represented the official and complete record of proceedings. Other requests—for example, individually from an EPA official to an individual Advisory Committee member—were not considered requests, since the entire Advisory Committee must be informed and must reach consensus on all matters, as specified in its charter.

GAO analysts then developed content analysis categories to characterize the range of issues the Advisory Committee recommended to EPA, based on a review of the Advisory Committee's charter and an initial review of the letters. The analysts coded each recommendation into one or more of the following ten categories:

- budget and resources (financing, funding, or the need to change resource levels for a program or issue);
- education and public awareness (providing information to the public through different media outlets);
- organization and processes (how EPA is organized, including how it operates, the form or function of EPA management, and its internal processes and procedures);
- policies and priorities (advising EPA to amend, go forward with, or cease a particular policy or prioritization that could directly or indirectly affect children's health);
- external partnership and interagency coordination (how EPA coordinated or collaborated with other agencies or entities);
- guidance (developing, updating, and using guidance documents and related information resources);
- regulations and standards (EPA regulations and its work setting or influencing EPA or government-wide standards);
- research (conducting, funding, using, or prioritizing research that would benefit children's health);

- risk assessment (developing risk assessment protocols and selecting assumptions, risk factors, and margins of error); and
- tracking and indicators (tracking environmental pollutants, as well as monitoring such pollutants or observing human health outcomes over time).

The two analysts who conducted the content analysis discussed the discrepancies in their coding and reached agreement on them or resolved them through a third-analyst review. The final analysis produced an inventory of Advisory Committee recommendations and EPA requests of the Advisory Committee.

**International Food Security:** Insufficient Efforts by Host Governments and Donors Threaten Progress to Halve Hunger in Sub-Saharan Africa by 2015, GAO-08-680, May 29, 2008

In 1996, the United States and more than 180 world leaders pledged to cut 1990's number of undernourished people globally in half by 2015. Subsequently, from analyses of U.S. and international agency documents, structured panel discussions with experts and practitioners, and fieldwork in four African countries, GAO was asked to identify (1) factors that contributed to persistent food insecurity in sub-Saharan Africa and (2) the extent to which host governments and donors, including the United States, were working toward cutting the region's hunger in half by 2015.

For the first task, GAO used the United Nations (UN) Food and Agriculture Organization's (FAO) estimates of the number of undernourished people and the prevalence of undernourishment—one of two progress indicators in the Millennium Development Goals target of halving hunger—to illustrate the lack of progress in reducing hunger in sub-Saharan Africa compared with other parts of the developing world. Further, GAO analyzed FAO's data on input use, grain production, and grain planting areas to compare agricultural input use and productivity in sub-Saharan Africa and other parts of the world.

To summarize and organize meaningfully the many factors and interventions in global food security, GAO analysts created a framework from relevant literature (economic literature, studies, and papers issued by U.S. agencies, multilateral organizations, and bilateral donors). Nongovernmental organizations (NGO), government representatives in Washington, D.C., and officials from the four countries selected for fieldwork—Kenya and Tanzania in

East Africa and Mozambique and Zambia in southern Africa—reviewed the framework.

**The Content Analysis**

Choosing content analysis to complete the second task, GAO analysts conducted nine structured panel discussions in Kenya, Tanzania, Mozambique, and Zambia with about 80 participants representing more than 60 entities, including donors and NGOs. The same questions were posed to all nine panels, and their answers were recorded. The aim was to identify key recommendations for improving food security.

The analysts then coded recommendations and lessons according to the resulting factors. Regarding the recommendation to improve marketing, for example, GAO found that all nine panels mentioned it. GAO found further that not only were the recommendations and lessons, both positive and negative, mentioned at least ten or more times in at least six of the nine panels but that they were also consistent with the natural breaks in the data. GAO coded some recommendations and lessons learned according to a few additional topics that occurred with some frequency but that fell outside the scope of the framework.

Two analysts performed the initial coding independently and then met to reconcile differences. The views and perspectives of in-country NGOs, donors, and regional representatives could not be generalized beyond that population.

# Appendix 5 Comparison of Selected Qualitative Research Tools

| | | Paper ▼ | White Board ▼ | Sticky Notes ▼ | Excel ▼ | Access ▼ | QPL ▼ | NVivo ▼ |
|---|---|---|---|---|---|---|---|---|
| **Initial Considerations** | ***Biggest Benefit*** | Easiest method for independent coding | Facilitates collaboration | Easy to generate, combine & roll-up categories | Analyst(s) may be comfortable with software | | Data collected by QPL already stored | Ability to handle numerous documents |
| | ***Biggest Limitation*** | Not efficient when there is a large data to analyze | | | Reduced ability to trace & verify | | Steeper learning curve | |
| **Step 1. Identifying Data to be Analyzed** | ***Sources of Data that can be used*** | Any format | | | Electronically readable formats | | QPL surveys and other text formats | Most electronic formats |
| | ***Optimum Quantity of Data*** | Low | | | Medium | | | High |
| | **Learning Curve** | Easiest | | | Moderate | | Steeper | |
| **Step 2. Creating Codes** | ***Develop & Test Buckets*** | Requires both subject matter and methodological expertise and is not dependent on the chosen tool | | | | | | |
| **Step 3. Coding Data** | ***Key Words*** | Find & code manually | | | Can automate search, but must code each occurrence manually | | | Automated search & code |
| | ***Key Concepts*** | No tool can find concepts | | | | | | |
| **Step 4. Check Reliability** | ***Comparison of Coding*** | Manual | Not applicable - collaborative coding | | Manual | | Automated | |
| | ***Resolution of Differences*** | No tool can resolve differences | | | | | | |
| **Step 5. Analyze Results** | ***Examples*** | Manual search of all original data | | | Search focused within relevant cell/field/tag/node | | | |
| | ***Counts*** | Manual | | | Formula | Query | | |
| | ***Crosstabs*** | Manual | | | Pivot Table | Query | | |
| | ***Incorporating quantitative data*** | Manual/Data entry (including copy/paste) | | | | Automated/Import | | |