

# 통계품질관리 관련 국제회의 참가 보고서

International Conference on Questionnaire Development,  
Evaluation, and Testing Methods

14-17 November 2002, Charleston Convention  
Center(SC, USA)

2002. 12.

통 계 청  
품질관리팀

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### <부록>

붙임1. 회의 발표 자료

붙임2. 회의 참가자 명부(전화, 주소, 팩스, 이메일 등)

붙임3. 기타



## 1. 회의개요

가. 회의명

나. 연혁

## 1. 회의 개요

### 가. 회의명 : QDET

- 조사표(항목) 개발, 평가 및 시험방법에 대한 국제회의  
(International Conference on Questionnaire Development, Evaluation, and Testing Methods)

### 나. 연혁

- 조사현장에서 조사 기법 개발, 자료 분석, 품질 측정 방법 등에 관한 각국 전문가들의 논문 발표 및 자료 교환 등을 통해 조사의 정도를 제고하고자 정기적으로 개최되고 있음
- 이중 1995년 영국에서 개최된 회의 자료(Survey measurement and Process Quality)는 품질관리 및 조사정도 제고에 참고하기 위하여 번역한 바 있음
- 과거 회의 주제 및 개최 장소;
  - International Symposium on Panel Surveys  
(1986, Washington, D.C., USA)
  - International Conference on Telephone Survey Methodology  
(1987, Charlotte, NC, USA)
  - International Conference on Measurement Errors in Surveys  
(1990, Tucson, AZ, USA)
  - International Conference on Establishment Surveys: Survey Methods for Businesses, Farms, and Institutions  
(1994, Buffalo, NY, USA)
  - **International Conference on Survey Measurement and Process Quality(1995, Bristol, England, UK)**
  - International Conference on Computer Assisted Survey Information Collection(1996, San Antonio, TX USA)
  - International Conference on Survey Nonresponse  
(1999, Portland, OR USA)
  - International Conference on Establishment Surveys-II  
(2000, Buffalo, NY USA)

- 미국 통계협회 등 4개 기관 공동으로 개최함
  - Survey Research Methods Section of the American Statistical Association
  - American Association for Public Opinion Research
  - International Association of Survey Statisticians
  - Council of American Survey Research Organizations
- 회의 주제 : 조사표 개발, 평가 방법 및 품질평가 등에 관한 논문 발표 및 토의
  - Short course : 조사표에 대한 평가 및 전문가 검토 방법 등 2개 주제 발표에 참석
    - Methods for Questionnaire Appraisal and Expert Review
    - Behavior Coding: Tool For Questionnaire Evaluation
  - Invited Paper & Contributed Paper : 조사표 설계, 응답자 면접, 자료 수집 등의 방법 및 각각에 대한 품질평가 효율적인 방법 모색 등 다수의 논문이 발표됨
- 회의 기간 : 2002. 11. 14(목). ~ 11. 17(일).
- 회의 장소 : Charleston Convention Center(South Carolina, USA)
- 출 장 자

소속	직급	성명
품질관리팀	통계주사	조 경 호
	통계주사보	최 봉 수

- 경비부담 기관
  - 경비부담 : 통계청 자체 경비
    - 기획과 기획관리 국외여비 및 일반수용비

○ 참가목적 및 기대효과

- 조사표 설계, 시험조사, 불응 대상처 대처 방안과 이에 대한 적절한 평가 및 개선을 위한 각 국의 사례 및 새로운 기법 등의 습득을 통해 품질 관리팀의 향후 평가지표 개선 등 효율적인 업무 수행에 도움이 될 것으로 판단됨

○ 참가국 및 기관(참가자명부 불임1)

- 영국, 스웨덴 등 21개국 338명이 참가

호주	오스트리아	캐나다	덴마크	영국	핀란드	프랑스	독일	아일랜드	이스라엘	이탈리아
3	1	6	1	11	2	3	5	1	1	2
케냐	네덜란드	뉴질랜드	노르웨이	폴란드	슬로베니아	스웨덴	스위스	미국	한국	
1	19	2	2	1	2	7	1	265	2	

○ 회의일정

일시	주제
11. 14.	<Short Course>
08:30~12:30	○ Methods for Questionnaire Appraisal and Expert Review
13:30~17:30	○ Behavior Coding: Tool For Questionnaire Evaluation
11.15.~11.17.	
	○ Invited Paper : 22개 논문
	○ Contributed Paper : 55개 논문
	○ Poster Paper : 30여개 논문

## 2. 세부일정 및 출장자의 활동

가. 세부일정

나. 주요 활동 내역

## 2. 세부일정 및 출장자의 활동

### 가. 세부일정

- 일자별 회의 주제

#### <QDET Conference Program>

Wednesday, November 13, 5:00 - 7:00 p.m., REGISTRATION

첫째날, 2002.11.14.(Thursday, November 14 )

#### <Short Courses>

■ 8:30 a.m. - 12:30 p.m.

Room 11

##### I. Methods for Questionnaire Appraisal and Expert Review

Barbara Forsyth, Westat, Inc., USA

Gordon Wills, National Cancer Institute, National Institutes of Health, USA

■ 1:30 - 5:30 p.m.

Room 9

##### IV. Behavior Coding: Tool for Questionnaire Evaluation

Nancy Mathiowetz, University of Maryland/ University of Michigan, USA

둘째날, 2002.11.15.(Friday, November 15, 2002)

■ 9:00 - 10:30 a.m.

Room 12 and 13

##### 1. Invited Session: Design Considerations for Pretesting

Chair: Judy Lessler, RTI -International, USA

Design Considerations for Pretesting

Roger Tourangeau, JPSM University of Maryland, USA

Discussant: Jim Chromy, RTI-International, USA

Discussant: Eleanor Gerber, U.S. Census Bureau

■ 10:45 a.m.-12:15 p.m.

Room 12 and 13

4. Invited Session: Cognitive Interviewing - II

Chair: Nancy Bates, U.S. Census Bureau

Assessing Data Quality in Cognitive Interviews

Fred Conrad, University of Michigan, USA

Johnny Blair, Abt Associates, USA

Cognitive Interviews: Do Different Methods Produce Different Results?

Terry DeMaio and Ashley Landreth, U.S. Census Bureau

Discussant: David Cantor, Westat, USA

■ 12:15 - 2:00 p.m. Conference Luncheon,

Ballroom C1-C3, First Floor of Convention Center

Keynote Speaker: Norman Bradburn, National Science Foundation, USA

■ 2:00 - 3:30 p.m.

Room 12 and 13

7. Invited Session: Cognitive Interviewing - II

Chair: Barbara O'Hare, The Arbitron Company, USA

Cognitive Interviewing Revisited: A Useful Technique, in Theory?

Gordon Willis, National Cancer Institute, National Institutes of Health, USA

The Dynamics of Cognitive Interviewing

Paul Beatty, National Center for Health Statistics, USA

Discussant: Roger Tourangeau, University of Michigan and University of Maryland, USA

■ 3:45 - 5:15 p.m.

Room 12 and 13

10. Invited Session: Using Information from Respondents to Improve Surveys

Chair: Dawn Nelson, U.S. Census Bureau,

Response Latencies and Perceived Question Difficulty as Indicators for Response Error

Stasja Draisma and Wil Dijkstra, Vrije University, Amsterdam

Using Vignettes and Respondent Debriefings for Questionnaire Design and Evaluation

Elizabeth Martin, U.S. Census Bureau

Discussant: Bob Belli, University of Nebraska, USA

셋째날, 2002.11.16. (Saturday, November 16, 2002)

■ 9:00 - 10:30 a.m. Room 12/13

14. Invited Session: Beyond Cognitive Interviewing: Split-Sample Comparisons

Chair: Mick Couper, University of Michigan, USA

Getting Beyond Pretests and Cognitive Interviewing: The Case for More Split-ballot Pilot Studies

Jack Fowler, University of Massachusetts, Center for Survey Research, USA

The SIPP Methods Panel Project: Using Field Experiments to Improve Instrument Design

Jeff Moore, Joanne Pascale, Julia Klein Griffiths, Anna Chan and Pat Doyle, U.S. Census Bureau

Discussant: Dan Kasprzyk, Mathematica Policy Research, USA



■ 10:45 a.m. -- 12:15 p.m.

Poster Session, Rooms 4 and 5

- A. Evaluating Questionnaire Revisions in a Survey of Immunization Providers, Katherine Ballard-LeFauve, Lee Giesbrecht, and Elizabeth Anderson, Abt Associates, USA
- B. Questionnaire Development by Using Semi-structured and Cognitive Interviews, Mary Boynton (scb)
- C. National Foreign Language Assessment and Linguistic Diversity: The FL-NAEP Language Survey and Background Questionnaire and the Case of "Heritage" Spanish Language Students in the U.S., Katherine Richardson Bruna, Michael Fast, and Nina VanDyke, American Institutes for Research, USA
- D. Reformatting a Self-administered Questionnaire Based on Item Nonresponse, Fran Chevarley (AHRQ)
- E. Do Cognitive Interviews Improve Education Surveys, Young Chun and Kevin Carter, American Institutes for Research, USA
- F. Web Survey Comments: Does Length Impact Quality?, Carrie Christianson DeMay, Jonathan Kurlander, and Kristofer Fenlason, Data Recognition Corporation, USA
- G. Using Cognitive Follow-up Interviews to Develop the 2002 Census of Agriculture Report Form, Nancy Dickey and Zulma Riberas, U.S. National Agriculture Statistical Service
- H. Developing Measures of a Complex Theory of Brand Loyalty for Use on the Internet, Jean Durall and Melinda Smith de Borrero, Knowledge Networks, USA

- I. An Application of the Three Step Test-Interview (TSTI): A Validation Study of the Dutch and Norwegian Versions of the Illegal Aliens Scale, Tony Hak, Kees van der Veer, and Reidar Ommundsen
- J. The Use of Constrastive Questions: Effects and Solutions, Bregie Holleman and Huub van den Bergh
- K. Quest, A Generic XML-and Metadata-Based Questionnaire Management System, Wolfgang Koller and Guenther Zettl (Statistik)
- L. Developing Questions to Measure the Victimization of Developmentally Disabled Respondents in the National Crime Victimization Survey, Denise Lewis and Kathleen Creighton, U.S. Census Bureau
- M. Specialties of Business Tendency Surveys of Ukranian Enterprises, Pugachova Maryna (ukr)
- N. Measuring Barriers to Employment: Development and Evaluation Questionnaire, Daniel McMillin, Edwin Sasaki, Laura Hecht, and Kenneth Nyberg (csubak)
- O. A Cognitive Analysis of Passionate Love, Victor de Munck ( Bestweb)
- P. Improving Mail Surveys of Establishments: Testing the Effect of Incentives on Questionnaire Completion and Data Quality, Danna Moore and John Tarnai, Washington State University, USA
- Q. Use of Focus Groups in Questionnaire Design, Melvin Prince and Mark Davies
- R. Cognitive Laboratory Experiences: On Pre-testing Computerized Questionnaires and Data Quality, Ger Snijkers, Statistics Netherlands

- S. Tradeoffs and Rating Scales: How They Compare in Measuring the Priorities of Diverse Populations, Nathaniel Stone (Communication.gc)
- T. Cognitive Testing of Proposed Disability Questions for the 2002 NHIS in the NCHS Questionnaire Design Research Laboratory, Barbara Foley Wilson, Barbara Altman, and Beth Taylor, U.S. National Center for Health Statistics

■ 2:00 - 3:30 p.m.

Room 12 and 13

18. Invited Session: Comparisons of Question Evaluation Methods

Chair: Jennifer Rothgeb, U.S. Census Bureau, USA

Does Question Pretesting Make a Difference? An Empirical Test Using a Field Survey Experiment?

Barbara Forsyth, Westat, Inc. USA

Jennifer Rothgeb, U.S. Census Bureau

Gordon Willis, National Cancer Institute, National Institutes of Health, USA

Procedures for Testing Self-Administered Questionnaires: Cognitive Interview and Field Test Comparisons

Don Dillman, Washington State University, USA

Cleo Redline, National Science Foundation, USA

Discussant: Pamela Campanelli, Survey Methods Consultant, U.K.

■ 3:45 - 5:15 p.m. 12 and 13

22. Invited Session: Case Studies Using Multiple Methods for Questionnaire Evaluation

Chair: Karen Bogen, Johns Hopkins University, USA

Improving the Clarity of Closely Related Concepts

Nora Cate Schaeffer and Jennifer Dykema, University of Wisconsin-Madison, USA

Design, Testing and Evaluation of Stated Preference Questionnaires

Michael Kaplowitz, Frank Lupi, and John Hoehn, Michigan State University, USA

Discussant: Rachel Casper, RTI - International, USA

넷째 날, 2002.11.17. (Sunday, November 17, 2002)

■ 9:00 - 10:30 a.m.

12 and 13

26. Invited Session: International Issues in Questionnaire Development

Chair: Lilli Japac,

Evolution And Adaptation of Questionnaire Development, Evaluation And Testing Methods in Establishment Surveys

Diane Willimack, U.S. Census Bureau

Lars Lyberg, Statistics Sweden

Jean Martin, Office for National Statistics, U.K.

Lilli Japac, Statistics Sweden

Patricia Whitridge

Developing Cross-National Survey Instruments

Tom Smith, NORC, University of Chicago, USA

Discussant: Gustav Harldsen, Statistics Norway

■ 10:45 a.m. - 12:15 p.m.

Room 12 and 13

29. Invited Session: Statistical Methods for Developing and Evaluating Questionnaires

Chair: Jana Asher, Carnegie Mellon University, USA

A Scientific Approach to Questionnaire Development

William Saris, William van der Veld, Irmtraud Gallhofer and Irmgard Corten, University of Amsterdam, The Netherlands

The Use of Latent Class Analysis for Identifying Flawed Questions

Paul Biemer, RTI-International, USA

Discussant: Colm O' Muircheartaigh, NORC, University of Chicago, USA

## 나. 주요활동 내역

- Short Course 4개 주제 중 2개 부문에 대한 회의에 참석하여 관련 내용의 파악 및 미 참가 2개 부문에 대한 발표자료를 수집
- Invited Paper 22개와 Contributed Paper 55개, Poster Paper 30여개에 대한 회의가 4일동안 동시에 개최되어 업무와 관련된 주요 주제 위주로 참석
  - 참석하지 못한 주제에 대한 부가적인 발표 자료 수집

### 3. 각 국 발표내용

- 가. 주요 논문 번역(요약)
- 나. 발표 논문 요약(영문)
- 다. 각국 발표 논문집

### 3. 각국 발표 내용

#### 가. 주요논문 번역(요약)

- 주요 Short Course 2개와 Invited Paper 4개의 요약
- 기타 논문들은 부록으로 별첨

#### <Short Course : 2개 논문>

##### ① 조사표 평가와 전문가 검토의 방법

- 강사: Barbara Forsyth, Westat and Gordon Willis, National Cancer Institute, NIH

##### - 주요 내용 :

- 어떠한 예비조사를 하기 전에 잘못된 조사표에 대하여 전문가들이 체계적으로 검토할 수 있는 방법이 있는가? 실질적이고 방법론적인 전문가들이 효율적으로 활용 되었을때 이는 조사표 설계자들을 위한 유용한 정보의 근원임. 구조화된 "질문 평가" 방법은 함정에 빠지기 쉬운 상세한 정보들을 제기하는 관습적인 전문가들의 견해를 뛰어넘는 방법임. 물론, 조사표 개발과 수정을 권고하기 위해 필요한 여러 종류의 정보를 생산하는 전문가들의 견해와 조사표 평가자들을 확고히 하기 위해 적절한 계획과 훈련은 필요함

이 과정은 조사표 설계와 평가에서 다양한 형태의 전문가 견해를 포함하는 검토 방법이 될 것임. 그러나 선택된 조사표의 평가 방법 전문가가 되기 위해 훈련에 참가한 자들에게 특별히 초점을 맞추고 있으며, 이 과정에서는 가구와 기존의 조사들의 조사표와 설계에 대하여 그룹 토의 및 질문 등 다양한 방법을 사용하였음. 그 주제들은 다음 사항들을 다루고 있음

- 선택된 전문 검토자들과 검토 방법
- 그룹 검토와 개별 검토 방법들
- 기존의 조사표 평가 방법을 사용한 전문가 의견의 수집
- 전문가 검토 방법을 인식 면접과 현장 예비조사 등 다른 테스트 및 평가 활동들에 접목시키는 것

## ② 태도 부호화(Behavior Coding) : 조사표 평가 도구

- Instructor: Nancy A. Mathiowetz, University of Maryland/University of Michigan

- 주요 내용 :

- 태도부호화는 조사직원과 응답자간의 상호작용을 검증하는 체계적이고 유연하며 비용 효과적인 방법임. 작성자는 현장이나 녹음된 테이프를 통해 조사직원이 읽은 질문과 난이도에 따라 응답자들이 답변 태도 등과 같은 조사직원과 응답자간의 정확성 태도에 코드를 부여함. 이와 같은 부호화의 결과는 면접자의 실적을 검증하고 조사 문항의 문제 또는 방법론적인 실험 효과의 분석 등에 사용될 수 있음.(참고자료 : Oksenberg, Cannell, and Kalton, (1991) "New Strategies for Pretesting Survey Questions." Journal of Official Statistics ,Vol. 7 (3): 349-365 and Mangione, Fowler, and Louis (1992) "Question Characteristics and Interviewer Effects." Journal of Official Statistics, Vol 8 (3): 293-307).

이번 회의에서는 조사직원 또는 응답자와 관련하여 제기된 문제에 대한 질문을 검증하기 위해 태도 부호화를 사용하는 것에 초점을 두었으며, 연구원들이 조사표를 개발하고 시험하기 위해 사용할 수 있는 많은 기법중의 하나임.

다양한 태도 부호화 계획은 검증되어지고 참가자들은 태도 부호화의 사용에 대해 훈련을 하였으며, 역시 질문에 대한 문제점을 진단하기 위해 다른 시험조사 기법과의 비교는 물론 효율적인 태도 부호화를 얻기 위한 연습 과정 등이 포함되어 있음

### <Invited Paper>

#### 1) 시험조사에 대한 디자인 연구(Roger Tourangeau)

- 여기에서는 조사표 개발을 위해 실시하는 시험조사에서 통계학적이고 디자인의 관점에 관한 것을 연구하였음. 연구자들은 시험조사를 종종 통계학적인 문제나 전통적인 실험적 디자인 문제와 같은 것



에 크게 얽매이지 않는 질적인 활동으로 봄. 오히려 시험조사는 실험적인 두 세가지의 조사표(안)과 비교했을 때 실험적인 것으로 간주되어서 통계학적이고 실험적인 디자인 문제는 간과 될 수도 있음. 이 논문에서는 반대적인 견해에 대해 토론하고 있음.

여기서는 다양한 조사표(안)들과 비교한 실험에 의해 제기된 주요한 디자인과 관련한 문제에 대해 다루고 있음. 이것은 다음과 같은 점들을 포함하고 있음.

- a) 시험조사를 연구실에서 실시한 이론적인 것과 현장에서 실제로 했을때의 각각의 장점,
- b) 진보적이고 보수적인 요소의 디자인과 여러 가지 규모의 다른 조사표를 동시에 비교하여 구성한 조사표의 디자인과의 대비
- c) 다른 유형의 조사표를 다른 표본 단위에 적용하기 위한 조건들

또한, 중요한 시험을 위한 적절한 수준의 선택, 통계학적인 중요성의 실질적인 대조와 같은 통계학적인 주제에 대해서도 논의되었음. 전통적인 실험적인 디자인에 주안점을 두는 것은 누적된 연구를 통해서 찾을 수는 있지만 조사표 설계 실험에서 나온 분명한 결과를 산출하는 것일 수도 있음. 이 논문에서는 이와 같은 몇몇 고찰은 인지적 면접과 태도 부호화와 같이 진실로 질적인 기법에 바탕을 둔 시험조사로부터 더욱 결론적인 사실을 산출해 낼 수 있다는 것에 더욱 큰 관심을 가지고 논의하고 있음.

## 2) 인지 면접의 새로운 전망 : 우리가 말하는 조사표의 “실험실 시험”이란 무엇을 의미하는가?(Gordon Willis)

- 일반적으로 조사에서 질문이 장황할때의 문제점을 찾기 위해 인지 면접이 사용됨. 그러나 현재는 이 기법이 효과나 논증된 근거로서 적절한 기준이라는 의견 일치 등의 결정적인 근거가 없음. 게다가 인지면접은 매우 다양한 사람들을 대상으로 수행되는 것이 명확하지만, 이면에 있는 편차나 그와 같은 변수가 특별한 목적을 위해 최상이라는 것을 명확히 할 필요는 없음.

여기서는 기법의 효과성을 평가하기 위해 먼저 왜 이 면접을 하는지? 어떤 배경 훈련이 우리의 실행에 영향을 미치는지와 인지 면접을 통해 어떤 업종이 나타나기를 기대하는지? 등에 대해 더욱 명확한 정의가 필요하다는 것을 논의하고 있음.

여기서는 실습에서 변수를 주었을 때의 예측을 실험하고, 각각의 변수나 기법이 실험되고 개발되어진 방법에서 변수가 평가를 위한 연구에 사용하는 다른 기준에 끼치는 영향을 보여줌. 특히, 이론적 근거를 둔 두가지의 견해에 대해 검토하였음. 인지 견해와 인류학적/민족지학적 견해임. 또한, 주제 채택의 조건으로서 개발한 이론이나 변경 방법, 조사원에 기초를 둔 조사나 질적인 결과의 분석 등 각각이 내포하고 있는 방법의 조정을 위한 관심에 대해 토론하였음.

나아가 이 토의에서는 어떻게 조사원들의 조사가 수행되어야 하는지에 대한 여러 가지 견해가 제시되었음. 특히, 문제를 입증해야 하는지, 발견해야 하는지에 대해 더욱 근거를 뒤야 하는지와 시험 질문에 기초를 둔 경우와 반대로 질문에 대한 응답을 찾는것에 대한 연구를 포함해야만 하는지에 대해 제시되었음.

### 3) 인지 면접의 원동력(Paul Beatty)

- 지난 15년동안 인지면접의 발전은 조사표 개발에 중대한 영향을 끼쳐 왔음. 인지면접의 방법론에 대한 유용한 개요에는 면접 행동의 일반적 다양성에 대한 토론과 각각의 사례를 제공한 내용을 포함하여 저술되어 왔음.(예를 들어 참석자들의 “적극적인 사고”를 독려하거나, 현재의 조사, 기억 조사 등) 그러나, 인지면접의 많은 변수들은 명확하게 정의되고 있지 않음. 비록 인지 조사자들도 종종 조사를 요구받지만 그들은 면접동안 무엇을 말해야 할지에 대한 자유롭고 풍부한 생각을 유지하고 있음. 보다 심도있고 실질적인 인지면접 실습을 찾는 이유중 하나는 “최상의 방법”에 관한 토론을 촉진시키기 위해서임. 다른 이유로는 시험조사 방법에 관한 방법론적인 연구를 계속해서 촉진시키기 위해서임.

이 토론의 주요 목표는 인지면접의 원동력과 응답자들의 답변에 따른 조사원들의 행동이 어떻게 나타나는가와 이것들로부터 도출 가능한 결론들에 대해 탐구하고 있음.

이 조사에서는 몇몇 주요한 문제들에 대해 논의함 ;

인지면접에서 발견한 내용이 실지 조사상의 문제라고 어떻게 정의할수 있는가? 구체적으로, 어떤 특별한 조사 전략을 인지면접에 적용할수 있는가? 이 보고서에서는 하나의 인지 실험만 국한시킴.(그리고 한가지 인지 면접 과제에만 주요 기반을 두고 있음.)

오히려 모든 곳에서 행해지는 인지면접을 일반화시키는 것보다는 여기서처럼 특별한 과제내에서 심도있게 면접의 원동력에 대해 탐구하고 무엇이 실질적으로 행해지고 어떻게 결론에 영향을 미치는지에 대해 탐구하는 것이 더욱 객관적이임.

#### 4) 인지면접에 대한 자료 품질의 평가(Frederick G. Conrad, Johnny Blair)

- 인지면접은 지난 10여년간 시험조사를 위해 사용되어 왔지만 한가지로 받아들여지는 방법의 정의는 아직 없음. 특별한 인지면접의 기법은 실험실의 과정에서 생산되는 많은 다른 기법으로부터 구성되어짐. 이것은 자료 품질내에서는 이 기법들이 다를 수도 있다는 것을 합리적으로 생각하게 해줌.

비록 자료의 품질에 대해 연구가 거의 없다고 하더라도 이 자료들은 주요조사의 질문이 실지로 수정이 필요한지 정의하기 위해 관례적으로 사용되어져 왔음. 여기 첫 번째 장에서는 인지면접의 자료 품질을 평가하기 위한 방법론을 제시함. 문제의 정의가 구두 보고의 기본적인 목적이라고 제시함. 구두 보고의 해석, 질문 문제의 코딩과 이 자료들의 분석에 대한 방법론적인 설명이다. 두가지 종류의 신뢰성과, 세가지 종류의 타당성에 대해 토론함.

두 번째 장에서는 자료의 품질을 비교 연구하여 설명한 자료에 의해 방법론을 설명함. 특히, 두가지 인지면접의 기법에 대한 두가지 종류

의 신뢰성에 대해 설명함. 한가지 기법은 인지면접자의 실습 경험을 나타내고 있음. 다른 기법은 구두보고를 이끌어내고 응답자들의 구두 보고에서 나타나는 문제에 대한 징후를 명백히 하기 위해 강제적으로 면접자들이 탐구에 사용한 심리학적인 절차를 밀접하게 따르고 있음.

조사질문에 응답한 구두보고는 인지면접에서 발견된 문제의 품질에 대해 지속적으로 관심을 갖고 해석하기는 어렵다는 것을 이 결과에서는 보여주고 있음. 게다가 강제적인 면접자들의 탐구는 소수를 이끌지만, 정의된 문제에 대한 신뢰성은 더욱 높아진다고 제기함.

### <Short Course 발표 논문>

#### 조사표 평가 및 전문가 검증을 위한 방법

QDET Short Course  
November 14, 2002  
Gordon Willis and Barb Forsyth

1

#### (우리의) 전문가 검증과 평가 방법의 정의

- 이것은 일반적인 모습임.
- 여기에 대한 과정;
  - 조사표에 대한 문제의 정의
  - 제출된 변경내용의 개발
- 지도에 따른 성과
  - 개별 전문가 검증
  - 다수 전문가 검증(그룹 검증 포함)

2

#### 전문가 검증과 조사표 평가와의 차이

실용적인 목적을 위해 구분함

- 전문가 검증=조사표 시험조사 또는 평가 방법 ; 검증과정의 한부분으로써 전문가의 선정과 다른 변수의 구성을 포함
  - 기존의 전문가 그룹 패널
  - 애드 혹 전문가 선정

3

#### 전문가 검증과 조사표 평가와의 차이

실용적인 목적을 위해 구분함

- 평가 방법=문제 발견을 위한 조사표 평가에 대한 공식적인 체계
  - 참고문헌: Lessler/Forsyth: Coding System for Appraising Questionnaires 등 5개

4

전문가 검증과 평가에 대한 과정을 여는가?

- “전문가 검증의 구성”은 이전에는 포함되지 않아 왔음.
- 분명히 일반적인 실행은 전문가 조사표 검증이 포함하고 있음.
- 그러나 문서화는 잘 되어 있지 않음.

5

전문가 검증과 평가에 대한 과정을 여는가?

- “전문가 검증의 구성”은 이전에는 포함되지 않았음.
- 이제는 방법론에 대해 관심을 고려해 볼만 함.

6

전문가 검증과 평가에 대한 과정을 여는가?

- 평가시스템은 조사표 설계를 위해 관심사로 떠오르고 있음.
- 공식화를 위해 나타나는 활동
  - 질문에서 발견된 문제들
  - 이 문제들을 증명하기 위해 조사표 검증의 체계화를 위한 방법
- 경험상의 수준을 넘어 직원들을 위한 실질적인 도구의 구비
- 근본적으로 많이 적용되었음 (이론이 많지는 않음)

7

견해의 구성과 평가의 실시의 비교

- 먼저 전문가 검증단과 검증방법을 선택하기 위한 틀을 제안함.
- 예: 그룹 vs 개별방법, 시간 등
- 어떻게 여러분 스스로 평가를 할 수 있는가에 대해 다음을 제안함.
- 질문 평가 시스템
- 조사표 검증 코딩 시스템
- 과정은 두 번째 관심에 더욱 주력하고 있음.

8

Part 1: 전문가 검증을 구성하기 위한 틀

○ 각각의 선택된 모습들과 함께 전문가 검증은 사소한 것이 아니라 다양함.

- 왜?
- 무엇?
- 어떻게?
- 누가?
- 언제?

9

A. 왜 전문가 검증을 하는가?

“긍정적인” 이유 :

- 조사표를 개선하기 위해 :
  - 전문가로부터 조사표 설계, 주제 관련 부분 혹은 두가지를 모두 의견을 수렴
  - 효율적이고 낮은 비용이 의미하는 것은 이전의 자료나 다른 형태의 시험자료를 결합한 것으로부터 평가 정보를 수집하는 것
  - 사람들로 부터 제공되어진 유용한 정보는 조사표와 연결되어 있지 않으므로 독립적일 수 있음.

10

A. 왜 전문가 검증을 하는가?

“부정적인” 이유 :

- 조사를 “증명” 함
  - 진행되는 동안 더욱 조소적인 변수로서 다음과 같이 말함. “전문가에 의해 조사표가 검증되었다” 그러나 그렇게 하였을 때 무엇을 원하는가
- 우리는 여기에 대한 논평은 많음.
  - 검증자들은 뭔가 말하고 싶은 유용한 정보를 가지고 있을 수 있음.
  - 검증자들은 여러분이 무엇을 하는지에 대해 이해할 수 있음.
  - 만약 검증자에 문제가 있다면 우리는 그 조언은 전문가로부터 얻었다는 말을 하지 않을 것임.

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B. 무엇이 검증되어지는가?

- 조사의 조사표를 넘어서 원 자료를 검증하기 위해 가능한 범위가 있음.
  - 인구 조사(표본 인구, 가구 조사표)
  - 기존에 설계된 조사표
  - 다른 형태의 자료 : 예를 들어 지도, 도표, 목록자료, 기초 자료의 문서 또는 공표된 자료 등
  - 웹사이트(시험의 유용성)
- : 이 과정에서는 주요과제로 언급하지 않음

12

B. 무엇이 검증되어지는가?

- 비록 검증이 조사에만 국한될 경우;
  - 이것은 복잡하고 검증하기 위한 많은 것이 있음.
  - 우리는 표본을 포함하여 전체 조사에 대해 검증하고자 노력하지 않음.
  - 그러나 가볍게 사용할 수 있는 참고말을 실었음.
  - “당신은 부실응답자에 대한 원칙을 가지고 있음.”
  - “만약 전화, 메일, 인터넷 등의 선택권을 부여할수 있다면 사후적인 조사들은 더 나올수 있음.
  - 그러나 우리의 초점이 조사표에만 국한된다면 중요한 차이만 초점을 두어야 함.

13

무엇이 검증되어 지는가 :  
조사표 vs 주제 문제

- 전형적인 전문가 검증은 조사 질문을 포함한 주제에 대해 파헤치는 것에 관심을 갖고 있음.
- 문구, 제외, 절차 등에 관한 설명
- 만약 컴퓨터에 의해 설계된 조사표라면 종이조사표나 컴퓨터 조사표 모두를 포함함.
- 다시 말하면 질문 평가의 훈련과 함께 특정한 부분을 다루고 있음.

14

무엇이 검증되어 지는가 :  
조사표 vs 주제 문제

- 도구를 수반하는 주제문제에 관심을 갖고 있는 전문가 검증의 선택적 유형
- 적절한 주제범위를 다루고 있는가?
- 올바른 질문을 던지고 있는가
- 예: 2003 담배 사용자 인구 부가조사 (NCI)
  - 담배의 내용에 관해 문의하기 위한 전문가를 나열함(니코틴 의존도의 질문 등)
- 검증단을 구성하기 위해 명백히 관련된 사람-Carl Ramirez(GAO)이 이 주제에 대해 논문을 발표할 것임.

15

특별한 경우-번역 검증  
질문 혹은 주제관련 검증?

- 이번엔 전문가에 의해 번역이 필요한 부분에 대해 다루고 있음
- 전문가들은 조사표 언어 버전을 나란히 검증함.
- 검증 그룹에 포함되는 것:
  - 다른 방언에 유능한 사람들(멕시코, 쿠바 등)
  - 조사현장의 경험이 있는 검증자(조사 현장에서 2개국어를 사용하는 면접자)
  - 캘리포니아 건강 면접 조사(UCLS): 주제에 대해 이해를 하는 2개국어를 사용할 수 있는 팀

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### 특별한 경우-번역 검증

#### 질문 혹은 주제관련 검증?

- 어떤 의미에서 언어번역은 분명히 주제관련 보다는 질문유형의 검증을 포함하고 있음, 그러나...
- 전문가들은 문화변수 등과 관련된 번역도구상의 내용의 결점등을 기술할 수 있을 것임.
- Ainsworth(U South Carolina): 가난한(히스패닉)여성들의 활동을 기술하지 않는 "여피족" 활동들을 물리적인 질문의 활동으로 포함시킴.
- 그 결과 여성들에 대한 평가는 편차를 갖게 됨.
- 주제관련 검증은 문화적 연구를 망라할 필요가 있음.

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#### 어떻게 검증을 구성할 것인가?

- 우리의 신조: 유연성이 실리적이다. 하나의 접근/답변을 찾지 마라. 선택된 것으로부터 기술적인 도구를 발전시키는 것이 목표임.
- 시의성, 강제적인 근원에 좌우됨.  
- 2년간의 NCHS/NCI 주기는 항상 측정할 수 없음.
- 더 나은 것이 없는가? 균형을 취하고, 돌아오는 것을 줄이는 것을 생각.

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#### 주요 범위 : 개별- vs 다중 전문가 검증

- 한명의 검증자로 충분한가?
- 몇몇은 아니라고 생각하고, 전문가 그룹/패널을 사용함.
- 예: NCI조사표 위원회의 평가 기법
- 그러나 많은 검증은 한사람에 의해 행해짐.
- 개인의 검증은 구조적 접근법의 사용으로 더욱 신뢰성있게 만들 수 있음을 제안함.(평가체계)

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#### 주요 범위 : 개별- vs 다중 전문가 검증

- 주제관련 검증인지 질문 검증인지 아니면 둘다를 행하느냐에 좌우됨.
- 만약 둘다 사용하면 다중 면접자를 포함하는 다단계 처리과정이 필요할 것임.
- CPS 담배 부가조사: 한명의 조사표 설계전문가와, 8명의 주요 담배 전문가를 활용하였음.
- 과정은 유동적이다.-조사표 설계자들은 과정, 주제관련 전문가 검토의 뒤에 활용되었음.
- 몇몇 담배 전문가들은 어정쩡한 태도를 취하고 있음(조사표 전문가가되기 위한 충분한 담배 조사가 행해졌음.)

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주요 범위 : 개별- vs 다중 전문가 검증

- 우리의 견해: 검증자가 1명 이상이면 최상이지만 위원회에 의한 조사표 설계는 피해라. 한 집단에 3명의 전문가가 유용함.
- 몇몇 설계자들은 그룹에서 1번의 회의로 끝나는 것을 좋아함.
- 혼성 모델은 대규모 그룹으로 시작되며, 최상의 유용한/응답하는 것을 규정하고, 따를 수 있는 작은 그룹을 설정함.

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그룹 검증: 회의에 의한 개별 검증  
○ 일반적 연방 정부-조사표 검토를 위한 검증자들의 모임인 "핵심 그룹"을 가지고 있음.

○ 장점:

- 그룹 회원들은 각각 다른 회원의 견해에 대해 행동을 할 수 있음.
- 합의점, 등급 문제 등을 서로 논의할 수 있음.
- 그룹 회원들은 제출된 결정에 대해 행동할 수 있음.

○ 단점:

- 상위자들이 핵심그룹이나 면접자 보고 결과를 지시할 수 있음.
- 검증자들에게 더 많은 부담을 줌.
- 위원회에 의한 조사표 설계를 포함할 수 있음.

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다른 변수: 중재자들에 의해 개별 검증이 조정됨.

- 비공식(or semi-formal) 접근 : NCI CPS 담배의 사용-질문을 대상으로 함
- 부주제의 중요성에 따라 전문가들이 할당됨
- 중단을 위한 준비가 되어있는 단계\*
- 집중의 정도 \*\*
- 중단하는 방법의 사용도 \*\*\*
- 나중에, 특별한 질문에 대해 응답함
- 만약 a)언젠가 흡연자가 될 수 있는기간 b)하루에 첫 번째 담배를 피기전에 얼마나 기다리는가 등을 아는 것을 유용함.

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중재자들에 의해 조정된 개별 검증

○ 공식적 접근:

- BLS CPS 의 컴퓨터와 인터넷을 부가적으로 이용한 검증
- 전문가들은 문제있는 평가체계의 사용을 요청 받음.
- "Delphi Technique"-Rand는 전문가들이 함께 할 수 없지만 합의점이 필요할 때 반복 검증을 제안함.
- 비평: 중재자들에 의해 결과가 미리 결정된 "철도"정책에 대해 잘못 사용되었음

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개별 검증의 구조의 결정(공식 vs 비공식)

- 공식/구조화 접근의 장점:
  - 검증과 분석의 양쪽을 맞춤.
  - 특별한 문제에 대해 전문가들이 직접 조사할 수 있게 함.
- 구조화의 단점:
  - 무엇이 예견되는지에 대해서만 검증을 집중함.
  - 백지상태에 근거를 두어 면접자들이 검증을 통해 누락되는 것이 나올 수 있음.

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개별 검증 구조의 결정

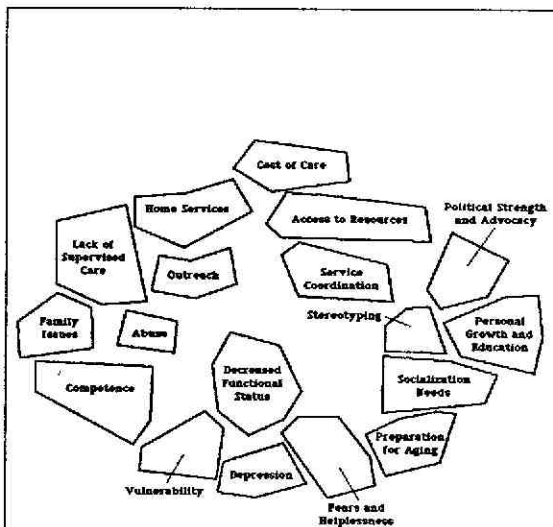
- 구조화의 단점(계속)
  - 전문가들은 여러분의 설명을 따르지 않을 수 있음.
- Schwartz & Fricker(2001) : "전문가들이 검증을 완료했을 때 각각 많은 변수가 있음. 어떤 전문가들은 개략적인 검증 결과만 제시하고, 어떤 전문가들은 구체적인 검증결과를 제시함."

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중재자들에 의해 조정된 개별 검증

- 통계적 방법 : "개념 지도"
  - 조직구조에 대한 다차원 비교 기법(Novak/Cornell)
  - 주제관련 검증 유형에 대한 최적화
  - 이전에 많은 수의 주제/항목에 대한 조사를 다음과 같이 분류했다:a)중요성 b)유사성
  - 면접자 평가와 항목의 군집들을 얻는것과의 사이에서 유사성을 비교하는데 기초를 둬.
  - 다음 예시는 Trochim(Cornell/NCI)로부터 나왔음.

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Cluster rating map for the York County Elderly project

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D. 누가 면접자가 되어야 하는가?

- 특히 그룹 검증시 사소한 문제가 아님.
- 누가 전문가가 되어야만 하는지는 다음과 같이 고려해 봄
  - 조사표내의 주제관련/실질적인 문제
  - 조사표 설계
  - 현장 경험
  - 여러분이 요청했을 때 무엇을 줄수 있는가

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D1. 주제관련 전문가의 활용:

- 주제에 대해 알고 있는 사람
- 어떤 시점에 의미를 부여함:
  - 새로운 자료 수집에 대해 일반적인 문제를 생각함.
  - 명백히 활용 가능한 기존 위원회의 전문가를 갖지 않음.
- 함정을 피하기 위해: 질문 문구의 개발을 목적으로 생산적으로 생각할 수 있어야 함.
- 주제관련 전문가들 자신은 조사 질문에 대해 기술할수 있다고 생각할 것임. 그러나 그들이 할 수 있는 최상이 무엇인가.....

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D2. 조사표 설계 전문가의 활용

- 가장 상식화된 검증 형태
- 아마도 검증자의 전문 영역과 관련이 없을 수도 있음.
  - 그래서 면접자들은 “우리가 올바른 질문을 하고 있다”의 여부에 대해 말할 수 없음.
- 만약 응답자들이 무엇을 알고 있는지 예견할수 없다면 제한될 수 있음: “대리인지”
  - 그래서 면접자의 응답자에 대한 이해, 용어의 사용, 기록의 검색... 등의 친밀감의 결여로 검증은 곤경에 빠질수 있음.

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D2. 조사표 설계 전문가의 활용-  
남용을 피함

- 함정을 피하기 위해: “조사표 설계 전문가” 항목에 대해서는 너무 중요함.
- 이것은 일반적인 지명이 아니고 조사영역의 일분야로서 극히 중대할 수 있음.
- 우리가 적절한 개별 인지 시험을 행해야 하는 이유임.
- 인지면접은 전문가 검증을 함축하고 있음.
- 검증과정에서 각각으로 “범위의 인지”와 “응답자의 인지”를 포함하는 것이 해당임.

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예시:주제관련 전문가 vs 조사표  
설계 전문가

- NCI 유색인종의 암검진 조사표 검증
- 주제관련 전문가 논평:
  - “직장경”에 대해 언급한 몇몇 질문이 있음. - 왜? 이것은 더 이상 사용되지 않음(원컨대!) 요즘은 문서가 급히 서명관에 사용되어야만 함.
- 조사표 설계 전문가들에게 적합성보다는 직장경의 이해에 대한 설명을 해야함.

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D3. 전문 검증가로서 조사 면접자의 활용

- 현장 시험조사 보고에서 나타날 수 있는 경우
  - 면접자들이 관련된 구체적인 시험조사 경험보다 개인 견해를 제출했을 때
- 절차는 때때로 공식화 됨.
  - NCHS/NHIS Core Redesign- 경험있는 면접자들의 전문가 검증 패널의 모임
  - 현장의 문제를 예견하기 위해 매우 유용함.
- 함정: 면접자의 견해가 제한됨.
  - 면접자들은 기입에 기계적으로 따르는 경향을 보임.
  - 개방적인 것들은 면접을 느리게 함.

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D4. 다른 사람들과 잘 어울릴 수 있는 면접자의 선택

- 직설적인 것보다 질문할 때 협조적으로 느끼게 하는데 도움을 줌.
  - 함정: “나의 방법이나 빠른방법”을 믿는 전문가들을 조심하라.
  - 권위적인 주제관련 전문가들은 무엇이 조사표에 들어가야 하는지에 대해 확신을 갖고 있음.
  - 권위적인 조사표 설계 전문가들은 질문이 어떻게 물어져야 하는지에 대해 확신을 갖고 있음.
  - 공평하게 말하면- 협조자를 원하는지 충고자를 원하는지를 명확하게 하라.

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E. 언제 검증이 행해져야 하는가

- 검증의 강조에 따름.
  - 형성적인 주제관련 검증은 질문 검증보다 비교적 빠름.
- 여러가지 관점 검증:
  - 만약 검증자들이 여러 가지 관점에서 활용된다면 한번에 모두 요구하지 마라.
  - 다른 시험조사에 합칠수도 있음.(인지면접, 태도 부호화)
- 시의성에 대한 비판:
  - 검증은 다음 단계의 개발 전에 변화시키기 위해 충분한 시간이 필요함.
  - (인지 시험, 현장 시험, 순서작성)

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면접자들이 필요로 하는 시간이 얼마나 되나?

- 여러분이 그들에게 부여하기 나름임.
- 처음에, 전체 검증은 몇주가 걸림.
  - 특히 긴 도구의 경우 한달이 걸림.
- 나중에, 제한된 검증은 훨씬 짧게 돌아옴.
  - 매우 제한된 요구에 대해서는 1주 혹은 더 짧을 수 있음.
  - 기회주의적인 모델: 정해진 기한 내에 응답해야하는 다수의 검증자들에게 보냄.
  - 일반적으로 대규모 그룹에서는 모든 검증이 우리에게 돌아올 때 까지 기다렸다 일할 수 없음.

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### 검증자들과의 의사소통

- 함정:
  - 과정, 결과에 관한 일반적인 정보의 부족
  - 그들이 정확하게 무엇을 해야 할지에 대한 설명의 부족
- 다음은 정보를 전달하기 위한 정보 항목들의 목록임.

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### 검증자들과의 의사 소통

- 검증의 본질/구조
  - 검증자들의 수, 기한, 결정과정
- 검증자들과의 의사소통
- 측정 목적
  - 전체, 주요 항목
- 기입의 형태
  - 특히 자제 vs 면접
- 기입의 배경
  - 어디서 했느냐-사생활?
- 표본 크기
  - 자유로운 질문이 가능한가?

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### 검증자들과의 의사 소통

- 유연성- 또는 제한성
  - 모든 질문은 설명을 갖고 있는가?
- 관습
  - 괄호의 사용, 설명 순서
- 검증의 요구 양식
  - 일반 구조에서 시도되는 수준
  - "검색" vs "고정"의 표시
- 최종 결정의 작성
  - 최종 의사소통 또는 보고서의 제공

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의사소통의 문제:검증의 요구 양식

- 구두 대화/의견제시
  - 그러나, 검증자들로부터 문서로 제출되는 것은 없음.(무기록)
- 작성된 보고서-검증자들에 의해 구성된 양식
  - 혼돈! 검증을 무너뜨리기 어려움.
- 조사표 자체내에 설명을 둠
  - 긴 보고서를 생산함
  - 그러나, 설명은 명백하게 질문들과 연결되어 있음.
  - 주요 문제의 관점에서 보면 전체 요약이 앞부분에 있어 도움이 됨.

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전문가 검증의 산물:얻은 것으로 무엇을 할것인가?

- 검증자가 제출한 결과물들의 분석
  - Presser & Blair(1994)
    - 전문가 패널 인지면접이나 태도 부호화 보다 더 많은 문제점이 발견되었음.
  - Willis, Schechter, & Whitaker(2000)
    - 전문가 검증은 두 번의 인지면접지수에서 문제를 나타냈음.
    - 이 발견은 실질 문제들로 대변될 수 있음.
    - 전문가들이 거기에 문제가 있다고 말하는 것은 쉬움.
    - 아마도 감각적이고 구체적이지 않음.
  - 검증의 사용자들은 실행하기 위해 “객관적인 판단”이 필요함.

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전문가 검증의 산물:얻은 것으로 무엇을 할것인가?

- 검증자가 제출한 결과의 성질 분석
  - 두가지 측면 모두를 고려하고 일방적으로 행하지 마라
    - 주제관련 검증
    - 질문 검증
  - 후자에 대해 Press/Blair, Ritch/Mosier/Willis 등은 연구를 통해 “의사소통상의 실패”를 많이 발견했음.
  - 다시말해서 이해/의사소통 문제가 많음.
  - 그러나 우리는 다른 광범위한 “흥미”있는 문제의 유형을 발견함.

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전문가 검증 요약:Willis 22 OMB 조사의 “기법적 검증“

문제 유형	빈도	비율
어려움(길이, 기간)	17	24%
불분명함(애매함)	15	21%
형식(자기 vs 면접자)	11	16%
논리적(가정, 건너뛰)	10	14%
기간/부담	7	10%
조직화	6	9%
편차	4	6%

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어떻게 전문가 검증을 구성할 것인가에 대해서는 이것으로 충분함.

○ 문제의 유형이 다음 주요 주제를 올바르게 이끄는 것에 대한 고찰

○ 그러나 그것을 하기 전에 전문가 검증의 구성을 포함시키고 그룹별 실습을 해야 할 것임.

○ 그러나 그전에 휴식을 가짐.

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## 나. 발표 논문 요약(영문)

### <Short Course : 4개 논문>

#### ① Methods for Questionnaire Appraisal and Expert Review

- Instructors: Barbara Forsyth, Westat and Gordon Willis, National Cancer Institute, NIH

- Description ;

- Are there ways that expert reviewers can spot "bad" survey questions by systematically reviewing them, even before doing any pretesting? When used effectively, substantive and methodological experts are a valuable source of information for questionnaire designers. Structured "question appraisal" methods go a step beyond traditional expert reviews by providing detailed information about specific design pitfalls. Of course, appropriate planning and training are necessary to ensure that expert review and questionnaire appraisal activities produce the kinds of information needed to inform questionnaire development and revision.

This course will review methods for involving multiple forms of expert review in questionnaire design and evaluation, but with a particular focus on training participants to become experts in selected questionnaire appraisal methods. The course will use a mix of class discussion and hands-on activities, covering both household and establishment surveys questionnaires and design issues. Topics will include:

- selecting expert reviewers and review methods ? some factors to consider
- choosing group-review versus individual-review methods
- gaining expertise in the use of existing questionnaire appraisal methods
- fitting expert review methods in with other testing and evaluation activities such as cognitive interviewing and field pretesting



## ② Cognitive Interviewing .....

- Instructor: Eleanor Gerber, U.S. Census Bureau

- Description ;

The course is an introduction to cognitive interviewing, as it is used to pretest survey questionnaires. The theoretical roots of the method and kinds of information best captured by the technique are explored. Developing good interview protocols and appropriate recruitment strategies are examined. An in-depth examination of probing (when to probe, what kinds of probes work best for different types of information, and combining probing with think-aloud techniques) is a central focus. Adapting cognitive interviewing to self-administered and interviewer-administered questionnaires is also examined.

## ③ Question Testing for Establishment Surveys

- Instructor: Kristen Stettler and Fran Featherston

- Description ;

• The merits of testing survey questions and data collection instruments have been generally accepted by survey practitioners. While questionnaire design, development and testing methods are reasonably well known and accepted in surveys of individual respondents reporting for themselves, similar activities are (or should) be conducted for surveys of establishments. Establishments may include entities such as schools, hospitals, businesses, farms, government agencies, and other organizations. This course will cover methods and techniques for question testing with a focus on their application in surveys of establishments.

There are special challenges and considerations when surveying establishment respondents that are not considerations with general

population surveys. For example, establishments often retrieve information from formal record systems rather than memory, establishments may be defined in more than one way, it is often unclear who the appropriate respondent within the establishment is, technical or specialty terminology is often used, testing must often be conducted in the business setting rather than the laboratory, etc. These and other key differences between establishment and general population surveys will be discussed. We will provide examples of how question testing methods -- such as expert review, feasibility studies (i.e., company/site visits), cognitive interviewing, focus groups and pilot tests -- are affected by these differences. The emphasis will be on practical advice for conducting question testing.

#### **④ Behavior Coding: Tool For Questionnaire Evaluation**

- Instructor: Nancy A. Mathiowetz, University of Maryland/University of Michigan
- Description
  - Behavior coding is a systematic, flexible and cost efficient method of examining the interaction between a survey interviewer and respondent. Coders listen to live or taped interviews and assign codes for both the interviewer's and respondent's behaviors such as the accuracy with which interviewers read questions and difficulties respondents exhibit in answering. Results of this coding can be used to monitor interviewer performance, to identify problems with survey questions, or to analyze the effects of methodological experiments (see for example, Oksenberg, Cannell, and Kalton, (1991) "New Strategies for Pretesting Survey Questions." *Journal of Official Statistics*, Vol. 7 (3): 349-365 and Mangione, Fowler, and Louis (1992) "Question Characteristics and Interviewer Effects." *Journal of Official Statistics*, Vol 8 (3): 293-307).

This workshop will focus on the use of behavior coding for the purpose of identifying questions that cause problems for the interviewer or the respondent, one of many techniques that researchers can use in the development and testing of a questionnaire. Various behavior coding schemes will be reviewed and participants will be trained in the use of a coding scheme. The workshop will include practice sessions to gain proficiency in behavior coding as well as a comparison of behavior coding to other pretesting techniques for the purposes of diagnosing problems with questions.

### <Invited Paper>

#### 1) Design Considerations for Pretesting(Roger Tourangeau)

- This paper examines the statistical and design issues involved in conducting pretests for questionnaire development. Researchers often view pretesting as a qualitative activity that doesn't require much attention to statistical issues (such as power) or to traditional experimental design issues (e.g., confounding).

Even when a pretest compares two or more versions of a question experimentally, the pretest may be regarded as exploratory so that statistical and experimental design issues can be disregarded. This paper argues for the opposite view. It discusses some of the key design issues raised by experiments that compare different versions of a questionnaire.

These include a) the relative advantages of the laboratory and field as settings for such experiments, b) the pros and cons of factorial designs versus designs that compare questionnaires that differ along multiple dimensions simultaneously, and c) options for assigning the different versions of the questionnaires to different

sample units. The paper also discusses such statistical issues as power, selecting an appropriate alpha level for significance tests, and practical versus statistical significance. Attention to classical experimental design concerns is likely to yield clearer results from questionnaire design experiments, as well as findings that are more likely to cumulate across studies. The paper also argues that greater attention to some of these same considerations can help yield more conclusive findings from pretests based on genuinely qualitative techniques, such as cognitive interviewing and behavior coding

## 2) New Perspectives on Cognitive Interviewing: What Does it Mean to Say We're "Lab Testing" a Questionnaire?(Gordon Willis)

- o The general use of cognitive interviewing in order to detect problems in survey questions has become widespread. However, there is currently no definitive evidence that this technique is effective, or agreement concerning appropriate standards of evidence that demonstrate effectiveness. Further, although it is clear that cognitive interviews are carried out very differently across practitioners, it is not necessary clear what underlies such variation, or which variants are best for particular purposes.

I argue that in order to evaluate technique efficacy, we first need to determine more precisely why we are conducting these interviews, what disciplinary backgrounds may be influencing our practices, and what practitioners expect cognitive interviews to reveal. In this paper I examine several perspectives which give rise to variations in practice, and suggest how each of these leads to different criteria for use in evaluation studies, or variation in the manner in which these techniques should be practiced or further developed.

In particular, two theoretically-oriented perspectives are reviewed: the Cognitive perspective, and the Anthropological/Ethnographic. The paper discusses the manner in which a focus on each implies modifications in the manner in which we develop further theory or alter practice in terms of subject recruitment, the nature of interviewer-based probing, or analysis of qualitative results. Further, a discussion is presented of several perspectives on how interviewer probing should be accomplished; specifically, whether it should be more oriented toward problem verification or discovery, and whether it should involve probing that is oriented toward the tested question, as opposed to probing of the answer to that question

### **3) The Dynamics of Cognitive Interviewing(Paul Beatty)**

- The growth of cognitive interviewing has had a profound impact on questionnaire development over the last fifteen years. Useful overviews of cognitive interviewing methodology have been written that discuss the general varieties of interviewing behavior (e.g., encouraging participants to “think out loud” , concurrent probing, retrospective probing, and so on), and provide examples of each.

However, many parameters of cognitive interviewing have not been clearly established. Although cognitive interviewers are often given suggested probes, they also maintain a great deal of freedom regarding what they may say during the interview. One reason to look at actual cognitive interviewing practice in more depth is to foster discussions about “best practices.” Another is to foster continuing methodological research on pretesting methods.

The primary goal of this chapter is to explore the dynamics of the cognitive interview, or how interviewer behavior shapes what participants say? and possibly what is concluded as well. This investigation opens several other important questions: how can we determine that cognitive interview findings are “real” survey problems? More generally, what specific probing strategies do cognitive interviewers employ? and do they do anything other than probe per se? The investigations reported in this chapter are limited to one cognitive laboratory (and are primarily based on one cognitive interviewing project). Rather, than generalizing to all cognitive interviews conducted anywhere, the objective is to explore the dynamics of interviewing within this particular project in depth, determining what was actually done and how that might affect what is concluded.

#### **4) Assessing Data Quality in Cognitive Interviews(Frederick G. Conrad, Johnny Blair)**

- Cognitive interviewing is well into its second decade of use for pretesting surveys yet there is no single accepted definition of the method. Specific cognitive interview techniques are constructed from a menu of laboratory procedures producing many disparate techniques. It seems reasonable to think that these techniques may differ in their data quality. Although these data are routinely used to determine whether questions for major surveys are in need of repair, very little research on data quality has been done.

In the first part of this chapter, we propose a methodology for assessing cognitive interview data quality. We propose that problem identification is the fundamental purpose of verbal reports. The methodology addresses the interpretation of verbal reports, the coding of question problems, and the analysis of

these data. Two kinds of reliability and three kinds of validity are discussed.

The second part of the chapter illustrates the methodology by describing a study that compares data quality ? in particular two kinds of reliability ? of two cognitive interview techniques. One technique represents the practices of experienced cognitive interviewers. The other technique closely follows procedures used in psychology for eliciting verbal reports and constrains interviewer probing to explicit indications of problems in respondents' verbal reports. The results suggest that verbal reports about answering survey questions are difficult to interpret consistently leading to concerns about the quality of problem detection in cognitive interviewing. They further suggest that constraining interviewers' probes leads to fewer but more reliably identified problems

#### **5) Comparing the Effectiveness of Alternative Methods of Cognitive Interviewing(Theresa J. DeMaio, Ashley Landreth)**

- In recent years, cognitive interviews have become widely used for pretesting questionnaires in the Federal government and survey organizations, and have become accepted as a survey methodological tool. There is no standardized definition of what a cognitive interview is, however, and variations exist in the way cognitive interviews are conducted. Different survey research organizations conduct cognitive interviews in different ways, and these differences may have implications for the ultimate objective of pretesting -- identifying problems in the questionnaire and making recommendations for changes to improve the accuracy of the data collected.



This paper presents the results of a split-panel experiment to evaluate alternative methods of conducting cognitive interviews, in an effort to address some of the gaps in our knowledge of the effectiveness of cognitive interviewing. The experiment includes three panels, which reflect actual differences in interviewing practice among survey research organizations. The three methodological approaches include the following elements that might be expected to impact the cognitive interviewing results: 1) the type and training of personnel who conduct interviews; 2) the role of survey researchers in the overall process; 3) the types of data collected and the degree to which they are reviewed; and 5) facets of the interview protocol and the degree to which interviewers treat it as flexible or rigid.

The results of the experiment include: 1) an assessment of the number and types of problems identified by the methods; 2) a comparison of the problems identified by the methods with an independent "standard;" and 3) an examination of the recommendations for questionnaire revision resulting from the three methods.

- 6) **Using interaction analysis for the identification and explanation of inadequate parts of a questionnaire**(Johannes van der Zouwen, Johannes H. Smit)
  - The analysis of the interaction between interviewer and respondent in survey interviews (sequence analysis for short) usually focuses at the description of general mechanisms like the effect of question format or interviewer competence on the interaction. Only rarely sequence analysis has been used as a 'diagnostic' instrument for the evaluation of (parts of) questionnaires, probably because it evokes two methodological challenges.



Firstly, only non-paradigmatic sequences provide information about interactional and cognitive processes. As these sequences form a minority in a survey, a procedure for their selection and retrieval is required.

Secondly, a sequence can be viewed as the 'product' of the competence of the interviewer, of the cognitive capacities of the respondent, and of the quality and difficulty of the question. Because we are interested in the assessment of the quality of the question, we have to apply a method for controlling the effects of interviewers' competence and respondents' capacities.

The method developed for dealing with these challenges is illustrated by data from the third survey (1999) of the Longitudinal Aging Study Amsterdam (N=1771). LASA studies autonomy and well-being of elderly persons (60-90) and includes a large variety of instruments measuring social and health related topics.

The LASA data are quite appropriate for the illustration of the 'diagnostic' approach. Firstly, all interviews are audio recorded, which enables the selection of particular non-paradigmatic sequences: for example those with non-substantive responses (like 'don't know' ) or (combinations of) responses that are very unlikely. The analysis of the selected sequences aims at identifying those characteristics of the question that have caused the problems of cognitive or interactional nature that eventually led to these problematic data.

Secondly, we are able to check the robustness of the outcomes of the analysis because a number of interviewers had conducted more than 100 interviews and the data were re-analyzed for

each of these interviewers separately. Finally, in LASA the cognitive capacities of the respondent are assessed by different cognitive tests, which makes it possible to classify respondents according to their cognitive capacities and see whether the outcomes of the sequence analysis differ between these groups.

The 'diagnostic' approach is illustrated by applying it to a part of the questionnaire consisting of eight questions: about the income of the respondent, retrospective questions about the occurrence of a decrease of income, and about the satisfaction with, and expectations about, this income. These questions belong to the standard instruments of survey research. Nevertheless, the analysis of non-paradigmatic sequences showed all kinds of misunderstandings of core concepts (like net income); and a mix up of a nominal and 'real' increase of future income; of expectations about, versus hope for, improvements, etc. Also an unexpected question order effect was detected.

The analysis also shows that the occurrence of (specific types of) non-paradigmatic sequences is related to the cognitive capacities of the respondent and competence of the interviewer, and ? most important - that these sequences can be linked to particular question characteristics. The diagnostic sequence analysis clearly shows how particular questions lead to problematic data.

#### **7) Response latencies and perceived question difficulty as indicators for response error(Stasja Draisma, Wil Dijkstra)**

- Measurement of response latencies in survey research has often been used to trace several kinds of problems with different types of survey questions and question formulations.

For example, Bassili and Scott (1996) found that problematic question formulations resulted in longer response latencies. Several studies have been performed which demonstrate the relation between attitude strength, accessibility, and intensity on the one hand and response latencies on the other. Moreover, Basilli and Fletcher (1991) demonstrate that discernible types of questions obtain different response latencies: easy factual questions obtain shorter reaction times than supposedly more difficult ones.

In some of our earlier research (Dijkstra, Draisma and Van der Zouwen 1995; Draisma, 2000) relationships between question characteristics that affect cognitive processing and response errors were investigated. It was found that the difficulty of the questions was related to the probability of giving a correct answer and non-substantive ("don't know") responses.

Response latencies may thus be indications for the difficulty of questions and for the quality of the data obtained and be useful for the evaluation of survey questions. In the paper we will address the following research questions:

- (1) Which procedures to assess response latency (RL) in answering survey questions are possible and valid, considering different operationalizations and measurement procedures?
- (2) Are these related to response errors?
- (3) Is the perceived difficulty of questions related to response errors?
- (4) Are related to the perceived difficulty of questions, as judged by the respondents themselves and by an expert jury?
- (5) Are related to other paralinguistic and linguistic indicators of uncertainty?

Data came from a telephone survey among approximately 300 members of a large Dutch environmental organization. Of the survey questions to be used, the individual true scores or correct answers could be determined by information from the records of the organization (for instance about membership duration and the size of the periodical contribution paid to the organization). All interviews were tape recorded, so that response latencies could be exactly determined. After the interview, respondents were asked to evaluate some previously posed questions according to the perceived difficulty.

The consequences for the usefulness of measuring reaction times for the practice of survey research, especially as an indicator for response error, will be discussed. It is argued that response latencies are a clear indicator of problems in answering survey questions. As a measure of information processing in survey interviews, we suggest to obtain response latencies during the interview, which can be implemented easily into CATI and CAPI techniques.

#### **8) Pretesting Strategies to Improve Respondent Comprehension and Recall in Factual Surveys(Elizabeth Martin )**

- Over the past two decades, there have been substantial theoretical and empirical advances in the understanding of cognitive sources of response error which have led to richer understandings of errors introduced by failures of comprehension or retrieval. Two field-based methods which may be applied to investigate these sources of error are respondent debriefing and the use of vignettes to identify comprehension and retrieval problems in a survey.

This paper describes how vignettes and respondent debriefing may be applied to identify measurement problems and to craft and test questionnaire designs to address the problems. By conducting an iterative program of design and pretesting, it is possible to gain much richer knowledge both about the performance of questions and the nature of the errors affecting measurement of a phenomenon. To illustrate and illuminate problems and strategies for addressing them, the paper draws upon research (much of it hitherto unpublished) conducted for the redesign of several Census Bureau surveys, including the National Crime Survey and the Current Population Survey.

Four types of applications of vignettes to questionnaire design are described and illustrated, primarily using research conducted to address problems of interpretation and comprehension in the Current Population Survey. The application of respondent debriefing questions is illustrated using questionnaire design research conducted to address recall and retrieval problems in the National Crime Victimization Survey, as well as other surveys. The advantages and disadvantages of the two methods are compared and contrasted, and evidence pertaining to their validity and consistency with other measures is summarized.

**9) Getting Beyond Pretests and Cognitive Interviewing: The Case For More Split-Ballot Pilot Studies(Floyd Jackson Fowler, Jr.)**

- The past decade or so has seen three important evolutions in the routine procedures that are used for pre-survey evaluation of questions. First, some kind of cognitive testing is frequently used to help evaluate how questions are understood and what answers mean. Second, field pretests are often now augmented with behavior coding, which makes the evaluation of the question and

answer process more systematic. Third, there has been some advance (though perhaps less developed and widely accepted) in systematic pre-survey evaluation of questions using fixed standards, such as those developed by Lessler.

There is no doubt that these techniques have improved the ability of researchers to identify problem questions. On the other hand, based on these techniques alone, researchers do not have information about how "problems" that are identified, or the "fixes" that are made, will actually affect the resulting data. This is not a trivial problem for at least three reasons.

1. Sometimes fixing a problem, for example defining a term or concept that is misunderstood by some respondents, makes a question worse from other perspectives. For example, the new added definition may make the question harder for an interviewer to read as worded. In that context, knowing how much difference the fix makes in data quality is important.
2. In a similar way, one of the most important conservative forces pushing for not fixing bad questions is the desire to use items from previous surveys to maintain comparability. When "problems" are found, how much the problems affect data quality, and how improved versions of the questions will affect mean estimates, are important considerations.
3. Finally, even if the above two issues are not relevant, when a researcher "fixes a problem", it often is important to validate that in fact the changed question produces data that are likely to be of better quality, whatever that means.

Split-ballot experiments, in which parallel questions are asked of comparable samples, provide the potential to address these questions. Without them, the significance of question problems

identified in pre-survey evaluations and how changes in questions will affect data and data quality are likely to remain unknown.

This paper presents data from a number of question evaluation studies that illustrate how split-ballot pilot studies can help evaluate proposed question changes that emerge from pre-survey question evaluation, such as cognitive testing. The results demonstrate how split-ballot studies contribute to realizing the full potential of presurvey question evaluation protocols for improving data quality.

**10) The SIPP Methods Panel Project: Employing Multiple Research Tools to Improve Instrument Design**(Jeff Moore, Anna Chan, Julia Klein Griffiths, Joanne Pascale, Pat Doyle)

- o The Census Bureau established the Methods Panel project to evaluate and redesign the questionnaires for the Survey of Income and Program Participation (SIPP). The overall objective of the project is to produce improved core questionnaires for use in the 2004 SIPP Panel. Specific improvement goals include reducing burden and improving efficiency (and thereby reducing nonresponse and attrition), revising question wording to improve “flow” and naturalness, and improving data quality.

The Methods Panel employs multiple research techniques, but its three field experiments ? designed to allow three iterations of testing and refining the Wave 1 core instrument and two iterations for the follow-on Wave 2+ instrument ? are the focus of this paper. Each split-sample test includes about 2,000 interviewed Wave 1 households, with 1,000 randomly assigned to each of the control (standard SIPP) and experimental (new and improved SIPP) instrument treatments.



Field experiments bring both strengths and weaknesses to the task of improved questionnaire design, the particulars of which vary according to the improvement goal. This paper examines the ability of the Methods Panel's field tests to yield strong evidence about the effectiveness of various attempts at questionnaire improvement. We find split-panel field tests fairly well-suited for evaluating some types of improvement attempts ? attempts to reduce nonresponse (including item nonresponse) and attrition, for example, and efforts aimed at improving the performance of the survey instrument in the field (efficiency, CAI de-bugging, interviewer evaluations). For other types of improvements (e.g., improved data quality) such tests generally supply much less definitive evidence.

#### **11) Modeling Measurement Error to Identify Flawed Questions(Paul Biemer)**

- This paper proposes a general strategy for investigating flawed survey questions consisting of four steps: (a) conduct preliminary data analysis to identify potentially flawed questions (i.e., questions with poor reliability or high levels of classification error), (b) conduct further data analysis to elucidate the probable sources of error for the questions identified, (c) verify the sources and identify the root causes of the problem through the collection of additional data, and (d) develop and implement appropriate solutions to eliminate the problem. The focus of the paper then turns to steps (a) and (b). Several general methods will be described and illustrated using real data and the strengths and weaknesses of each method will be discussed. The emphasis of the paper is on actual applications of the methodology rather than statistical theory.



Three general evaluation designs will be discussed in some detail. One design considers the case where two locally independent measurements are available for a random sample from the population. These measurements maybe parallel (i.e., have identical error properties) or non-parallel. For example, the remeasurement might be considered to be a gold-standard measurement or a measurement with unknown statistical properties. The second design extends the discussion to three measurements which be locally dependent as well as non-parallel. For example, all three measurements may come from the same interview using different questions, or combinations of questions, to measure the same characteristic. Finally, the three measurement case is extended to remeasurements which correspond to different points in time as in a panel survey situation. In this design, no remeasurements are available other than the panel survey measurements. The usefulness of this technique for data mining will be exploited in an example from the U.S. Current Population Survey.

**12) A scientific approach to questionnaire development(W.E.Saris, W.van der Veld, I.N.Gallhofer, A.Scherpenzeel)**

- In an ongoing project an inventory has been made of all the choices which have to be made in the development of items for survey questionnaires. It has been shown by Scherpenzeel (1995) that different choices may change the correlations between the variables considerably. Therefore, the effects of these choices on the reliability, validity and method effects of survey items have been studied in different countries. Andrews (1984) and Rogers, Andrews and Herzog (1992) made a study in the US, Koltringer (1995) did a study in Austria on German surveys , Scherpenzeel and Saris (1997) did a study on Dutch surveys.

In a recent project a database with all these experiments is built. The data base contains at this moment 1067 measurement instruments based on 87 experiments done on random samples from at least regional but most of the time national samples of 300 till 2000 respondents. The purpose of this study is to generate cross national generalizations of the findings which have been published so far based on national studies. This analysis provides a quantitative estimate of the effects of the different choices on the reliability validity and the method effects.

The result of that study makes it possible to implement these estimates in a computer program to predict the quality of a survey item before data are collected. For Dutch questionnaires a prototype of a full automatic "Survey Quality Prediction" program called "SQP" has been made. SQP reads survey items, codes them on the characteristics which have effects on the reliability, validity and method effects and makes predictions of the quality of these items before the data is collected on the basis of all so far collected information about effects of design factors. For the moment the program SQP works only for Dutch requests (Van der Veld , Saris and Gallhofer, 2000) but the idea is to develop a program, first of all, for English, German and Dutch and extend it later to other languages. For the moment the quality prediction for English and German questionnaires is done with a non automatic program where the users have to answer a series of questions which code the item on the necessary characteristics.

After that the program predicts the quality of the question. The quality estimates generated by SQP can warn researcher for low quality survey items before their data is collected and provide suggestions for quality improvement. In this way we hope that

questionnaire development becomes more a scientific activity and will not be an art anymore.

**13) Concepts and Procedures for Testing Paper Self-Administered Questionnaires: Cognitive Interview and Field Test Comparisons**(Don A. Dillman, Cleo D. Redline)

- In practice the primary use of cognitive interviewing methods has been to identify wording problems in interview-administered questionnaires. In this paper we provide a conceptualization of ways in which the objectives and procedures for testing self-administered questionnaires may differ from those used for interview instruments. In addition we report three case studies in which cognitive interviews and field experiments were conducted simultaneously so that the results from each could be compared. Each case study focuses on a different issue. The first case study reports evaluations of alternative Census questionnaire mailing packages in which likely response rates from alternative designs was the issue of primary interest. The second case study reports evaluations of alternative formats for providing branching instructions to respondents, where the issue of interest was to identify the capabilities of these designs for lowering the number of branching errors made by respondents. The third case study measured item-nonresponse to a particular question that exhibited high rates of nonresponse in nonexperimental data collections. In each case conclusions reached from the cognitive interviews are contrasted with those reached from the field experiments.

**14) Usability Testing as a Means of Evaluating Computer-Assisted Survey Instruments**(Sue Ellen Hansen, Mick P. Couper)

- Computer assisted interviewing (CAI) affects how interviews are conducted, in that it segments the questionnaire, presenting one screen at a time, and the computer controls the flow of the interview. Evaluation of CAI survey instruments therefore should extend beyond traditional techniques, to the evaluation of their usability, which focuses on the impact of instrument design on users (interviewers or respondents) of computers. Usability focuses on the degree to which the computer makes it possible for the user to complete tasks easily and correctly. In contrast to other questionnaire design problems, problems that are strictly usability problems focus on screen design issues, that is, placement of information on the screen, the way screen elements are formatted and made distinct from other elements, the consistency of design across computer screens, and the impact of any aspect of questionnaire design on user-computer interaction.

The primary methods of instrument usability evaluation are: (1) usability inspection methods, that is, evaluation or review by one or more experts; (2) evaluation of automatically generated performance data, such as counts of functions invoked, (3) usability testing, or laboratory-based observation of computer assisted interviews. This paper focuses on the latter. Six sections (1) review prior CAI research, (2) present a conceptual model of the computer assisted interview, (3) present guidelines for CAI design based on principles of human-computer-interaction (HCI), (4) provide an overview of usability evaluation methods, (5) describe in more detail usability testing as an evaluation method, and (7) presents findings from laboratory-based usability tests.

**15) Methods for Testing and Evaluating CAI Questionnaires(John Tarnai, Danna Moore)**

- A particularly difficult task in computer assisted interviewing (CAI) is adequate testing and evaluation of CAI questionnaires, especially since this is an easily neglected task. Over half of survey research centers nationwide report that they have written procedures for testing and debugging CAI questionnaires, and yet over 65% of them also report having had to recontact survey respondents because of errors found in a CAI survey. In this monograph we summarize the literature on testing and evaluating CAI questionnaires, and report the results of comparing common methods of testing and debugging CAI questionnaires. The focus here is not on evaluating questionnaire wording, but instead on testing and evaluating how well the questionnaire has been programmed. Included among the CAI testing methods that we evaluate are scenario testing, computer simulation, and other commonly used methods. The monograph concludes with recommendations based on the results of these comparisons and discusses the effectiveness of using computer simulations versus other methods to test CAI questionnaires. We believe that computer simulation of CAI interviewing offers much potential to survey researchers in improving the accuracy of questionnaires. This paper suggests ways of improving the testing and evaluation process for survey researchers using CAI.

**16) Testing Web Questionnaires(Reg Baker, Scott Crawford)**

- Questionnaire development and testing for traditional paper and pencil questionnaires have tended to focus on the key elements of question type selection, wording, and order. Where self-administration is used, graphic design is also important. The transition to computer-assisted methods has added a new set of

concerns, namely technical correctness (e.g., branching, calculations, text fills, etc.) and, more recently, usability.

The advent of web-based interviewing has further complicated the questionnaire development and testing phases of survey design and implementation. We now face new concerns about web-based communication styles, unique question types and formats, screen layout and use of color, added complexity to tests of technical correctness, and technical performance (e.g., speed of page delivery, appearance under different browsers, etc.).

This paper describes a series of testing protocols for Web questionnaires. It conceives of a Web questionnaire as having six main components: presentation, instructions and questions, logic and functionality, respondent environment, application software, and hosting platform. Effective testing requires that each of these components be evaluated and tested individually, as well as a thorough test of the assembled whole. The type of testing done and its point in the lifecycle of survey design and implementation will vary by component. In developing these protocols the authors draw on the survey methods literature, the literature on software testing, and their own experience both testing computer-based questionnaires and deploying hundreds of Web surveys.

**17) Does Pretesting Improve the Quality of Survey Questions? An Empirical Test within a Field Survey Environment?(Jennifer Rothgeb, Barbara Forsyth, Gordon Willis)**

- Questionnaire pretesting using cognitive methods is standard practice for U.S. statistical agencies and organizations that design or conduct national surveys. Some common methods include expert review, cognitive interviewing, and behavior



coding. Informed decisions about pretest standards and practices are enhanced by pretest methods research. This paper presents research designed to determine (1) whether cognitive pretesting predicts actual problems encountered in survey administration and (2) whether survey administration and data quality improve with revisions based on pretest results.

The research was conducted in two phases. In Phase 1, researchers at three organizations applied a set of pretest methods to a collection of questionnaire items. We used a classification scheme to code questionnaire problems identified in pretesting (see Rothgeb et al, 2001). In phase 2, we developed revised question wordings based on pretest results. The original and revised questions were embedded in an RDD telephone survey conducted by the Census Bureau. We gathered three measures of data quality: behavior coding data, item nonresponse rates and interviewer ratings.

Analyses address three research questions:

1. Do pretest results predict problems in survey administration or data quality in the field experiment?
2. Do questionnaire revisions made based on pretest findings produce improved survey administration or data quality in the field experiment?
3. Do pretest results predict the types of improvements observed in the field experiment?

The paper discusses costs and benefits from using accepted cognitive methods to identify survey questionnaire revisions, along with suggestions for how the testing and revision process might be improved.

**18) Improving the Clarity of Closely Related Concepts:**(Nora Cate Schaeffer, Jennifer L. Dykema)

- We report on a development and testing effort that combined multiple methods to attempt to improve the measurement of joint legal custody. In the U.S., when parents live apart, a court may grant parents joint legal custody, so that both parents have the authority to make decisions about the children; this concept is difficult to measure, however, because the common language used to refer to it is ambiguous and because it can be easily confused with physical custody. Our study began with a series of eight focus groups, followed by four rounds of cognitive interviewing.

The final survey, the Parent Survey 3 (PS3) included two versions of the series of questions targeted at joint legal custody. Responses in the PS3 can be compared with the legal record abstracted in the Court Record Database (CRD). We have several ways to evaluate our efforts: the accuracy of the response, how sure the respondent was about her or his answer, the relationship between how sure the respondent was and her or his accuracy, whether any differences between the two forms of the instrument are reflected in the interaction codes, and whether the interaction between the interviewer and respondent can inform us about the accuracy of the respondent's answer. We also compare our results to those of an earlier survey to further assess the results of our development efforts. Overall, it appears that the target question has a low proportion of negatives that are false, but a substantially higher proportion of positives that are false.



**19) Design, Testing and Evaluation of Stated Preference Questionnaires for Environmental Valuation**(Michael D. Kaplowitz, Frank Lupi, John P. Hoehn)

- The reported research illustrates an iterative, multiple method approach for designing and evaluating a self-administered stated-preference questionnaire for environmental valuation. Stated preference questionnaires, common in marketing research and increasingly used to estimate economic values for environmental quality, describe the attributes of goods and services and ask respondents to make choices. Crafting stated preference questionnaires for environmental valuation is inherently difficult because environmental resources are intrinsically complex and not widely understood. In the reported case, an adaptive questionnaire design approach was used for questionnaire development. The design phase of the research began with a series of focus groups and a structured group interview with subject matter experts. Based on the revealed information, two alternative prototype questionnaires were developed and later evaluated using focus groups and semi-structured individual cognitive interviews.

The result of this evaluation was the selection and redrafting of the preferred questionnaire. The draft questionnaire was then tested and evaluated using a series of individual pretest cognitive interviews. Three sets of individual pretests and debriefings were conducted with randomly recruited members of the general public (80 total). Each cognitive interview began in a flexible manner with an open format, and gradually shifted to evolved into more structured interviews with specific questions. The reported research used mixed methods because different methods were expected to, and did, reveal different types of information. The case study shows the usefulness of an iterative, multiple methods approach to designing and evaluating questionnaires.

**20) Current Practices in Questionnaire Development, Evaluation and Testing for Establishment Surveys: An International Overview**(Diane K. Willimack, Jean Martin ; Patricia Whitridge, Statistics Canada; Lilli Japac and Lars Lyberg, Statistics Sweden)

- Establishment surveys are essential to the national accounts and other short-term economic indicators for monitoring and managing the economy. In addition, they provide data supporting decision-making processes in fields such as education, transportation, health care, and agriculture. Characteristics of establishment surveys that differ from household surveys, along with a more elaborate survey response process, have resulted in an alternative culture for development and testing data collection instruments for establishment surveys. This paper documents methods used for establishment survey questionnaire development, evaluation and testing (QDET). Based on a review of publicly available literature, supplemented by our own international survey of government statistical agencies, national statistical institutes and other survey organizations, we will describe how establishment survey QDET methods have evolved to accommodate the special needs and circumstances of establishments.

Where appropriate, our discussion will also note similarities and differences between establishment methods and household methods in terms of how they are conceived and implemented. In addition, since establishment surveys have been at the forefront in developing electronic data reporting, we will also present an overview of methodologies used to test and evaluate electronic instruments. We will conclude by identifying gaps in the QDET process for establishment surveys, and suggest areas for future research and development.

**21) Children as Respondents: Developing, Evaluating and Testing Questionnaires for Children**(Natacha Borgers, Edith de Leeuw)

- Children are no longer neglected as respondents in surveys. They participate more and more in surveys. However, systematic methodological knowledge on survey techniques and questionnaire development for children is scarce, and researchers have to rely on ad-hoc knowledge from diverse fields as child psychiatry and educational testing or on methodological knowledge on how to survey adults.

The purpose of this paper is (1) to integrate the current theoretical and empirical knowledge regarding questionnaire research with children as respondents, and (2) to present instruments and strategies for the evaluation and testing of questionnaires for children.

There are special problems to be solved when developing and testing questionnaires for children. Children still develop the cognitive and social skills, which are necessary to answer questions. Although this is a continuous developmental process, it is useful to distinguish successive stages of development, each of which presents their own difficulties to survey research with children. We present a theoretical frame for the different stages of children development and its consequences for questionnaire development. We also summarize the existing empirical knowledge on children as respondents, focusing on what is known for different stages of development. We present a checklist for children questionnaires based on this empirical knowledge. This checklist can be used both as a guideline when constructing a questionnaire, and as a coding scheme for the evaluation of questionnaires (e.g., in expert-evaluation).

Besides expert evaluation, other frequently used methods for questionnaire testing are focus groups, cognitive (in depth) interviews, and observations, such as the monitoring of standardized interviews and self-administered questionnaire sessions. We systematically discuss these methods for children questionnaires. In this we reflect on what the development of children and their cognitive and social abilities in different stages mean for how researchers may test and evaluate questions. Thus providing guidelines and prerequisites for the optimization of questionnaire testing methods for different age groups.

## **22) Developing Cross-National Survey Instruments(Tom W. Smith)**

- As challenging as developing questions, scales, and entire questionnaires within a monocultural and monolingual context is, the task becomes considerably more difficult when done in a multi-cultural and multi-lingual setting. Overlaying the standard need to create reliable and valid measures are the complications inherent in cross-cultural and cross-national differences in language, customs, and structure. Only by dealing with these challenges on top of the usual instrument design issues can scientifically credible cross-national survey instruments emerge.

Considering the value of cross-national research, the importance of obtaining comparable measurements, and the frequent failure to take measurement seriously, there is an obvious need for general improvement. This chapter contributes towards that goal by discussing 1) the development of equivalent questions in surveys, focusing on a) the question-asking and b) answer-recording parts, 2) response effects that contribute to measurement error in general and variable error structures across nations, considering in particular social desirability,

acquiescence bias, extreme response styles, Don't Knows (DKs) and non-attitudes, neutral and middle options, response order, question order, and mode of administration, and 3) steps to enhance validity and comparability in cross-national surveys, including the form of source questions, translation procedures, and item development and pretesting

### **<Contributed Paper>**

#### **1) Principle Component Factor Analysis; An Analytic Strategy to Increase Content Validity of Questionnaire Factors.(Manouchehr Afshinnia, Farsad Afshinnia)**

- Background: In most of the questionnaire based surveys and KAP studies, there are different topics of interest. Most of the times, information on each topic are gathered by more than one question. As a result a large number of questions may be found in a questionnaire. However, the answers to some questions related to a particular topic of a questionnaire may actually be more informative or even present a better structural model data collection in other topics of the same questionnaire.

Objective: To use principle component factor analysis as an analytic strategy to generate new factors, including set of questions with better content validity.

Methods: This analytic strategy is based on the highest correlation coefficients between questions within a proposed factor, and the lowest coefficients among questions between different factors. The criteria of using factor analysis in this study are: 1- Lack of multicollinearity. 2- Lack of singularity of any couple of variables. 3- Kaiser-Mayer-Okin (KMO) statistic

greater than 0.5. 4- Significant level of Bartlett test of sphericity. The method of factor component determination is varimax rotation.

Conclusion: After conducting the analysis on questions of a questionnaire, the number of questions in each factor may change in decreasing or increasing order so that, better content validity may be achieved in each factor. There are some advantages and disadvantages with this type of analysis which are explained in detail in the main article.

## **2) Mexican Immigrants and the Use of Cognitive Methods in Questionnaire Development (Robert P. Agans, Natalia Deeb-Sossa)**

- Although the use of cognitive methods in the development of survey instruments is widely used by government organizations as well as major academic and private research organizations, little work has been published validating the application of these methods for use in special populations such as recent Mexican immigrants or migrant farm workers. The aim of this paper is twofold: a) to identify the measurement challenges involved in obtaining sensitive health outcomes from Mexican women in both settled and unsettled segments of the U.S. population; and b) to suggest how cognitive assessment techniques might be employed to construct valid and reliable survey instruments.

These objectives will be illustrated through a project with recent Mexican immigrants in North Carolina that attempts to construct scale items to measure last menstrual period important indicator of gauging the gestational age of a fetus which has theoretical implications in the maternal and child health literature as well as practical applications in prenatal health clinics. Guidelines for



conducting focus groups and cognitive interviews with this population are emphasized.

**3) Contextuality of survey responses as a challenge to the development of questionnaire testing methods (Anja Ahola, Marjaana Lehtinen)**

- An individual does not reply to a single question without thinking about why and for what purpose the question has been asked. When a respondent has difficulty in interpreting a question he or she seeks help from different contextual hints. Apart from in the asked question itself, such hints can also be found in the offered reply alternatives, earlier questions and the order in which the questions are presented on the questionnaire. A great deal of research information has been published about these contextual effects. (E.g. Sudman, Bradburn & Schwarz 1996, Schober 1999) Norbert Schwarz (1996) even states that survey interview respondents resort more to contexts in order to understand the meaning of a question than people do in an ordinary conversation where meanings can be discussed.

Today survey methodology literature often treats contextual effects as external, disturbing factors that should be eliminated through questionnaire development. Yet, context can also be seen as a key comprehension link that facilitates human interaction, meaning that it is then not perceived as an external frame of a survey (E.g. Foddy 1995). A respondent is constantly drawing conclusions about the inquirer intentions and motives and has different ideas of how his or her responses will be used. This means that the replies a respondent gives may reflect both his or her own assumptions of what the inquirer wants to know and what the respondent presumes the inquirer will do with the provided information. Is it, therefore, sufficient to just develop

questionnaires, or should information also be produced to help the interpretation of the results?

The paper discusses different ways of understanding contextual effects and presents a few methodological solutions and empirical answers to studying them

#### **4) Calendar Survey Methods: Association between Verbal Behaviors and Data Quality(Robert F. Belli )**

- Event History Calendars (EHCs) have been shown to lead to higher quality retrospective reports in comparison to standardized question-list (Q-list) methods. Although for theoretical reasons EHCs are believed to be advantageous by encouraging the use of cues available in the structure of autobiographical memory, evidence that demonstrates the use of these cues is needed. A verbal behavior coding analysis of approximately 400 interviews, half EHC and half Q-list, was conducted to gain insight on the conversational and cognitive processes that promote data quality advantages to EHC interviews. Interviews acquired reports on social and economic events for a reference period that occurred one to two years previously, and these reports were validated against reports obtained on these same events acquired one year earlier as measures of data quality.

A verbal behavior coding scheme was developed and commonly applied to both EHC and Q-list interviews. Codes for both interviewers and respondents were designed to capture the chronological features of probing and remembering past events, including whether contemporaneous or sequential events are discussed, and whether the timing or duration of spells had been sought. Behavior coding analyses will determine the differences



between EHC and Q-list methods in the frequencies of verbal behaviors. Additional analyses will associate frequencies of verbal behaviors with data quality indices with EHC and Q-list methods combined, with each method separately, and by procedures that examine interaction effects between methods

5) **On the Documentation and Analysis of Electronic Questionnaires**(Jelke Bethlehem, Anco Hundepool)

- The growing possibilities of computer hardware and software have made it possible to develop very large, and very complex electronic questionnaires. It has become more and more difficult for developers, interviewers, supervisors, and managers to comprehend complex electronic questionnaires in their entirety, and to understand the process that leads to responses to each of the questions as they ultimately appear on data files, or on the screen.

This calls for a tool to analyse and to documentation of electronic questionnaires. The TADEQ project aimed at the development of such a tool. Part of this project was a user requirements survey. It turned out there are various types of users needing various types of documentation. Furthermore, an analysis and documentation tool should be able to generate extensive textual documentation describing the various questionnaire elements (questions, checks, computations, etc) and graphical documentation to describe the routing structure of the questionnaire.

Some attention is paid to how questionnaire documentation can be included in more general documentation of survey data. XML seems to play important role in this. This meta-language can be used to describe electronic questionnaires generated by different

CAI systems, and therefore has the potential for producing system neutral, standardized documentation. XML can also play a useful role in incorporating questionnaire documentation in more general survey data documentation systems, like the one proposed by the Data Documentation Initiative.

**6) How to investigate interaction patterns between partners in a large-scale survey? The development of the Dutch Family Monitor(Dirkjan Beukenhorst, Deirdre Giesen)**

- This paper describes the development and testing of the Dutch Family Monitor. The Family Monitor, a follow-up survey on 2000 respondents of the Dutch Fertility Survey, investigates to what extent 'household' decisions (e.g. family planning or division of labor) can be seen as the result of an interaction process between partners. In the development of this survey we used focus groups, cognitive interviews and small field tests.

First we explored the possibility to observe actual interaction between partners; focus groups were shown a video of two individual interviews followed by an interview where both partners were confronted with their conflicting opinions. This method proved to be too confronting and (thus) too demanding for interviewers without an extensive additional training. After several pre-testing rounds we developed a less confronting design with two questionnaires , one for face-to-face (CATI) interviewing and a paper-and-pencil one for self-completion (PAPI). While one partner is being interviewed the other is asked to fill out the questionnaire in another room and vice versa. The combination of both partners' questionnaires yields information about the level of agreement on a limited number of topics, a characterization of the decision processes with respect to these choices and the actual outcome of the process. This

method was first tested in the laboratory and later in the field. The field test resulted in some final adjustments to the questionnaire and the practical organization of the fieldwork. The fieldwork was completed in the fall of 2000.

**7) Evaluation of respondent and interviewer debriefing techniques on questionnaire development methods for health provider-based surveys(Catharine W. Burt, Susan Schappert)**

- This presentation compares results from interviewer and respondent debriefing during the questionnaire development phase with results from the implementation of a split-panel test of redesigned data collection forms for a records-based physician survey. During the forms development phase, a pilot test was held with a convenience sample of physicians. Respondents and field representatives (FRs) involved in the pilot test provided feedback on the ease of completing the new forms and their understanding of the instructions. Two different encounter forms were put into production based on results from the pilot test. One form retained some of the items that appeared to be problematic during the debriefing while a shorter form excluded many of the problem items. A split panel test of the two production forms was performed during 2001. To monitor progress on data collection, FRs were asked to complete a worksheet during the first 6 months of the panel year providing case disposition information and impressions of the completeness of the data on the forms. Regression techniques will be used to relate the results from the pilot test and worksheets with the observed item response rates for the entire panel year.

**8) Cross Site Tool Development focusing on Co Occuring Populations(Pamela Clark, Robert Walker and Tom Doub)**

- Multi-site evaluation designs are frequently used in many large scale studies. The process of questionnaire development by stakeholders from multiple sites can be challenging, as different sites may have varying service populations, missions, and evaluation designs. This presentation will focus on a recent SAMHSA Center for Substance Abuse Treatment cross-site cluster group. The Co-Occurring and Other Functional Disorders (COFD) cluster group developed and implemented two cross-site questionnaires over eighteen months, including a process evaluation survey, describing key program characteristics, and a clinical assessment tool for clients.

The COFD cluster includes a wide range of client demographics (from children to elderly adults), geographic location (rural Alaska to large urban areas), and treatment modalities. The clinical assessment instrument adapted items from the Addiction Severity Index and the Government Program Results Act instrument. Modifications were made with stakeholder consensus, including latitude in probes for special populations. One of the tool objectives was to measure key clinical constructs (psychiatric symptoms, addictions, and functional impairment) with reliability and validity across a broad array of populations and settings. The development process (including issues of piloting on various populations and wording of items for different cultural groups) will be a focus of the proposed presentation.

#### **9) Not Your Grandparent's Cognitive Testing: Exploring innovative methods in making cognitive evaluation of questions more efficient and easier to use(Carol Cosenza)**

- Cognitive testing of questions has become one of the many tools used by survey researchers to evaluate questions Before fielding a survey. What we learn about how the cognitive tasks of

answering a question are handled helps us write better questions, helps the interview flow more smoothly, and helps decrease measurement error. How we try to figure out how those tasks are handled - the protocol we use for cognitive testing - plays a large role in what we learn. Who does the interview, how structured the protocol is, when the cognitive probes are asked, and how information is retrieved from the interview all play a part in what we can learn from the experience.

The Center for Survey Research has been experimenting with altering some of these features of the way testing is done. We used interviewers with varying amounts of experience, We experimented with the structure of the cognitive probes, comparing a totally standardized cognitive instrument to a more flexible style, as well as the placement of the probes, comparing prospective and retrospective placements. Our latest endeavor has been to try to standardize the extrapolation of the results of the cognitive interview, comparing how outside observers understand the results of the interview to the results gathered through an interviewer debriefing.

This paper will talk about these experiments and compare the costs and benefits of different cognitive interviewing protocols in terms of time, money, and knowledge learned.

**10) Minimizing Item Non Response in Telephone Surveys of People with Disabilities**(Karen A. CyBulski, Julie Fishtein, Anne B. Ciemnecki)

- The diverse and complex needs of low-income people with disabilities are a challenge to survey researchers. Yet, information collected directly and cost-effectively from this

population is necessary to determine how well public programs meet their needs. Typically, survey researchers use in-person methodology or proxy respondents when collecting data from this population. Recently, Mathematica conducted 4,200 interviews of adults with disabilities. These were among the first surveys to be conducted solely by telephone for this population.

This paper examines item nonresponse and inconsistent responses to determine if there are specific types of questions that are particularly difficult to answer by telephone and, if so, for whom they are difficult. The telephone interviews produced data that were relatively complete and accurate, with slight variations by disabling condition. We found that it was feasible to interview large samples of disabled SSI beneficiaries over the telephone without sacrificing data quality. The telephone mode provided information that was consistent with the information collected using telephone surveys of the general Medicaid population or using in-person interviews of people with disabilities.

#### 11) Cognitive Testing of Mail Surveys at Statistics Sweden (Gunilla Davidsson)

- Most surveys at Statistics Sweden are mail surveys. Our testing methods are applicable to both mail surveys and interviewing. For surveys to individuals the cognitive testing follows our standardised way: The testing takes place in tp' s home. The interviewer handles over an envelope with letter and questionnaire, observes the tp reading the letter and filling in the questionnaire. The interviewer takes notes of tp' s behavior. The central staff of ML has also prepared questions beforehand – questions on how tp understands specific concepts or definitions used, on how sure tp is of his/her answer, on his/her feelings when answering the questionnaire, etc. This testing



procedure is noticed and tape-recorded. In the report to the client, central staff summarizes question-by-question, points out the problems and makes suggestions to improvements.

Surveys to business or authorities usually require use of accountancy systems or client systems to find the requested data. Some data might take days to accomplish. Hence our cognitive testing procedure used for mail surveys to individuals isn't applicable. We use the "think-aloud" -method, but otherwise the setting is the same. The interviewer visits the company or authority, explains and trains the "think-aloud" -method. As in testing mail surveys to individuals additional questions are prepared beforehand. Everything is noted and tape-recorded. Report is written.

**12) Evaluating questionnaires by analysing Question-Answer sequences(Wil Dijkstra Yfke Ongena)**

- Evaluating questionnaires by analysing Question-Answer sequencesWil Dijkstra Yfke Ongena, Department of Social Research Methodology Ideally, in a survey interview the interviewer reads question and response alternatives as scripted, and the respondent gives an unequivocal answer that can be scored by the interviewer. Such a sequence of actions is usually called a paradigmatic question-answer sequence. Quite often the observed question-answer sequence deviates from the paradigmatic sequence. Respondents may ask for clarification or give an answer that does not clearly fit one of the response alternatives. Interviewers may read the question improperly or even suggest a particular alternative to the respondent.

Our general research questions are:

- What kind of deviations from the paradigmatic sequence can be discerned?

-How are particular deviations related to question characteristics?

Our data consisted of 7635 taperecorded and transcribed sequences from a CATI survey about watching television. All utterances (41847) were coded. 3556 sequences contained deviations. In most cases (2927) the respondent was responsible for the deviation.

In this paper we will concentrate on deviations initiated by the respondent. In processing a question by the respondent, usually four phases are discerned: understanding, retrieval, judgment and response. It is assumed that problems with a particular phase, are reflected by particular types of respondent caused deviations. For example, problems with understanding yields requests for clarification. Repeating the question (thus allowing the respondent more time to think) may signify problems with retrieval. Problems with the judgment phase yield utterances like arguments or motivations to come upon an eventual answer. Problems with the response phase typically lead to so-called mismatches: direct answers to the question that are not yet scorable however.

**13) What's the Interviewer Have to Do with It? Interviewer Behavior and Response Rates(Kathryn Downey-Sargent, Elisha Smith, Barbara O'Hare)**

- This study examines interviewing techniques that lead to success in gaining respondent cooperation in a telephone interview. While strong arguments can be made for standardized interviews to lower measurement error, it has also been found that permitting interviewers to tailor a script in order to address a respondent's specific concerns can increase response rates and benefit data quality.



In this study, we examine the relationships between interviewer and respondent behavior and respondent cooperation. Approximately 300 interviews were monitored and coded to characterize the content of the interviews. The primary purpose of the interviews was to gain household consent to be in a radio diary survey and collect information on the composition of the household.

Behavioral coding of interviews included utterances by the interviewers and respondents, the sequences of the utterances, and whether the interviewer tailored the script to respondents' spoken concerns. These features were then analyzed to predict respondent cooperation. The techniques and phrases associated with respondent cooperation will be considered for incorporation into the interview script and training of interviewers.

**14) Questionnaire Development for Establishment Surveys: The Cases of Holland, Norway and Sweden (Johan Erikson, Gustav Haraldsen, Lars Lyberg and Ger Snijkers)**

- This paper provides an overview of survey questionnaire development for establishment surveys in three national statistical institutes (NSIs). These three NSIs are closely connected in many ways. For instance, there is ongoing collaboration in many fields of relevance to issues related to questionnaire design. Examples include the three continuing workshops on household survey nonresponse, questionnaire development, and editing as well as collaboration on issues like technology development, interviewing, and quality in general. This overview will disclose similarities and differences between approaches for questionnaire development used by the three NSIs.

Issues that will be treated include the status of and attitudes towards questionnaire development work in the arena of establishment surveys a discussion of data collection modes and mode-mixes in use and their impact on questionnaire design the implications on questionnaire development generated by modes that are cost-effective and respondent-driven such as electronic data collection and collection from businesses' own administrative systems tracking sources of inconsistencies (questions, instructions and choice of respondent) in survey reporting instrument testing--some results guidelines for future work

**15) Coherence analysis as a tool for questionnaire evaluation in enterprise statistics(Johan Erikson)**

- Analysing data already collected can be a powerful tool for evaluating questionnaires and discovering measurement errors. In enterprise statistics, indicators collected in different surveys are related. Since the largest enterprises are surveyed in almost all surveys, this gives us excellent possibilities of analysing the data from these different surveys, as well as data from available administrative registers, in order to find weak points in different questionnaires, which can in turn be corrected and adjusted. This approach of coherence analysis has recently been intensified in Sweden. A database will be created where data for a number of enterprises will be stored together, regardless of in which survey they were collected.

This data will be analysed in detail. Where large inconsistencies are found, the enterprises will be contacted in order to discuss whether these inconsistencies are due to questionnaire design, instructions, definitions or other technical aspects of the data collection methods. If we discover such problems, adjustments

can be made in order to prevent these errors from being repeated.

The paper presents the Swedish experience from this work, as well as outlines some areas for future work in the area

**16) Iterative, Multiple-Method Questionnaire Evaluation Research: A Case Study (James L. Esposito )**

- This paper summarizes a series of three biennial evaluations of a labor force questionnaire that collects data on job displacement. It should be noted at the outset that this series of studies was not designed to be iterative, it evolved as such with unanticipated benefits. Adopting a dichotomy for evaluation research that draws a distinction between questionnaire pretesting (developmental/pre-implementation evaluations) and quality assessment (post-implementation evaluations), the first two evaluations in the series represent quality-assessment research. The third evaluation is somewhat unusual in that it can be classified as both pretesting and quality-assessment research. Though the scope of work for each evaluation differed, three standard methods for evaluating questionnaires were used during each of these efforts: interviewer debriefings (i.e., focus groups), interaction/behavior coding, and respondent debriefing (i.e., response-dependent follow-up probes).

It is hoped that this paper contributes to questionnaire-evaluation practice and theory in the following ways: (1) by documenting the benefits of iterative questionnaire-evaluation research; (2) by demonstrating the utility of a multiple-method approach to evaluating questionnaires; (3) by drawing attention to the importance of clear and well-grounded conceptual specifications in minimizing measurement error; and (4) by providing a broad

organizational framework with which to address and solve problems of both a theoretical and applied nature. In pursuit of these objectives, an organizational framework will be provided that interrelates various phases of the questionnaire design-and-evaluation process with the various components of a widely cited model of measurement error.

#### **17) Satisfaction Scales in a CAWI Survey on University Teaching Evaluation(Luigi Fabbri)**

- Computer assisted questionnaires are going to uphold the paper-and-pencil questionnaires in large scale and lasting surveys. The Internet may be the medium for questionnaire administration and data storage.

Questionnaires need to be specifically designed for Computer Assisted Web-based Interviewing (CAWI) and methodological choices may differ even according to software facilities. We refer, in particular, to the availability of software for dynamic questionnaire programming and graphic presentation of questions and answers.

A set of experiments was carried out at the University of Padua on Web-based questionnaires put forward for course evaluation by attendants. The experiments focused, among other trials, on

- Scale construction for the measurement of students' satisfaction about several features of teaching quality, for each course currently attended. Scales experimented were the 4-point (two negative, two positive) ordinal scale, the same scale with a "neutral" category in the middle, the 1-7 scale, the 1-10 scale.
- Approach for the evaluation of features of didactic activities and the interaction between types of scale and evaluative

approaches. Two approaches were evaluated: the traditional "efficiency" approach, based on judgements offered by students on teacher and didactic environment, and the "effectiveness" approach, based on self-evaluation of learning as a reflection of teaching.

The experiment informed about the following:

- 1) Experimented scales interact heavily with teaching evaluative approaches
- 2) Scales based on 4-point ordinal categories, with an equal number of positive and negative categories, are to be preferred to other scales if non responses may bias the distribution of responses.
- 3) The neutral category on an ordinal balanced scale is considered by students as an alternative to complaisant marks. Hence it is not to be considered "neutral", in the sense of neither positive nor negative, but a no-choice item.
- 4) 1-7 and 1-10 scales, presented as sets of equally-spaced within-square numbers, are preferable for almost all considered indicators (stability of averages and of gaps from maximum satisfaction levels, absence of no-choice category, independence from evaluative approach).

**18) Issues in Translating Surveys: Methods and Approaches**(Sylvia Kay Fisher, Eleanor Gerber)

- Surveys translations face many challenges including: 1) preserving the integrity of the translation, while ensuring linguistic and cross-cultural equivalence between the original and translated instrument; 2) maintaining a culturally sensitive translation to ensure cultural traditions and typical language idioms are addressed in a respectful and culturally-competent manner; 3) reducing the potential for statistical and other forms of bias,

whenever possible; and 4) avoiding significant translation errors likely to affect data quality.

An entire arsenal is now available to translate surveys and evaluate their effectiveness, including: back translation, expert groups, cognitive interviews, focus groups, item response theory (IRT), respondent debriefings, interviewer debriefings, certified translators, and behavior coding.

This paper will describe each of these different methods and approaches to producing survey translations, with the goal of identifying and describing the current state of best practices in the survey translation process. Methods used to assess these procedures will include an extensive review of current approaches to translating surveys in both government and non-government sponsored surveys, with an eye to highlighting issues and identifying advantages and disadvantages of these methods. Examples of the use of some of these practices will be drawn from a recent Spanish translation of the American Time-Use Survey.

**19) A Comparison of Appraisal and Cognitive Interview Methods for Testing Organizational Survey Questionnaires (Barbara Forsyth, Elisa Weiss and Rebecca Miller)**

- This paper reports results comparing two methods for pretesting organizational survey questionnaires: cognitive interviews and a questionnaire appraisal system (Forsyth et al. 1999). The pretesting supported questionnaire development for the National Study of Partnership Functioning (NSPF), a study designed and conducted by the Center for the Advancement of Collaborative Strategies in Health. The NSPF self-administered questionnaires measure collaborative functioning in partnerships that are

promoting health and well-being in their communities. Cognitive and organizational factors affecting questionnaire responses are particularly rich in this study where respondents in different roles report information about inter-organizational partnerships.

We conducted cognitive interviews to test the draft questionnaires. Respondents were organizational representatives to partnerships or partnership coordinators from partnerships selected to vary in size, longevity, and populations served. Qualitative analyses identified key findings from the cognitive interviews and informed questionnaire revisions. We applied a questionnaire appraisal system to the same questionnaires and used a combination of qualitative and quantitative methods to develop a second set of findings. This paper presents the two sets of findings, identifies important similarities and differences, and uses results from the NSPF to shed further light on relations between the two methods.

## **20) The review of the french survey on R&D in business enterprises(Dominique Francoz)**

- The paper will discuss a high-level, multi-agency review of the French survey on R&D in business enterprises conducted between September 1999 and December 2000. The purpose of the review was to discuss the accommodation of new data needs which had arisen during the 1990s: more extensive information on R&D personnel, data on biotechnology and the relationship between R&D expenditures and innovation or patents. An a priori constraint was the need to reduce overall response burden. In a context of increasing data needs, this meant that both questionnaire content and survey methodology were a prime focus of discussion, along with improvements in the phrasing of specific items.



The paper first part lays out the review context: external constraints (national legal obligations and international context of the Frascati manual), and internal particularities with regard to related business surveys. The second part summarizes the objects of discussion and revision, and the options that were considered. The third part lays out the steps of the review process and the roles of different actors. These included a steering committee comprised of representatives of businesses, R&D data users, and the French Ministries of Research and Industry.

The paper will proceed to assess the new questionnaire with respect to the initial project goals and the results achieved with it in the first survey. It will conclude with the larger lesson drawn from this experience: In addition to conducting a full-scale review event, an ongoing process should be put in place to help maintain survey quality through time.

**21) Experiences Implementing Establishment Survey Questionnaire Development and Testing at Selected U.S. Government Agencies**(Karen L. Goldenberg, Amy E. Anderson, Diane K. Willimack, Stanley R. Freedman, Robert H. Rutchik, Luann M. Moy)

- Since the U.S. Federal statistics system features the decentralization of statistical survey activities among multiple agencies, there is no overall U.S. approach to questionnaire development, evaluation, and testing for establishment surveys. Besides being subject to legal restrictions on data sharing, these agencies have different data collection goals and, to some degree, different target sub-populations within the overall population of establishments, making their close collaboration on data collection impractical. As a result, methods for



developing and testing establishment survey questionnaires have evolved somewhat independently, however with a surprising similarity in learning curves and resulting methodologies.

This paper will compare and contrast methods for developing and testing establishment survey questionnaires across four U.S. Federal agencies: the Census Bureau, the Bureau of Labor Statistics, the Energy Information Administration, and the General Accounting Office. It will identify common issues in developing and testing survey instruments in the establishment setting. The paper will describe how these issues were resolved across agencies and how their resolution affected traditional methodologies. Notable differences among agencies will be explained. Institutional issues of implementing these methods will also be addressed.

**22) Survey Design and Validation Using the Rasch Model(Kathy E. Green, Cathy G. Frantom)**

- This paper presents an overview of how Rasch model concepts can be used to inform survey development. The paper includes a description of use of the Rasch model with three small scale surveys (health care attitudes, physician attitudes toward informed consent, and student attitudes toward dissertation completion). Topics included are item design with the intent of construction of a ruler-type measure, content validation by experts to assess item distribution across a continuum, and use of small-scale pilot data to identify optimally functioning items. Rasch model concepts used in assessing and refining measures obtained via survey are then illustrated using the same data sets.

The paper closes with a discussion of limitations of the Rasch model in the presence of suspected order effects and when single-item measures are required.

**23) Identifying and reducing the Response Burden in Internet Business Surveys.**(Gustav Haraldsen, Dag Roll-Hansen and Tore Nøtnes)

- Statistics Norway has used different qualitative methods in order to involve future respondents in the development of Internet questionnaires. In this paper we will focus on what we have learned about the response burden in questionnaires directed towards institutions and businesses. Most of the tests we report from have been conducted as a mixture of individual usability tests and cognitive interviewing carried out at the respondents' place of work.

First we have learned that response burden is a personal feeling that may not coincide with the time it takes to answer the questions. Secondly the tests have revealed that the cognitive problems the respondents encounter in front of the pc-screen is a mixture of general business survey problems, and specific problems that have to do with the Internet format of the surveys. Both kinds of problems must be addressed in order to reduce the response burden. Third, the tests clearly show that the weight we put on the respondents' shoulder can be counterbalanced by tailored question flow and wordings, automatic help and quality control while the answers are filled in and by different kinds of electronic reports after the questionnaire is delivered. The test participants gave us a many ideas about what kind of functionality and feedback they expect and appreciate in an Internet-survey.

**24) Questionnaire translation and questionnaire design**(Janet A. Harkness, Alisu Schoua-Glusberg, Beth- Ellen Pennell)

- The paper sets out to illustrate the close connections between translation issues and questionnaire design and to indicate how improving the design of survey translation procedures can change and improve questionnaire design. The first section places the growing need for translated instruments in a cross-national and within country perspective. The second section illustrates how current questionnaire design practice affects both the goals and the products of questionnaire translation. Key factors here are the preference for ask-the-same-question models, the sequential ordering of source questionnaire then translation, and an unfortunate focus on superficial levels of similarity or comparability to the detriment of measurement and intended meaning. Assessment procedures currently favored also focus on superficial similarity and fail to address issues of equivalence which lie at the core of using questionnaires in translation.

The third section points to the need for cross-disciplinary uptake and research. It contrasts traditional survey expectations for questionnaire translations with hitherto neglected insights from disciplines relevant for survey translation. Even good practices taken for granted in developing monolingual questionnaires are not applied in procedures standardly followed in producing a translated questionnaire. The fourth section covers new advances in survey translation procedures and assessment. It describes the most effective procedures and set-ups to date for translation and assessment, indicates the kind of insights data can provide, outlines harmonization procedures for different standard versions of a single language (e.g., Spanish or French across populations) and covers documentation issues for quality control. The fifth

section shifts the focus from how design impacts on translation to how translation can be used to inform and improve questionnaire design. The sixth and last section outlines initiatives underway or needed to secure translation the place in survey design it warrants and to promote its integration into questionnaire design.

**25) Pretesting an Interactive Voice Response Survey**(Tracey Haggerty Heller,Sid Schneider, David Cantor)

- In recent decades, the automation of survey processes has been a driving force in the advancement of survey work. One such automated advancement is the use of Interactive Voice Response (IVR) in surveys. IVR is a general-purpose automated system that has wide application in service industries to replace telephone operators. The proposed paper addresses the important aspects of testing an IVR system for survey applications. Testing is vital to any IVR application to ensure that the respondent-computer interactions are time-efficient and technically trouble-free. Testing is especially important for an IVR survey because there is no interviewer to intervene if problems arise. Testing an IVR survey involves a number of special considerations, including the words that the computer can understand, the pace of the interview, the characteristics of the computer "voice," and the manner in which the system repeats questions and handles interruptions, poorly articulated responses, item refusals and changes to earlier answers. Testing must consider the respondents' expectations of a computer. This paper discusses the methods to test for these and other issues that are important features of an IVR system and will include a review of the survey and human factors literature.

## **26) Interviewer Debriefing by e-mail(Birgit Henningsson)**

- Statistics Sweden has nine interviewers especially trained for working in the Measurement Laboratory. The Swedish government is a major buyer of our surveys. Some run monthly, others yearly. The economic resources for making cognitive tests are often short as well as the time for making them. In this situation we got the idea to utilize the experience of our interviewers and e-mail communication. This gives us a method being quick as well as cheap.

We want the interviewer to find questions being difficult to understand, to answer or being problematic in any other way for the respondents. They make a Top Down list taking the most important things first. Before the interviewers start they have to do at least 20 interviews. The job has to be done close to data collection.

The interviewers send their reports to the Measurement Lab where a final report is put together.

An e-mail debriefing gives a good picture of problems that will occur in a survey, when asking (the interviewer) as well as understanding and answering (the respondent) the questions. It will also - in many cases - contribute examples how to solve these problems.

## **27) Pre-printing effects in official statistics, an experimental study.(Anders Holmberg)**

- In surveys where respondents are contacted repeatedly, information from previous data collections may be used during the following data collections. The responses then become

dependent on the way this information is presented and its quality. Normally, the presented information is historical data concerning older reference periods, and besides providing data for a current reference period, the respondents can verify and (if necessary) change this 'historical' data. The motives for using this method can be that: It increases the efficiency of the data collection. It can correct previous errors. It reduces the burden of response and sometimes it exists a belief that providing historical data reduces measurement errors and spurious response variability. Some possible drawbacks are that it can conserve errors rather than correct them and it might lead to underreporting of changes from one period to another. Here, we focus on methodological issues of pre-printing 'historical' values on self-administered, (electronic or paper), questionnaires for business establishments. Results from a planned experiment made in an ongoing large-scale survey (the Swedish Survey of Building Rental units) indicate that, on several aspects of data quality, questionnaires with pre-printed historical values outperform questionnaires without pre-printed data. In this paper, we present the main results of the experiment, as well as a general discussion of pre-printing experiences at Statistics Sweden.

## **28) Survey Design Techniques for Web Interviews(Adriaan Hoogendoorn)**

- Data collection over the internet takes place without interviewers. In the setting of web interviews survey designers are challenged to make high-quality interviewing programs, that compensate for the absence of an interviewer. We will discuss techniques that we used in the design of the CentER Savings Survey. These techniques are: provide optional help on topics that may be unclear to respondents; always allow respondents to go back to

previous questions in the questionnaire; offer the respondent reviews of answers they gave at an earlier time in the interview; 'preload' answers for those respondents that participated in an earlier wave. To evaluate these techniques we analyzed both a 'log file' that contains detailed information on the interviewing process and an evaluation questionnaire. We found indications that 'optional help' prevented a certain type of errors, and obtained an estimate of the number of errors that were prevented by using the 'go back option' and the 'reviews'. For the effects of preloading we found a reduction in the number of questions asked, but no gain in the total time spent on the interview. On the other hand we did find that respondents that got a preloaded questionnaire found the topic more interesting.

**29) Complex questionnaire procedures for sensitive topics  
Developing best practice procedures in a realistic survey  
setting(J. J. Hox, G. Lensvelt-Mulders)**

- In this paper we describe the development of an CASI-supported randomized response procedure in the area of social security fraud. To ensure the privacy of research participants when sensitive questions are asked, Warner (1965) developed a survey method that guaranteed their privacy and that had therefore the potential to overcome the reluctance of subjects to reveal sensitive information (Chaudhuri and Mukerjee, 1988). The common crux of this method, called Randomized Response Technique (RRT) is that people answer one out of two questions, selected by a randomizing device, where one question is about the sensitive topic and the other is not. This way the interviewer can never know which question is answered by the respondent, guaranteeing total respondent privacy.



In a meta-analysis of 39 publications on the RRT we have found that randomized response methods produce generally more valid population estimates than other data collection methods, especially when the research topics are more sensitive by nature. A further conclusion was that the outcomes were highly variable, and that a large amount of this variance could not be explained. This implied that the randomized response technique was not under adequate research control.

As a consequence, we have started a research program to establish current best methods for randomized response techniques. Included in this research program is the development of computer assisted randomized response techniques. The context of our research is fraud research, which usually deals with a special population, with limited cognitive, reading and language skills. This makes it attractive to combine RRTs with CASI AND INTERNET-SURVEYS into a computer assisted randomized response procedure for survey research (Lessler, and O'Reilly, 1998).

**30) Validation of Fourth and Eighth Grade Students' Responses to Home and Instructional Background Items(Mette Huberman and Roger Levine )**

- Cognitive interviewing techniques were employed in interviews with students, parents, and teachers to learn how fourth and eighth grade students respond to survey items asking about home and instructional background factors. The survey items used were taken from large, U.S. Department of Education studies, including the National Assessment of Education Progress (NAEP) and the National Education Longitudinal Study (NELS:88). A total of 132 students (80 fourth graders and 52 eighth graders), 71 parents, and 12 teachers participated in the study.



A two-phase study design was employed. In one phase, survey items about a student were administered to either a parent (for home background items) or to his or her teacher (for instructional background items). In the next phase, similar survey items were administered to students. The students were trained to think aloud when responding. Through the use of these think-alouds and item-specific probes, insights into the students' cognitive survey response processes were gained. It was possible to compare and validate the students' answers against either the parents' or the teachers' responses in real-time. This permitted directed probing, to insure that the reasons that these inconsistencies occurred could be thoroughly investigated.

The items that were used in the study were classified as behavioral frequency items, time estimation items, and other types of items. Behavioral frequency items were found to have the lowest level of agreement between the students and their parents and teachers and were usually not amenable to improvement through item rewording. For example, in an item asking fourth graders how often they solve mathematics problems with a partner or in small groups, almost three quarters of the students (74 percent) provided a different response than their teachers. (The response options were: Almost every day; once or twice a week; once or twice a month; and never or hardly ever.). Examples of different types of item problems are provided, along with explanations of the reasons for their occurrence and suggestions for their avoidance.

**31) New tools for the documentation of questionnaire development(Frauke Kreuter, Rainer Schnell)**

- The process of questionnaire development is seldom documented in a way that allows other researchers to benefit from the authors' experience with that process. This article describes two software tools that support the documentation of questionnaire development. First, we introduce "Revision Control Systems" (RCS), which are used by professional programmers in program development. Unfortunately, RCS are more suited to the authors' own archiving purposes than to public demonstration of the development process. To address this deficiency, we have developed a general-use Perl script (QDDS) that permits the documentation of all versions of a questionnaire or of all versions of a given question. This documentation can be easily accessed with a web browser.

**32) Establishment Survey Instrument Development and Testing in an Integrated Survey Environment at Statistics Canada(Frances Laffey )**

- At Statistics Canada, there are presently more than 400 business questionnaires, including both industry specific and multi-industry questionnaires. The Statistics Canada Policy on the Development, Testing and Evaluation of Questionnaires aims to ensure that all questionnaires are adequately tested on all aspects of questionnaire design that may influence data quality. This paper reviews the range of techniques used by the various survey areas to improve the quality of the questionnaires. It describes both formal and informal techniques used, such as in-depth interviews and direct contact with survey respondents and business associations. Furthermore, this paper describes the

challenges faced when testing multi-industry surveys and presents the findings as they pertain to the development of business questionnaires.

**33) Pretesting the American Time Use Survey**(Lisa Lee, Catherine Haggerty, Diane Herz, Lisa Schwartz)

- The American Time Use Survey (ATUS) is the first federal survey in the U.S. that will collect continuous data on time use in America. The ATUS, sponsored by the U.S. Bureau of Labor Statistics (BLS), will provide national estimates of time use during the average week, weekday, and weekend. The ATUS is a computer-assisted interview that asks a designated person to report about the previous day's activities. Reporting days are pre-assigned to ensure representation across the week. In preparation for launching the national survey in January 2003, NORC and BLS are conducting tests of the Blaise survey questionnaire and coding instruments. NORC will conduct 45 cognitive interviews in which respondents will complete the time diary and a debriefing session. The cognitive interviews will inform changes in the design of the time diary and test whether the coding lexicon effectively captures people's daily activities. The pretest (n=550 respondents) will be a split-ballot experiment. Half of respondents will receive a paper diary in advance of the interview and half will not. The experiment will test whether the advance diary enhances data quality and will evaluate the effectiveness of changes to the diary and coding lexicon

34) **Web as questionnaire designing tool: Is there a limit?**(Katja Lozar Manfreda, Valentina Hlebec, Vasja Vehovar)

- Paper deals with Web as a tool for designing survey questionnaires. Web surveys offer an instant insight into results and an easy evaluation of survey questions for broad target groups for lower costs and in less time as alternative modes. Usually, a sufficiently large number of responses can be easily obtained using unrestricted self-selected Web surveys or surveys on users from volunteer opt-in Web panels. These Web surveys may not give representative samples for survey estimates but are nevertheless adequate for the questionnaire design stage.

We demonstrate that Web suffices for the majority of work in stage of questionnaire design. In particular, we found out that Web questionnaires are suitable for the following three aspects:

1. Finding the optimal answers for close-ended questions by asking open-ended questions.
2. Measuring time for each survey question as indicator for badly worded questions.
3. Using "think-aloud" procedure for testing survey questions.

We present an example for each of the above aspects. Data are taken from the RIS 2001 Web survey (Research on Internet in Slovenia, <http://www.ris.org>, University of Ljubljana). We distinguish between less and more experienced Internet users in order to control the possible effect of "Internet experience" .

35) **Using the Multimedia Capabilities of Web-Enabled Probability-Based Survey Methodology to Gather Vaccination Information for the National Immunization Program**(William C. McCreedy, Michael Dennis Lisa Thalji)

The Centers for Disease Control elicited a project to survey a sample of first-time parents of children less than 2 years of age and to query them about their attitudes toward several vaccination safety media-messages. Research Triangle Institute & Knowledge Networks designed a project using the Knowledge Networks web-enabled panel that provided an excellent vehicle for (a) conducting the screening to find eligible respondents, and (b) for presenting visual and audio stimuli depicting the various forms of the vaccination communications to be evaluated.

The proposed conference presentation will focus on (1) the elements to be considered in developing a multi-media survey, (2) the experimentation with items formats that was required, (3) the rationale for the design decisions that were made concerning specific question items for this project, and (4) the presentation and evaluation of comparative multimedia survey items as viewed by potential respondents for this health-related project. This discussion may be of interest to a broad audience of researchers who are facing problems and searching for strategies for developing survey items that use the multi-media capabilities of the web to their fullest. Staff from both Research Triangle Institute and Knowledge Networks will participate in making the presentation.

**36) A Comparison of Focus Group and One-on-one Cognitive Interviewing for Questionnaire Evaluation(Kristen Miller)**

- In summer 2001, questionnaire design staff from the National Center for Health Statistics and Statistics Canada collaboratively conducted four focus groups and 25 cognitive interviews in both the United States and Canada to evaluate a general health questionnaire for potential response error as well as international comparability. This paper will compare the evaluation findings of both methods, characterizing the types of problems found by each method and illustrating discrepancies. It will then explore

how the two methods could possibly lead to differing conclusions. Through this discussion, the paper will examine the methodological processes and epistemological underpinnings of each method, including the role of the respondent, the relationship of the interviewer to the respondent, how information is to be judged or evaluated, and what constitutes good data. The paper concludes by suggesting when focus group and cognitive interviewing are most appropriate for questionnaire evaluation and points to directions for improving each method.

### **37) Approaches for Incorporating User-Centered Design into CAI Development(Bill Mockovak Jean Fox)**

- Since almost all surveys are now conducted using some type of computer-assisted interviewing (CAI) software, the quality of the most carefully tested questionnaire can be seriously undermined if CAI instrument design and usability are not considered. Ample evidence exists that usability is enhanced when user needs are considered early and continuously throughout the software development process. In the development of complex computer-assisted interviewing instruments, this means bringing interviewers into the development process as soon as possible. However, developing complex CAI applications poses special demands, because interviewers are often highly diverse in computer skills and geographically scattered, which makes obtaining input more challenging. This paper discusses different approaches that have been used to address instrument design and to incorporate user-centered design principles into the development of complex computer assisted personal interviewing (CAPI) instruments. Examples from the Consumer Expenditure Quarterly Interview and the Commodity & Services Pricing survey will be cited. Besides describing possible approaches that could be used to encourage user-centered design, this paper will

present evaluation instruments and methods that have been used to quantify the success of usability-design efforts.

**38) Using Vignettes in Cognitive Research on Establishment Surveys** (Rebecca L. Morrison, Diane K. Willimack, Kristin Stettler, Amy E. Anderson)

- The use of vignettes in questionnaire development for household and demographics surveys is well-documented and diverse. Vignettes are often presented as short narratives that describe a particular situation of interest (Gerber, 1996). Respondents are asked to interpret the situation and then apply it to the survey instrument being studied.

Vignettes have not been as widely-used in establishment survey cognitive testing. This paper will review the household and establishment literature on the use of vignettes. We will compare and contrast the use of vignettes in household and business surveys. We will discuss how the design and use of vignettes (e.g., the “look and feel” ) may differ and the reasons why they may need to be different. Finally, we will provide some examples of vignettes that were modified from the traditional household design in order to adapt them for the establishment setting.

**39) Using Reinterview Methods to Design and Evaluate Survey Questions**(Jeremy Morton, Paul Biemer, Randall Bender, Paul Mullin)

- Conducting reinterviews is an effective method to estimate and reduce response errors in interview surveys. As part of the School Health Policies and Programs Study 2000 (SHPPS), RTI was able to use reinterview methods to assist in designing and



evaluating survey questions. In this paper, we discuss the reinterview activities conducted in both the field pretest and the main study and the implications for questionnaire design and evaluation.

As part of the field pretest, reinterviews were conducted with selected respondents to identify discrepancies between the original interview and reinterview. Reconciliation interviews were also conducted to determine the reasons for the discrepancies in terms of comprehension, recall, encoding, response options, or other problems. This information was then used in revising the survey questions for the main study.

Reinterviews were also conducted in the main study as a way to examine the reliability of various types of survey questions. Although reconciliation interviews were not conducted with main study respondents, our analyses of the reinterview data allowed us to make inferences about the reasons why discrepancies occurred from certain survey items. These inferences, which included questionnaire design issues, will be valuable to use when revising the questionnaires for the next SHPPS study.

#### **40) Evaluation of Users' Experience of the Census 2000 Internet Form(Elizabeth D. Murphy, Courtney Stapleton)**

- After an off-again, on-again start, the U.S. Census Bureau fielded an Internet-based version of the Census 2000 short form. The 18-month development period included extensive system testing and limited usability testing. The purpose of usability testing was to identify problems that actual respondents might have in accessing, navigating, and submitting their census forms over the Internet. For reasons of security, however, only Census employees were permitted to participate in the usability testing.



Usability testing took place both within the Census Bureau's Usability Laboratory and across Census facilities nationwide. The testing included all aspects of the Census 2000 Web site that respondents might encounter, including instructions, security requirements, the form itself, and the associated help functions. Testing identified several "show stoppers," which were corrected. Other limited revisions were made. The usability testing and a post-census evaluation produced both qualitative and quantitative data. In preparation for Census 2010, lessons learned have been documented for planning purposes. An important lesson is that usability needs to be considered from the earliest possible moment in Web site development. A post-census evaluation of the site indicated that research is needed on what information respondents will look for in help files.

**41) Sun exposure recall: instrument development & evaluation**  
(Diane Nishri, Beth Theis, Jennifer Frood, Fred Ashbury, David Northrup and Loraine D. Marrett.)

- Although epidemiologists recognize misclassification arising from imperfect recall as a serious problem, their use of cognitive methods and theory in questionnaire design is recent and infrequent. While early-life sun exposure is an important risk factor for malignant melanoma, the relevant amount of exposure and the effect of pattern (constant versus intermittent) are unknown. We developed an early-life sun exposure instrument through interviews with key researchers, focus groups, cognitive interviews, and field pretesting, and assessed (with a field test on melanoma patients and population controls) its response completeness, test-retest reliability and the effect of these on odds ratio estimates. Interviews with key researchers emphasized the importance of specific local sun-related behaviors, techniques

for cognitive interviewing and reliability testing, and ideas for revising a life events calendar to provide a framework for recall. Focus groups provided important cues to recall, including best friends, unusual burns, summer activities, vacations, and sunburn treatments (both novel and familiar). Results of cognitive interviewing, pretesting and the field test will be presented. Our methods and findings are relevant for etiologic studies of other conditions with important early-life exposures.

**42) Alternative Methods for Exploring Confidentiality Issues Related to Dependent Interviewing**(Joanne Pascale, Julia Klein Griffiths, Thomas S. Mayer)

- Several surveys employ a panel design in which respondents are interviewed at multiple points in time ("waves") over the course of several months in order to investigate the dynamics of certain life events. Many of these surveys use some form of "dependent" interviewing in which information gathered in one wave is carried over into subsequent waves, in an attempt to provide a sense of continuity over the life of the survey. Recent efforts to improve the Survey of Income and Program Participation have begun to focus on understanding and improving these dependent interviewing techniques. There were several goals to the current research. First, respondent debriefings were conducted during a wave 1 interview to explore: (1) respondents' attitudes toward confidentiality and dependent interviewing and (2) their reactions to a statement asking for consent to divulge information to other household members during later waves. A split-ballot design was used for this debriefing in order to compare substantive results from an open-ended versus a closed-ended debriefing protocol. These findings were used to craft a new consent statement designed to recognize and address respondents' confidentiality and privacy

concerns. The original and the new statement were evaluated in a wave 2 follow-up debriefing. In addition, wave 2 cognitive interviews were conducted to assess how respondents reacted to dependent interviewing in general. Preliminary results of cognitive interviews suggest that respondents did not have strong negative reactions to the use of dependent interviewing and, on the contrary, felt that it promoted a more natural flow.

**43) Analyzing Audit Trails in the National Survey on Drug Use and Health: Means for Maintaining and Improving Data Quality (Michael Penne, Jeanne Snodgrass, Peggy Barker)**

- As a feature of BLAISE version 4.5 programming language, every Audio Computer-Assisted Self Interview (ACASI) in the 2002 National Survey on Drug Use and Health (NSDUH) questionnaire will retain a file of keystrokes made when entering and exiting each variable. The structure of these files allows for the analysis of a multitude of questions related to data quality of the interview. Though not exhaustive, some initial areas of interest are: 1) instances where respondents back-up and change previously recorded answers and the ramifications this might have on estimates, and 2) areas/questions within an interview where respondent break-offs occur. Additionally, the amount of time required to complete sections of the interview might also be of interest, e.g., lengthened times might be indicative of not understanding the posed questions, or shortened times reflective of an apathetic nature of the respondent or a potential influence of the field interviewer. We analyzed the 2002 NSDUH data on a flow basis so that problems were identified in a timely manner and appropriate action taken where necessary.

The current paper will focus primarily on three aspects of each analysis: the underlying rationale, investigation methodology, and accompanying results and conclusions.

**44) Developing Bilingual questionnaires for use in an Indigenous population. Experiences from New Zealand in the development of the 2001 Maori Language Survey (Lyn Potaka, Suzanne Cochrane)**

- Over 14% of the New Zealand population describe themselves as Maori - the indigenous population of New Zealand. The Maori language is one of the two official languages in New Zealand, along with English the language most commonly used. With increasing recognition of the importance of the Maori language to the Maori people, as an official and everyday language, the challenge for Statistics New Zealand has been to develop questionnaires which reflect this situation.

In both the 1996 and 2001 Population Censuses, Statistics New Zealand provided bilingual Census questionnaires for those wishing to complete the Census in their indigenous language. As a follow-up to the 2001 Census, Statistics New Zealand conducted a post-censal survey of the indigenous population to collect information on the their use of, and proficiency in the indigenous language. This survey was developed using a "dual development" approach to the questionnaire design. While this methodology was first developed for the 2001 Census, the 2001 Maori language Survey was the first interviewer administered survey to utilise this methodology.

The paper describes the dual development approach used for this survey, and discusses the advantages of this approach and the lessons learnt, not only in relation to the Maori language version

of the questionnaire, but also in gaining an increased understanding of the English language version.

**45) Relating Questionnaire Design to Survey Accuracy and Response Rate With RGI(S. James Press, Judith M. Tanur)**

- We present an overview of a new statistical procedure for asking survey questions concerned with recall of facts ("How many times did you visit your doctor in the last year?"). The research involves a confluence of methodology from cognitive psychology and statistics and addresses the problem that respondents' memory lapses may lead to large non-sampling (bias) errors. The novelty of the proposed question protocol is asking respondents for an answer to the recall question, but also, for the smallest and largest possible values they think the true answer might be. Each respondent thus generates an interval in which he/she believes his/her true value lies (Respondent-Generated Intervals, RGI), as well as a basic answer. We find that a Bayesian estimator of the population mean is given by a weighted average of the basic responses, and where the weight assigned to a given respondent's estimate of his/her true value depends upon the confidence the respondent has. We also find that fine-tuning the way the question is worded is directly related to the accuracy and response rate of population parameter estimates. So by placing strong emphasis upon the questionnaire design we can improve the importance and usefulness of the survey. We summarize four experiments in which the RGI protocol has been, and is being applied. These are record check surveys, so true values of the quantities respondents are recalling are available for verification.

**46) Strategies for Subject Matter Expert Review in Questionnaire Design**(Carl Ramirez)

- Subject matter experts who have broad, unique insight on target populations and the information requested by a survey, but who are not themselves prospective respondents, might be incorporated into questionnaire development in a variety of ways. This approach differs from protocols using expert review by questionnaire designers, and pretest or cognitive interview methods with typical respondents. Subject matter experts are asked about respondent knowledge, motivation, and authority to respond, levels of sensitivity or threat, burden, respondent selection criteria, and other challenges in survey administration, but likely not the technical aspects of questionnaire design. In many surveys, such experts might come from professional or trade associations, news media, consulting or research firms, and academia. Incorporating expert input in a structured way could be most helpful in surveys of technical subjects, establishments, and when resources for respondent-based questionnaire development methods are limited. Case studies of expert review and other qualitative research using experts in recent survey development projects are reviewed. Experts were asked to follow protocols for reviewing questionnaire drafts, respondent selection criteria, and other survey design specifications. The content and utility of their comments in several areas was assessed. Strategies for optimizing subject matter expert involvement are suggested.

**47) Applications of Item Response Theory (IRT) in Questionnaire Evaluation**(Bryce B. Reeve, Louise C. Masse)

- Using Classical Test Theory (CTT) to evaluate the psychometric properties of questionnaires provides a limited understanding of



the behavior underlying item responses and scale performance. Item Response Theory (IRT) provides a more powerful framework for assessing the psychometric properties of a questionnaire. IRT modeling offers an instrument developer information about how each item functions within a scale, and how the scale functions over the continuum of the construct measured by the questionnaire. This knowledge integrates quantitative and qualitative analysis to help the developer select the appropriate items for a questionnaire based on measurement properties and item content.

This paper will illustrate the added information that IRT provides over CTT in evaluating a questionnaire. As a didactic example, nine items of the mental well-being subscale of the Prostate Cancer Outcome Study will be evaluated for its psychometric properties and contribution to the understanding of patients' emotional state following prostate cancer treatment. First, the psychometric properties of the scale will be evaluated with CTT techniques followed by a more powerful psychometric evaluation using tools such as confirmatory factor analysis and IRT. The paper's methodology for assessing the instrument's measurement properties will serve as a model for evaluating scales in other research fields.

#### **48) Expert Review Followed by Interviews with Editing Staff**

##### **-Effective First Steps in the Testing Process for Business Surveys(Olwen Rowlands, Jack Eldridge and Sarah Williams)**

- The Office for National Statistics is responsible for carrying out some 100 self-completion establishment surveys in the UK none of which had, until recently, been subjected to systematic evaluation. Failure to evaluate was due to four main factors: lack of awareness of evaluation and testing methods; the large number of questionnaire to be tested; a desire to limit the



burden placed on respondents; and lack of staff within the business area responsible with the skills to carry out evaluations.

In order to capitalise on the growing enthusiasm of business area staff for evaluating their surveys, the Question Testing Unit staff carried out expert reviews of a selection of questionnaires. These were followed by semi-structured interviews with staff responsible for editing questionnaires and contacting establishments to clarify queries and identify the source of respondents' difficulties.

These interviews revealed numerous instances of problems with layout and wording which caused questionnaires to fail automated consistency and completeness checks and led to intervention by editing staff. When reported back to the staff responsible for designing questionnaires, these results provided a clear indication of where effective improvements could be made without needing to burden respondents or carry out cognitive testing.

**49) Establishments as Respondents: Is Conventional Cognitive Interviewing Enough?(Robert H. Rutchik, Stanley R. Freedman)**

- o The Energy Information Administration (EIA) does not solely rely on cognitive interviewing to test survey instruments in order to ensure that the agency will collect high quality data. Conventional cognitive interviewing can find out if respondents at establishments understand the questions in a survey, but it cannot determine whether business record keeping practices correspond to the concepts that the agency wants to measure. This is especially true as the energy industries that EIA measures undergo a transformation from regulation to deregulation. For this reasons, EIA has supplemented cognitive

interviews with pre-survey site visits and respondent debriefings following cognitive interviews.

This paper discusses EIA's recent efforts at implementing pre-survey visits and post-cognitive interview debriefings. It will discuss specifically what in this process has worked for EIA and what has not worked in the electricity and natural gas industries.

**50) The assessment of competency in elderly persons with cognitive impairments**(Johannes H. Smit, Astrid Vellinga, Evert van Leeuwen, Willem van Tilburg and Cees Jonker)

- In November 2000 the Dutch government introduced a law in which active euthanasia was permitted and regulated under certain circumstances. One of the criteria for prudent practice of euthanasia is a voluntary, well-considered request made by the patient. This criterion implies that the patient is mentally competent in order to judge the situation and decide if such a request should be made. However, especially in certain populations (e.g. children, the cognitively impaired) the assessment of competence is heavily debated.

This paper describes the development of an instrument for the assessment of competence among elderly persons with cognitive impairments. The utility of a 'vignette method' to assess mental competency was investigated in a sample of community dwelling elderly people. The vignette method contains a description of an imaginary situation in which the subject is asked to decide on a proposed treatment or on participation in research. After listening to the vignette the subjects' understanding of the situation and the quality of the reasoning underlying that choices are tested by a series of questions. It

was concluded that the vignette method is a reliable and valid method for the assessment of mental competency in elderly people with cognitive impairment.

In the next phase two new vignettes oriented to realistic treatment and research situations in hospitals were developed. 151 patients were selected at geriatric day clinics. Judgement on mental competency with vignettes and judgement from the medical specialist were obtained for all subjects. Also the effect of circumstantial factors on the competency score were studied.

**51) Cognitive Laboratory Methods: Current Best Practices(Ger Snijkers)**

- At the Questionnaire Laboratory of Statistics Netherlands several methods for pre-testing questionnaires are being used to investigate the question-and-answer process. These methods are: expert (re)appraisal, focus groups, in-depth interviews, and behavioural coding. Within in-depth interviews techniques like thinking aloud, follow-up probing, meaning-oriented probing, paraphrasing, targeted test questions, and vignettes can be used.

These methods are presented within the context of a 5-step (pre-)test model for data collection development. In this 5-step (pre-)test model a relation is presented between the design stage and the (pre-)testing methods that can be used. For each step in the process of developing a data collec

indicates what methods can be used. In a full pre-test program all aspects of the survey will be carefully tested in advance. With every step, the focus gradually shifts from prototypes of the questionnaire and the data collection procedure to implementation of the survey in the field. This model offers a methodology to shift research findings from the laboratory to the field.

In this paper, the above mentioned pre-test methods will be discussed, as well as our experiences with these methods. In the literature these methods are described in a general way, while little is said about guidelines on how to carry out these methods in practice. Therefore, this paper concentrates on the latter, providing an overview of current best practices. The paper concludes with a summary of features of these methods, as based on our experience, including scientific standards for application.

**52) The time-line: the effects of an experimental aided recall technique in a real life survey(Wander van der Vaart)**

- This paper presents the results of a split ballot experiment performed on a time-line procedure developed to increase the accuracy of responses to retrospective questions. We have been applying the time-line to the respondents' schooling history during an eight-year period preceding the interview.

The time-line consists of a diagram in which eight rows represent the eight 'school years'. Respondents were instructed to complete all rows by first indicating their age and important personal events, and next (simultaneously) jobs, periods of unemployment and training courses. The time-line thus aims to unite several aided recall properties, such as bounding of the recall period, cueing by other information, and offering multiple frames of references.

In the standard version of the questionnaire, respondents were asked to report in chronological order all education received. In the experimental version of the questionnaire the respondents first completed the time-line and next were subjected to the same standard questioning procedure.

The data used in this paper have been collected during the 1987 and 1991 waves of a Dutch panel study inquiring into the social integration of young adults born (N=1083). In 1991, using the split ballot design, we asked the respondents about their schooling history from August 1983 on. The 1991-reports about the 1983-1987 period thus can be compared with the 1987-reports about that same period; the agreement between both reports is used as a measure of recall accuracy.

We hypothesize that the time-line increases recall accuracy regarding the number of training courses followed, the types of courses, and the starting year of the first training course. Additionally, we expect the time-line to be especially helpful if the task difficulty for respondents to recall courses is high, that is to say: in case of a high frequency or low saliency of the courses followed.

The general picture of the results is that applying the time-line indeed improves recall accuracy, although the beneficial effects are fairly moderate and not present in all hypothesized conditions.

**53) The Three-Step Test-Interview (TSTI)(Kees van der Veer, Tony Hak, Harrie Jansen)**

- In current practice of “cognitive interviewing” there is a blurring of three very different objects of testing, actual difficulties encountered by respondents when they complete a questionnaire, potential difficulties, and retrospective accounts of what happened during completion.

The Three-Step Test-Interview (TSTI) is based on the premise that it is important to distinguish between actual response

behavior, (post hoc) accounts of actual behavior, and potential behavior. The main aim of the TSTI is the observation of actual response behavior. Because much of this behavior consists of "thinking" and is therefore hidden from the observer, the (concurrent) thinking aloud technique is used for making it observable.

The TSTI consists of the following steps:

Concurrent thinking aloud aimed at collecting "observational" data. Two types of "observational" data are collected: (1) observations of respondent behavior (such as skipping questions; correction of the chosen response category; hesitation; distress; etc.), and (2) thinking aloud data.

Retrospective probing aimed at retrospectively reconstructing actual response behavior. The probes used by the interviewer are based on the notes made in the first step of the interview. The interviewer follows closely the actual (observed) sequence of the respondent's behavioral and cognitive actions. This step is not aimed at eliciting explanatory comments or accounts from the respondents.

Respondent validation (or debriefing). This step has two aims. One aim is to "validate" the findings of steps 1 and 2. The second aim is to explore the "life-world" of the respondents regarding the concepts that the questionnaire is supposed to measure.

Steps 1 and 2 are distinctive for the TSTI. They are aimed at eliciting actual problems rather than potential problems. Step 3 is not distinctive and is similar to other types of "cognitive" and in-depth interviewing.

The TSTI has been tested in two pilot studies, whereas currently (May 2001) a third study is in progress. In the first study, in which questions about alcohol consumption were tested, TSTI results were compared to the results of an expert review. The results showed that the TSTI might be particularly good at identifying problems that occur in problems resulting from a mismatch between the “theory” underlying the questions and features of a respondent’s actual behavior and biography. These problems were not identified by the expert review and cannot be identified by cognitive techniques such as probing about definitions of concepts or paraphrasing tasks. In the second pilot study, Dutch and Norwegian versions of an attitude scale, the 20-item Illegal Aliens Scale, were validated. As in the first pilot study, a comparison was made with the results of an expert review. The TSTI was uniquely productive in identifying problems resulting from different “response strategies”. Recently, a third pilot study has been started in which the TSTI is used for validating Quality of Life measurements, and in which it will be assessed in particular whether the TSTI is a useful technique for assessing “response shift”. Results will be available by November 2002.

**54) Interrater Reliability in an imperfect Field Setting(Dror Walk, Rachel Fleishman, Miriam Bar-Giora, Gad Mizrahi)**

- An interrater reliability test was conducted to evaluate the questionnaires used in the government surveillance system of residential care institutions. Because it was administered as part of the routine surveillance process, the reliability test was vulnerable to deviations from the normative model. However this non-pure design provides an opportunity to gain a better understanding of using a reliability test in an “imperfect” field setting.



Two different surveyor teams administered the total 257 questions of the questionnaires in 32 institutions on two separate occasions. In order to explain the variance in the reliability scores, regression analyses were conducted for two units of analysis: the questions and the institutions. For the first unit of analysis, the questions, the source of information (e.g. observation vs. interview) and the agent of information (social worker surveyor vs. nurse surveyor) explain the variance of the reliability scores. For the second unit of analysis, the institutions, most of the variance was attributed to the fact that the questionnaires were not filled out by the same teams in the first and second administrations. The time lapse between administrations did not seem to affect the reliability scores.

#### 55) Usability Testing of Web Data Collection Instruments(Elizabeth F. Wiebe, Lisa Thalji)

- Usability testing is a critical tool for evaluating computerized data collection instruments. Usability testing is especially informative for self-administered instruments used to collect data on the Web, since Web survey design is often motivated by demands for quick turnaround data collection and the needs of programmers, rather than needs of survey respondents. Many of the standard tools for Web survey design, such as drop-down menus and radio buttons, may make answering questions difficult for respondents and contribute to measurement error. This paper will analyze the results of usability tests of three different types of self-administered Web data collection instruments: a web survey, a time and activities diary, and a food diary. Based on these results, we will suggest techniques to improve the usability of Web data collection instruments.

#### 다. 각국 발표 논문집

- Short Course 및 Poster Session 논문 : 붙임 1
- ※ Invited Paper 및 Contributed Paper 전체분은 주최측에서 발표자들의 논문을 정리하여 추후 별도 송부 예정(800page 정도될 것으로 예상됨)

## 4. 회의 참가 경험 소개

가. 방문국, 회의참가 소감

나. 회의개최 장소 정보(기후, 교통, 관광 등)

## 4. 회의참가 경험 소개

### 가. 방문국 · 회의참가 소감

- 회의 개최지인 찰스턴 시티는 미국의 동남부의 끝자락인 사우스캐롤라이나 주에 위치하여 지리적으로 한국에서 이동하는데 많은 시간이 소요됨.(15-16시간 정도 소요)
- 동부에 위치한 찰스턴은 한국으로 비유하자면 경주나 안동 하회마을 형태의 전통 가옥 보존지역이라고 보면 됨. 남북전쟁이 시발지이기도 하며 다운타운은 전체 지역이 1700년~1800년대의 미국의 전통 건축 구조물이 거의 원형 그대로 보존되어 있어 도시 전체가 살아 있는 박물관이라고 해도 과언이 아님
- 회의장소인 찰스턴 컨벤션센터는 다운타운에서는 조금 떨어진 찰스턴의 외곽 지역에 신축되어 호텔과 컨벤션센터, 대규모 공연장 등을 갖춘 최신식 건물임
- 찰스턴은 동부 지역이라 그런지 주로 흑인들의 거주 비율이 높으며, 밤늦은 시간에는 가급적 외출을 자제하는 것이 좋을 것으로 생각됨.
- 본 회의는 매년 또는 격년으로 열리며 통계조사 및 품질평가 기법 등에 대해 세계의 저명한 통계학자, 실무자 등의 논문 발표 위주로 진행되며, 금년에도 22개국에서 339명이 참가하여 규모면에서도 작은 편은 아님
- 매년 회의 주제가 주로 통계의 품질 제고를 위한 다양한 평가방법의 개발과 조사방법의 개발 등 특정한 조사에 국한되는 것이 아니라 통계 전반적인 부분에 대한 회의이고 지리적으로 너무 먼 곳에서 개최되어 그런지 참가자들의 대부분이 유럽 및 미국, 호주 등이며 동남아권에서는 필리핀에서 1명 참석한 것이 전부임
- 회의 분위기는 논문 발표자가 발표를 하고 나면 참석자들이 질문과 토론을 통해 여러 가지 발전 방안들을 논의하는 등 매우 적극적이고 활발하게 진행되었음

## 나. 회의 개최 장소 정보(기후, 교통, 관광 등)

### ○ 호텔

- 회의 개최장소인 찰스턴 컨벤션센터내의 호텔은 이동이 필요없어 편리하나 가격대가 높은 편임(Embassy Suites Charleston Convention Center Hotel 5055 International Blvd., North Charleston, SC 29418)
- 컨벤션 센터에서 2-3마일 거리내에 있는 중간급 정도의 호텔을 이용하는 것이 경비 절감면에서 효율적이며 회의장까지의 이동은 택시를 주로 이용하여 큰 문제는 없었음(편도 택시비는 팁을 포함하여 8\$정도임)

### ○ 도시 개요



- 유서깊은 건물들과, 역사유적지들로 둘러싸인 찰스턴은 살아있는 박물관("living museum.")으로 불리기도 한다. 시간마다 울리는 교회 종소리를 도심 곳곳에서 들을 수 있다. 위엄있는 아름다움을 지닌 정원들, 몇백년이 지난 오래된 저택들, 세계적인 명성을 지닌 농원 등이 관광객들에게 남북전쟁 이전의 찰스턴의 모습을 엿보게 해준다.  
대서양의 작은 반도에 위치하고 있으며 도시인구는 약579천이다. 전형적인 남부도시로 1861년 연방정부와 대립해 이곳에서 남북전쟁이 발발한 역사를 가지고 있기도 하다.

○ 도시명/주명: 찰스턴(Charleston)/사우스 캐롤라이나 주(South Carolina State)

○ 기후(섭씨, mm)

월	1	2	3	4	5	6	7	8	9	10	11	12
기온	9	10	14	18	22	26	27	27	24	19	15	11
강수량	85	77	109	61	89	148	153	185	118	70	58	73

○ 시차

; 한국시간 금요일 02:25 pm일 경우, 찰스턴은 금요일 12:25 am. Standard Time. GMT -5 시간.

○ 공항

- 찰스턴 인터내셔널 에어포트(Charleston International Airport)

: 공항에서 호텔까지 이동은 택시(밴)를 이용하면 되며, 요금은 미터기를 사용하는 택시를 탔을 경우 톱포함 12\$ 정도이며, 미터기를 사용하지 않는 지역택시의 경우 요금이 더 저렴함(7\$정도)

○ 식당

- 회의장내 호텔은 호텔식당을 이용하면 되고, 인근의 호텔을 이용할 경우 주변에 24시간 영업하는 간이 식당이 있으므로 이용에 큰 불편은 없음

○ 교통(요금)



○ 시내의 대부분의 볼거리들은 도보를 이용하여 돌아볼 수 있다. 이외에 버스, 트롤리 등의 관광투어도 풍부하다.

-보우트(CHARTS):위치(196A Concord) 전화( 803/853-4700)

; 패트리오츠 포인트의 해양 박물관까지 운행하는 수상택시. 항구지역 순항 서비스도 제공한다.

○ 버스(일반버스)

- 운행시간 5:35 AM - 10 PM. North Charleston까지는 1 AM까지 운행된다. 운행구간 : 찰스턴의 대부분 지역.

요금 : 1\$(잔돈을 정확하게 준비해야 한다.)

- DASH (Downtown Area Shuttle)

트롤리 스타일 버스 주요 다운타운지역을 운행한다. 요금은 1일 승차권, 1주일권, 10일권, 한달권 등 다양한 요금이 있음. 스케줄 문의는 803/747-0922

○ 쇼핑(유명상품)



- Meeting St. 와 King St. 사이에 재래시장 및 관광객을 위한 쇼핑물이 위치해 있으며, 비지터 센터에서 도보로 20분정도 소요됨.
- 그외에도 도시 주변의 곳곳에는 골동품 등 옛 물건을 파는 상점이 준비해 있음

○ 일반적 사항

- 찰스턴시는 미국 동남부의 조그만 마을로서 남북전쟁 당시의 주요 건물들이 그대로 잘 보존되어 있으며, 시내 관광은 하루 정도면 되며 인근의 관광지까지 볼려면 이틀 정도면 됨

<주요 가 볼 만한 곳>

- 1) 방문객 안내소(Visitor center) : 찰스턴을 관광하려면 먼저 이곳을 찾아 가면 모든 관광 정보와 지도, 버스 노선 등 모든 것을 찾아 볼수 있다. 길 건너편에 관광의 시작이라고 할 수 있는 찰스턴 박물관이 있음
- 2) 찰스턴 박물관(Charleston Museum) : 1773년에 건설된 미국에서 가장 오래된 시티 뮤지엄으로 특히 사우스 캐롤리나 장식 예술품들이 다수 전시되었다. 자연사, 고고학, 조류학과 관련된 품목들을 포함, 50만여점의 수집품을 보유하고 있다. 위치는 비지터센터(visitor center) 바로 길 건너편에 있음. 입장료 : 어른 8\$
- 3) Drayton Hall : 1738년과 1742년 사이에 지어진 맨션으로 남북전쟁중 남아있는 애슐리 리버(Ashley River)위에 자리한 유일한 플랜

테이션 저택. Georgian-Palladian 건축양식의 저택은 손상되었으며  
실내는 비품이 없는 채로 남겨져 있다. 입장료 : 8\$

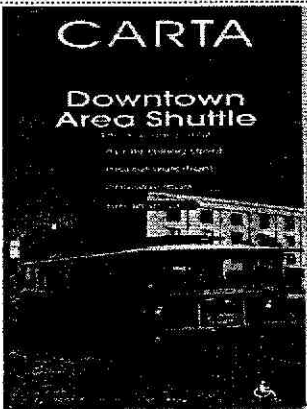

※ 굳이 입장료를 내고 들어가 볼 필요는 없으며 밖에서 사진만 찍어도  
분위기를 충분히 찾을 수 있음

4) Fort Sumter National Monument : 남부동맹군에 의해 1861년4  
월12일 최초의 전쟁 발발 포격이 이루어진 곳. 공원에서는 복원된  
건조물 가이드 투어를 무료로 제공하고 있으며 역사전시물과 축소 세트  
등을 포함, 박물관(전화 803/883-3123). 입장료 : 8\$

- 찰스턴 관광은 도보로도 가능하나 좀 더 편리하게 이용하려면 비지터  
센터에서 다운타운내 관광 포인트를 운행하는 셔틀버스(DASH) 1일  
권을 구입하여 이용하면 더욱 편리함

• 버스는 카드식 승차권으로 되어 있어 유효기간 동안은 몇번을 타도  
상관 없음

(셔틀버스는 20명 내외 정도 탈 수 있으며 외관도 특이하여 버스  
자체가 사진 배경으로도 가끔 사용됨)

셔틀버스(DASH)	관광용 마차(Carriage)
	

- 비지터 센터에서 출발하여 도보로 다운타운을 가로지르는 Meeting  
St.와 King St. 주변에 주요한 건물과 쇼핑몰 등이 밀집되어 있으며,  
도로 끝부분에는 바다와 만나는 옛 군사 기지(The battery)가 나오  
는데 이곳도 공원이 잘 조성되어 있고 특히 시원한 대서양의 바다를  
바라 볼 수 있음 ※ 도보로 1시간이면 충분함



## 5. 기타 준비 관련 사항

## 5. 기타 준비관련 사항

### ① 준비과정

#### <회의 참가를 위한 등록비 납부>

- 납부 기한이 인터넷에 공시되므로 일정에 맞춰 납부하여야 하며 카드결제만 가능하며, 통계청 기업카드는 VISA, MASTER 기능이 없어 개인 카드로 결제후 대금 청구하면 됨

#### <환전 정보>

- 환전시 여행자수표(T/C)와 달러의 비율을 7:3정도의 비율로 환전하는 것이 유용함. T/C 의 경우도 현지에서 사용해 보니 대부분의 간이 식당, 슈퍼 등에서도 현금처럼 사용할 수 있음.  
※외환은행 홈페이지의 환전클럽에 무료 회원으로 가입 후 환전 신청을 하는 제도를 이용하면 환전수수료를 40% 할인 받을 수 있음
- 구입후 오른쪽과 왼쪽 상·하단에 서명하는 부분이 있는데 오른쪽 한 부분만 미리 서명을 해두고 나머지는 지불시 보는 앞에서 서명하여 주면됨. 어떤 곳에서는 가운데의 date란 윗쪽에 월/일/연도 및 구입처 상호명을 적어라고 함(분실해도 양쪽다 서명만 해두지 않았으면 재발행 가능)
- T/C 도 현금과 마찬가지로 다양한 권종별로 환전할 수 있음  
(예:100\$, 50\$, 20\$ 등)
- 현금은 주로 50\$, 20\$, 10\$, 5\$ 위주로 환전, 1\$은 팁용으로 30\$정도 준비.  
· 페니(1cent), 니켈(5cent), 다임(10cent), 쿼트(25센트), 이중에서 니켈과 다임의 크기와 색깔이 거의 같아 구분이 어려워 자세히 봐야함

### <항공권 예약>

- 대한항공을 통하여 예약하였으며, 직항 편이 없어 인근 도시에 취항편 등을 확인하여 가장 근거리 노선으로 예약하면 됨  
(예약:1588-2001, GTR 대전지점:862-2001/2)
- 인천에서 애틀랜타까지 대한항공이 취항하므로 애틀랜타에서 갈아타는 편이 가장 단거리임(총 16시간 정도 소요)
- ※ 항공편이 경유지를 거쳐 몇 시간내에 다른 비행기로 갈아타야 할 경우는 짐을 Carry-on 하는 것이 확실함, 그렇지 않고 경유지에서 1박을 하는 경우 등은 바로 수하물 탁송을 하여도 상관없음

### <호텔 예약>

- 회의 개최지인 Charleston Convention Center 내에 호텔이 같이 있으나 일 숙박비가 높은 편이라 굳이 동일 호텔내에서 숙박을 할 필요는 없음
- 컨벤션센터에서 2마일 내에 호텔이나 INN 이 많이 있으므로 이곳 중 한곳을 예약하고 이동은 택시로 하는편이 경비 절감 차원에서 유리함 (택시비 편도 8\$ 정도)
- ※ 호텔 예약시 인터넷으로 예약을 한후 출국 이틀정도 전에 전화로 다시 한번 Confirm 하는 것이 확실함  
(예약시 카드정보를 입력해야 하나 현금으로 결제하고 싶은 경우 체크인시 미리 얘기를 하면 처리해 줌)

### <현지 정보 수집(관광, 교통편 등)>

- 회의장소인 Charleston(South Carolina)에 관한 정보는 찰스턴 시티 홈페이지 및 이곳에 접속하면 관련 사이트가 여러개 있으므로 이곳을 활용하여 미리 현지 교통편(버스, 택시 등) 및 노선 안내 등 관련 정보를 수집함

## ② 출국 및 현지 정보

### <애틀란타>

- 중간 경유지인 애틀란타까지는 15시간 정도 걸려 도착하였다. 아침 10:40분에 인천을 출발하였는데, 도착하니 아침 10:20분임
- 찰스턴으로 가는 비행기가 다음날 아침에 있으므로 애틀란타에서의 1박을 위해 예약해둔 호텔에 호출을 하여 셔틀버스를 요청하였다.
  - 공항 표지판을 보면 Courtesy Phone 이라고 적혀있는 곳이 있는데 이곳이 무료로 각 호텔과 전화가 연결되어 있는 곳이다. 셔틀버스 타는 곳도 정해져 있으므로 그곳에서 해당호텔 번호를 누르면 바로 예약된 호텔 프론트로 연결됨.
- 주요 관광명소인 CNN 센터, 코카콜라 본사, 마틴 루터킹 목사 생가 등이 대부분 전철(Marta)을 이용하여 이동하며 볼 수 있으나 시간 관계상 CNN 센터만 둘러보고 왔음
- 주요 역은 Five Point(2개노선의 교차점)이며 이곳에서 목적지에 따라 갈아 탈수 있으나 노선은 2개밖에 없음
- 미국에서는 다른 지역은 정확히 모르겠지만 이번에 체류한 곳은 대부분 대중교통(버스, 전철, 택시 등)에 지역별로 고유의 이름을 붙여 사용하고 있음
  - 애틀란타 : 전철(Marta)
  - 찰스턴 : 시내·외 버스(Carta), 다운타운내 운행하는 셔틀버스(DASH) 등
  - 택시도 옐로우 캡과 화이트 밴, 그리고 지역 택시 등 종류가 많으며, 호출시 어떤 종류를 원하는지 물어봄.

## <찰스턴>

- 찰스턴의 경우 주요 관광지인 다운타운내에서만 순회하는 관광용 셔틀 버스가 있으므로 일정에 맞춰 1일이용권이나 1주일권 등을 구입하여 사용하면 횟수에 제한없이 기간내에서는 무제한으로 버스를 이용할 수 있음(요금 : 1일권 : 5\$정도, 1주일권 : 10\$, 한달권 : 22\$)
- 택시를 이용할 경우 반드시 호출을 하여야만 이용할 수 있으므로 숙박지 호텔 또는 관광중에 필요할 경우 가장 가까운 아무 호텔이든 들어가서 택시를 불러달라고 하면 됨
  - ※ 요금지불시 팁은 별도로 총액의 10%정도 지불해야 함
  - ※ 택시 호출시 본인의 이름과 목적지 등을 물어봄
- 식당에서 주문시 기본메뉴의 조리방법과 식당에서 먹을지, 포장인지와 부가음식(Side dish)의 종류를 메뉴에 따라 2~3개를 선택하여 주문하여야 함※ 역시 나올 때 테이블에 팁을 두고 오는 것은 기본(주로 1\$ 지폐)
- 미국내에서 이동하는 국내선은 주로 Delta 항공을 이용하였는데 Connection이라는 명칭으로 이용되는 국내 전용선으로 50인승 정도 되었다. 키 큰사람은 천장에 머리가 닿을 정도로 소규모 비행기였음

## ③ 귀국

- 귀국시에는 애틀란타에서 출발하는 항공편이 없어 찰스턴에서 달라스를 경유하여 샌프란시스코까지는 Delta 항공을 이용하여 이동하고 샌프란시스코에서 인천까지는 대한항공을 이용하였음(미국 국내선 이동은 주로 대한항공과 제휴사인Delta 항공임)
- 샌프란시스코에서 출발하는 항공편이 19일 12:00(정오)에 있어 찰스턴에서 밤에 출발하여 샌프란시스코에 도착후 1박을 하는 등 마는 등하고 오전에 그 유명한 금문교(Golden Gate Bridge)를 배경으로 잠깐 기념촬영을 한 후 정오에 한국으로 출발하였음

- 샌프란시스코에서 출발은 낮에 하므로 좌석 Check-in 시 좌석번호 H나 J 쪽의 Window Seat을 달라고 하면 이륙후 상공에서 금문교와 샌프란시스코 전경을 한 눈에 볼 수 있음.(A,B쪽 창문은 시퍼런 바다밖에 안보임)
- 인천공항에는 저녁 6시쯤 도착하여 모든 일정을 마무리 함
- 전체적인 느낌은 역시 광대하다는 생각과 함께 이 좋은 땅을 그 옛날 바다를 지배하던 장보고와 같은 분들이 태평양을 건너서 먼저 선점을 하였더라면 지금의 미국은 어떤 모습일까 하는 등의 부질없는 생각도 해보며, 짧은 기간이었지만 안목을 넓힐 수 있는 좋은 기회였으며, 수집한 자료는 틈나는 대로 충실히 번역과 정리를 하여 각과에서도 필요한 부분을 공유하여 사용할 수 있도록 하겠음
- 끝으로 이와 같이 좋은 기회를 갖게 해주신 통계청과 관련된 분들께 감사하는 마음을 가지며 수집한 자료가 유용하게 쓰일 수 있도록 계속적으로 노력을 하겠음

## <부 록>

붙임1. 회의 발표 자료

붙임2. 회의 참가자 명부

(전화, 주소, 팩스, 이메일 등)

붙임3. 기타



# **Methods for Questionnaire Appraisal and Expert Review**

**QDET Short Course  
Gordon Willis and Barb Forsyth**

**November 14, 2002  
Charleston, SC**

# Methods for Questionnaire Appraisal and Expert Review

QDET Short Course

November 14, 2002

Gordon Willis and Bart Forayth

## (Our) definitions of *Expert Review* and *Appraisal* Methods

✓ These have common features -

✓ Processes for:

- Identifying problems in questionnaires
- Developing proposed modifications

✓ Accomplished by conducting:

- Individual expert review
- Multiple expert review
  - May involve group review
  - May involve multiple individual reviews



## Difference between *Expert Review* and *Questionnaire Appraisal*

✓ We distinguish these for pragmatic purposes

– *Expert Review* = Questionnaire pretesting or evaluation methodology, involves selection of experts and other parameters to be set as part of the review process. For example:

- Standing group expert-panel (akin to Institutional Review Board)
- ad hoc expert selection (akin to expert witness)

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## Difference between *Expert Review* and *Questionnaire Appraisal*

✓ We distinguish these for pragmatic purposes

– *Appraisal Method* = Formal system for evaluating a questionnaire in order to detect problems:

- Lessler/Forsyth: Coding System for Appraising Questionnaires
- Forsyth: Questionnaire Review Coding System
- Willis/Lessler: Question Appraisal System
- Fowler: Systematic Instrument Appraisal
- Graesser: QUAID system (computer-based appraisal)

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## Why a Short Course on Expert Review/Appraisal?

✓ "Setting up an Expert Review" has not been covered previously

- Obviously a common practice is to have experts review questionnaires
- But, not documented very well (rather, "oral history"?)

- *Lu Ann Aday: Designing and Conducting Health Surveys (1996)* – nothing on use of experts
- *U.S. Census Bureau's Pretesting Policy and Options pamphlet* – not mentioned
- *U.S. Bureau of Labor Statistics Commissioner's Order 2-96* – mentioned in passing

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## Why a Short Course on Expert Review/Appraisal?

✓ "Setting up an Expert Review" has not been covered previously

- Yet, is of considerable interest to methodologists

- *Presser & Blair (1994)*: Compared expert panel to cognitive interviewing, behavior coding
- *Willis, Schechter, & Whitaker (2000)*: Compared experts in five U.S. Fed agencies with cog interviewing, behavior coding
- *Rothgeb, Willis, & Forsyth (2001)*: Compared informal appraisal, formal appraisal, cognitive interviewing

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## Why a Short Course on Expert Review/Appraisal?

- ✓ Appraisal systems appear to be of interest to questionnaire designers
  - Represent movement toward formalizing -
    - Problems found in questions (categorization)
    - Methods for systematically reviewing questions in order to identify these problems
  - Have practical utility to staff across a range of experience levels
    - Very applied in nature (not too much theory here)

## Setting up review versus Doing an appraisal

- ✓ We first propose framework for selecting expert reviewers and review methods
  - e.g., group versus individual methods, timing
- ✓ We then suggest how to do an appraisal yourself
  - Question Appraisal System (Willis/Lessler)
  - Questionnaire Review Coding System (Forsyth)
- ✓ Course devotes more attention to (2)

## Part 1: Framework for setting up an Expert Review

✓ Expert review is not trivial- value may vary, with respect to selected features:

- Why?
- What?
- How?
- Who?
- When?

### A. WHY do an expert review?

“Good” reason:

✓ To improve questionnaire:

- Obtain perspectives/opinions from “experts” in *questionnaire design, subject-matter* area, or both
- Efficient, *low-cost* means for gathering evaluative information either *prior to* or *in conjunction with* other forms of testing
- Provides useful information from person(s) not already tied to the questionnaire, and therefore presumably independent

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## WHY do an expert review?

### "Not-so-good" reason:

- ✓ To "Certify" survey (pro-forma/rubber-stamp/documentation-satisfaction review):
  - More cynical variant is to go through process, say that *"questionnaire was reviewed by experts"* but then do whatever you want
- ✓ We do not recommend this:
  - Reviewers may have something useful to say
  - Reviewers may figure out what you've done
  - If there are problems it may not work to say "that's the advice we got from the experts..."

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## B. WHAT is being reviewed?

- ✓ There are a range of possible *raw materials* to review, even beyond survey questionnaires:
  - Population surveys (*sample person, household questionnaires*)
  - Establishment/organizational questionnaires
  - Other types of materials – e.g., maps, graphs, listing sheets, documentation of data base or public release dataset
  - Websites (Usability testing) - not a primary emphasis of this course (see Mick Couper)

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## B. WHAT is being reviewed?

### ✓ Even when limiting review to *surveys*:

- These are complicated and there's a lot to review
- We don't endeavor to cover review of entire survey, including sampling, etc.
  - But note that those comments can sneak in:
    - “You've got a deficient respondent rule”
    - “Physician surveys work better if you give them the choice of phone, mail, or Internet”
- But, even restricting our focus to the *questionnaire*, we highlight an important distinction

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## What's being reviewed:

### *Questions versus Subject matter*

- ✓ The typical expert review concerns “down in the trenches” issues involving survey questions:
  - Comment on wording, skips, sequencing, etc.
  - If computerized q'aire—can involve review of the paper version, or of a computer version (*BLS Computer and Internet questionnaire review*)
  - Again, we deal very specifically in 2<sup>nd</sup> part of course with training in question appraisal

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What's being reviewed:

## *Questions versus Subject matter*

✓ Alternative type of Expert Review concerns subject matter contained in the instrument:

- Are we covering the right subject domains?
- Are we asking the right questions (Type III errors)?
- Example: *2003 Current Population Survey Tobacco Use Supplement (NCI)*:
  - Enlisted experts in tobacco to ask about content – e.g., include questions on nicotine dependence?
- Clearly relates to *who* we get as reviewers - Carl Ramirez (GAO) will present QDET paper on this topic

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Special case - Translation Review:

## Question or Subject-matter review?

✓ Now recognized that translations (e.g., into Spanish) require review by experts, not just "translation/back-translation"

- Experts review questionnaire language versions side-by-side
- Review group includes:
  - Those proficient in the different dialects (Puerto Rican, Mexican, Cuban)
  - Reviewer with survey field experience (bi-lingual Census field interviewer)
  - California Health Interview Survey (UCLS): include bi-lingual survey team member who understands objectives

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## • Special case - Translation Review: Question or Subject-matter review?

- ✓ In one sense language translation clearly involves question-type review rather than subject-matter review, but...
  - Experts may also note content deficiency in translated instrument, related to *cultural variables*:
    - Ainsworth (U South Carolina): Questions on physical activities involve "yuppie" activities that don't describe activity of poor (Hispanic) women
    - As a result, our estimates for women are biased
  - Suggests need for subject-matter review in cross-cultural studies

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## • HOW to set up the review:

- ✓ Our motto: Flexibility is an advantage. Don't look for a single approach/answer, aim to develop a toolbox of techniques to select from
- ✓ Depends on timing, resource constraints
  - Two-year NCHS/NCI cycle can't always be assumed
- ✓ Is more better? Consider trade-offs, diminishing returns

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## Key dimension: *Individual*- versus *Multiple-Expert* review

### ✓ Is one reviewer enough?

- Some have assumed NO, made use of review groups/panels (U Maryland Survey Research Center, BLS, NCI, Blair & Presser, 1994)
  - Example: NCI Technical Evaluation of Questionnaires Committee
- However, *many* reviews are done by one person (DHHS-OMB review, ad-hoc reviews for colleagues)
- We propose that Individual review can be made more reliable by using structured approach (*appraisal system*)

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## Key dimension: *Individual*- versus *Multiple-Expert* review

### ✓ Depends on whether you are doing subject matter review, question review, or both

- If both, may want multi-stage process involving multiple reviewers
  - *GPS Tobacco Supplement*: Used eight key tobacco experts, one questionnaire design expert
  - Process was fluid – questionnaire designer used later in process, subject-matter experts throughout
  - Some tobacco experts straddled the line (had done enough tobacco surveys to be q'aire-proficient)

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## Key dimension: *Individual-* versus *Multiple-Expert* review

- ✓ Our view: Best if >1 reviewer, *but avoid questionnaire design by committee*. A "cohort" of about three experts is useful
- ✓ Some designers appear to like "one-shot" with big group
- ✓ *Hybrid model* is to start with big group, identify most useful/responsive, establish small-group for follow-up

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## Group review variant: Individual reviews followed by meeting

- ✓ Common in Fed Gov – have "Focus Group" of reviewers meet to go through questionnaire
- ✓ Advantages:
  - Group members can react to each others' perspectives
  - Can encourage consensus, or rank problems
  - Group members can react to suggested fixes
- ✓ Disadvantages:
  - Like focus group or interviewer debriefing – Dominant person(s) can dictate outcome
  - Can be more burdensome for reviewers (travel)
  - *Can involve q'aire design by committee*

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## Another variant: Individual reviews with reconciliation by moderator

### ✓ Informal (or semi-formal) approach:

#### – NCI CPS Tobacco Use – targeted questions:

##### • Experts rated the importance of sub-topics:

- Stages of readiness to quit \*
- Measures of addiction \*\*\*
- Quitting methods used \*\*\*

##### • Later, answered specific inquiries:

- Is it useful to know if how long a) some-day smokers; b) cigar/pipe/chew users wait before the first cigarette/use of the day?  
(Answer: Experts disagree)

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## Individual reviews with reconciliation by moderator

### ✓ Formal approaches:

#### – BLS CPS review of Computer and Internet Use Supplement

- Experts were asked to use problem rating system (cognitive categories of problems anticipated)

#### – “Delphi Technique” – Rand – proposed as *iterative* review where experts cannot come together, but where a consensus is required

- CRITICISM: Has been misused for policy – “railroading” into pre-determined outcome as forged by moderator

(<http://www.eagleforum.org/educate/1998/nov98/focus.html>)

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## Deciding the structure of the individual review (formal vs. informal)

### ✓ Advantages of formal/structured approach:

- Tailors both the review and the analysis
- Allows investigator to direct experts toward particular issues

### ✓ Disadvantages of structuring:

- Focuses the review only toward what is anticipated
- May cause reviewers to omit things detected through a more "tabula rasa" orientation

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## Determining the structure of the individual review

### ✓ Disadvantages of structuring (continued):

- Experts may not follow your instructions!

Schwartz & Fricker (2001):

"There was considerable variability with respect to how experts completed their reviews. Four of the experts followed instructions to evaluate each item on the questionnaire using the QUAID diagnostic codes, whereas the other (4) experts did not. Some experts only provided general, summary comments and others provided detailed comments with recommendations for re-wording specific questions."

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## Individual reviews with reconciliation by moderator

### Statistical method: "Concept Mapping"

- Multi-dimensional scaling techniques for organizing concepts (Novak/Cornell)
- Probably best for subject matter type review
- Early in process, have experts rate a number of survey topics/items on dimensions like:  
a) Importance; b) Similarity
- Based on scaling of similarity between reviewer ratings, get clusters of items that fall together on these dimensions
- Following example is from Trochim (Cornell/NCI)  
(<http://trochim.human.cornell.edu/research/epp1/epp1.htm>)<sup>27</sup>

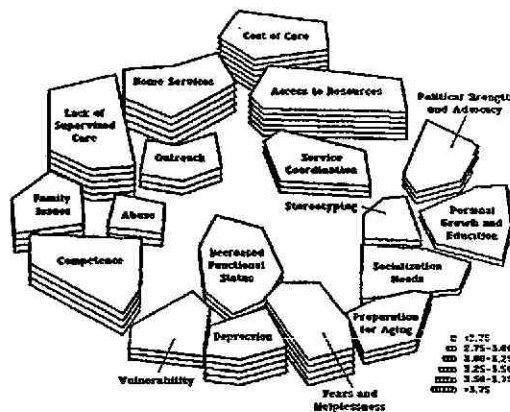


Figure 6. Cluster rating map for the York County Elderly project.

## D. WHO should the reviewers be?

- ✓ Especially with group review, not a trivial decision
- ✓ Consider what they should be "expert" in, as far as:
  - Subject matter/substantive issues in questionnaire
  - Questionnaire design
  - Field experience
  - Giving you what you are asking for

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## D1. Use of *subject matter* experts: People who know the topic

- ✓ Makes sense when:
  - Considering general issues for new data collection (e.g. CPS Tobacco Cessation)
  - Don't already have clearly sufficient *available* on-board staff expertise
- ✓ **Pitfall to avoid:** Can be counter-productive for purposes of developing question wording!
  - Subject-matter experts may think they can write survey questions, but perhaps not what they're best at...

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## D2. Use of *questionnaire design* expert

- ✓ Most common type of review
- ✓ May not relate to the reviewer's area of expertise (example – *BLS CPS Computer and Internet Use Supplement*)
  - So, reviewer may not be able to tell whether “we’re asking the right questions”
- ✓ Can also be limited if we can’t anticipate what respondents know: “*Proxy metacognition*”
  - So review can be stymied by lack of reviewer familiarity with respondent comprehension, use of terminology, record retrieval...

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## D2. Use of questionnaire design expert - avoid overuse!

- ✓ **Pitfall to avoid:** Regarding the term “Questionnaire Design Expert” too seriously
  - This is not a universal designation, and some facility with the surveyed area *may be* vital
- ✓ One reason we conduct cognitive testing of appropriate individuals (physician, farmer, etc).
  - Cognitive Interviewing as implicit Expert Review
- ✓ Solution is to include individual in review process who a) “knows the area” and b) “knows the respondents”

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## Example: Subject matter expert versus Questionnaire Design expert

- ✓ NCI colorectal cancer screening questionnaire reviewed by each
- ✓ Subject matter expert comment:
  - There are a few questions that mention “proctoscope” – why? This isn’t used any more (hopefully!) – docs should be using a flex sig tube nowadays.
- ✓ Note that questionnaire design expert chose to comment on *comprehension* of proctoscope, rather than *appropriateness*

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## D3. Use of *survey interviewer* as expert reviewer

- ✓ May “happen” in field pretest debriefing
  - When interviewers give opinions rather than relating specific pretest experiences
- ✓ Procedure has sometimes been formalized
  - NCHS/NHIS Core Redesign – convened expert review panel of experienced interviewers
  - Very useful for anticipating problems in field
- ✓ **Pitfall:** Limited interviewer perspective
  - Interviewers tend to dwell on mechanics of administration
    - “Open-ended things really slow down the interview”

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#### D4. Selection of reviewers who will "work well with others"

- ✓ Helpful to ask those felt to be collaborative rather than directive
  - **Pitfall:** Beware of "expert" who believes in "My way or the highway"
    - Authoritarian subject matter expert is convinced of what should go into the questionnaire
    - Authoritarian questionnaire design expert is convinced of how questions should be asked
  - In fairness - make clear whether you want collaboration or advice
    - Covered more a little later (Communication issues)

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#### E. WHEN should the review be done?

- ✓ Depends on emphasis of review
  - "Formative" subject-matter review may be relatively earlier than question review
- ✓ Multi-point review:
  - Doesn't need to be at one time, if reviewers are used at several points (*CPS Tobacco model*)
  - Can be integrated into other pretesting (cognitive interviewing, behavior coding)
- ✓ Critical timing issues:
  - Reviews need to be done with enough time to make changes before next development step (cognitive testing, field testing, programming)

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## How long do reviewers need?

- ✓ As long as you give them...
- ✓ For initial, full review, several weeks
  - A month for an especially long instrument
- ✓ For later, restricted reviews, much shorter turnaround
  - One week or shorter for very pointed requests
  - Opportunistic model: Send to multiple reviewers, rely on those who respond by target date
  - With big group, generally hasn't worked to "wait for all reviews to get back to us"

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## Communication with reviewers

- ✓ **Pitfall:**
  - Lack of general information about the process, results
  - Lack of instruction as to what they are to do, exactly
- ✓ Following is a list of items of information to convey:

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## Communication with reviewers

- Nature/structure of the review
  - Number of reviewers, due date, decision process*
- Measurement Objectives
  - Overall, key items*
- Mode of administration
  - Especially self versus interviewer*
- Context of administration
  - Where done – privacy?*
- Sample size
  - Are open-ended questions feasible?*

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## Communication with reviewers

- Flexibility – or constraints
  - Are all questions open to comment?*
- Conventions
  - Use of parentheses; sequencing instructions*
- Requested format of review
  - Attempt some degree of common structure*
  - Indicate "Finding" versus "Fixing"*
- Final decisions made
  - Supply final communication or report*

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## Communication issue: Requested format of review

- ✓ Oral conversation/brainstorming
  - But, no documentation from reviewers (no record!)
- ✓ Written reports – format structured by reviewer
  - Chaotic! Difficult to collapse reviews
- ✓ Notes written within questionnaire itself
  - Produces long document
  - But, comments are clearly linked to questions
  - Helpful to have overall summary at front, organized in terms of major problems

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## Products of Expert Review: What do we get (besides “suggestions”)?

- ✓ Attempts to analyze *quantitative productivity* of reviewer comments:
  - Presser & Blair (1994)
    - Expert panel “detected” many more problems than cognitive interviewing, behavior coding
  - Willis, Schechter, & Whitaker (2000)
    - Expert review produced problem index twice that of cognitive interviewing
  - These finding *may* represent “real” problems
    - It’s easy for expert to say there’s a problem
    - Possibly high sensitivity, low specificity
  - *User of reviews needs to practice “clinical judgment”*

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## Products of Expert Review: What do we get (besides "suggestions")?

- ✓ Attempts to analyze *qualitative nature* of reviewer comments:
  - Never done in a way that takes into account both:
    - Subject matter review
    - Question review
  - For latter, Presser/Blair, Rothgeb/Forsyth/Willis et al. studies found many "failures to communicate"
    - To reiterate, comprehension/communication problems abound
    - But, we also find a wide range of other "interesting" problem types.

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## Expert review summary: Willis "Technical Review" of 22 OMB clearances

<i>Problem Category</i>	<i>Frequency</i>	<i>Percent</i>
Difficult (length, terms)	17	24%
Unclear (vague)	15	21%
Format (e.g. self vs. interviewer)	11	16%
Logical (assumptions, skips)	10	14%
Length/burden	7	10%
Organization	6	9%
Bias	4	6%

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## That's enough about "How to set up an Expert Review"

- ✓ The consideration of problem categorization leads right into next main topic:

### *Tools for appraisal*

- ✓ But before that, will do class exercise involving "Setting up a review"
- ✓ But before THAT, take a break

# Methods for Questionnaire Appraisal and Expert Review (Part 2)

QDET Short Course

November 14, 2002

Gordon Willis and Barb Forsyth

## Tools: Questionnaire Appraisal System (QAS)



## Question Appraisal System (QAS): Willis/Lessler (1999)

- ✓ Takes a question-level approach (rather than questionnaire-level)
- ✓ Focus is health, household phone survey
- ✓ Developed for CDC Behavioral Risk Factor Surveillance Survey (BRFSS)
- ✓ But, can be applied more widely

## The QAS is a checklist-type system

- ✓ Like pilot's pre-flight checklist (*see form in course materials*)
- ✓ Review depends on systematic, step-wise review of survey question features
  - Evaluate the question with respect to each of 8 major STEPS
  - At each Step, make decisions about whether Problem Types exist

## STEPS 1-3:

- ✓ READING: Difficult for interviewers to read the question uniformly
- ✓ INSTRUCTIONS: Problems with any introductions, instructions, or explanations
- ✓ CLARITY: Problems in communicating the intent or meaning of the question

## STEPS 4-6

- ✓ ASSUMPTIONS: Problems with assumptions or underlying logic
- ✓ KNOWLEDGE/MEMORY: Respondents are likely to not know or remember information.
- ✓ SENSITIVITY/BIAS: Sensitive nature/wording, or biased question



## STEPS 7-8

- ✓ RESPONSE CATEGORIES: Problems with the recording of responses
- ✓ OTHER problems

## Do these describe problems in survey questions?

- ✓ Are based on OMB review experience leading to *"Pitfalls to Avoid in Questionnaire Design"*
- ✓ Are very similar to problems described by Jack Fowler: *"Improving Survey Questions"* (1999), Sage.
- ✓ Again, empirical findings from cognitive interviewing, behavior coding are consistent: Be wary of **COMPREHENSION/COMMUNICATION PROBLEMS**

• To use QAS to 'code' a question:

- ✓ Check question against coding form, one Step at a time
- ✓ At each Step, see whether specific Problem Types exists, and check Yes or No for each
- ✓ If YES, write a short note describing the problem
- ✓ When done, review those marked YES and try to fix problems

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STEP 1 - READING: Determine if it is difficult for the interviewers to read the question uniformly to all respondents.		
1a. <b>WHAT TO READ:</b> Interviewer may have difficulty determining what <i>parts</i> of the question should be read.	YES	NO
1b. <b>MISSING INFORMATION:</b> Information the interviewer needs to administer the question is <i>not</i> contained in the question.	YES	NO
1c. <b>HOW TO READ:</b> Question is <i>not</i> fully scripted and therefore difficult to read.	YES	NO

## Example: STEP 1 READING problem: *What to Read*

*"In the past 12 months, have you talked to a doctor or other health professional about your own health? (READ IF NECESSARY – include doctors, nurses, dentists, psychologists, osteopaths, and chiropractors. Do not include telephone calls only for the purpose of making appointments)."*

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## Example – Problem Type 1a: *What to Read*

- ✓ Check YES for 1a (What to read): How will the interviewer know whether it's necessary to read all of these (osteopath...)?
- ✓ Possible solution – use checklist approach, or read all relevant provider types (boring...).
- ✓ Remember that for self-administration, respondents can only respond to what they hear.

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Example – STEP 1 READING  
 problem: *How to read it*

*“How many glasses (8 oz) of milk (whole, 2%, or skim milk) did you drink yesterday?”*

- ✓ Check YES for 1c. (How to read). Question is NOT scripted for interviewer administration
- ✓ Re-write: *“How many 8 ounce glasses of whole, two-percent, or skim milk did you drink yesterday?”* (yes, 1% is still missing...)

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STEP 2: INSTRUCTIONS: Look for problems with any introductions, instructions, or explanations from the <i>respondent's</i> point of view		
2a. <b>CONFLICTING OR INACCURATE INSTRUCTIONS</b> , introductions, or explanations.	YES	NO
2b. <b>COMPLICATED INSTRUCTIONS</b> , introductions, or explanations.	YES	NO

## Example – STEP 2

### INSTRUCTION problem (2a)

*“The next questions are about the claims process involved with [Health Plan Name]. How would you rate the range of services covered by [Health Plan Name].”*

✓ Check YES for 2a (Conflicting instructions):

“Claims process” conflicts with “range of services.”

✓ Maybe better to start with *“The next questions are about [Health Plan Name].”*

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### STEP 3: CLARITY: Identify problems related to communicating the intent or meaning of the question to the respondent.

3a. <b>WORDING:</b> Question is lengthy, awkward, ungrammatical, or contains complicated syntax.	YES	NO
3b. <b>TECHNICAL TERM(S)</b> are undefined, unclear, or complex.	YES	NO
3c. <b>VAGUE:</b> There are multiple ways to interpret the question or to decide what is to be included or excluded.	YES	NO
3d. <b>REFERENCE PERIODS</b> are missing, not well specified, or in conflict.	YES	NO



### Example – STEP 3 problem with question CLARITY (3b)

*“What kind of doctor treats your diabetes: A general or family practitioner, an internal medicine doctor, a diabetologist, or someone else?”*

✓ Check YES for 3b (Technical Term):

*“Diabetologist” could be replaced by “a specialist who deals with diabetes”*

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### Example – STEP 3 problem with question CLARITY (3c)

*“Have you had your blood tested for the AIDS virus?”*

✓ Check YES for 3c (Vague): Unclear whether this means *“Did I take the initiative in deciding to have my blood tested?”* or *“Was it tested for HIV as part of any type of blood test?”*

✓ We might want: *“As far as you know, has your blood ever been tested for the AIDS virus?”*

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- Example – STEP 3 problem with question CLARITY (3c)

*“How often do you take part in community organizations, meetings, or other activities involving Hispanic people or culture?”*

- ✓ Check YES for 3c (Vague): Classical Inclusion/Exclusion problem: Who is included? My Hispanic co-worker? Activities with my Cuban wife?

- ✓ We might want: *“...take part in activities that focus on Hispanic culture or people of Hispanic origin?”*

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- Example – STEP 3 problem with question CLARITY (3c)

*“Would you support an increase in cigarette taxes if the additional revenue was spend on community cancer prevention and control programs?”*

- ✓ Check YES for 3c (Vague): Classical “It depends” problem: How much – five cents or five dollars?

- ✓ Hypotheticals need to supply information that respondent believes relevant in making the decision.

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## Example – STEP 3 problem with question CLARITY (3d)

*"Before your last pregnancy, had you stopped  
using all methods of birth control?"*

- ✓ Check YES for 3d (Reference period  
unclear): How long before the pregnancy?  
One day or a year?
- ✓ Maybe want "During the 3 months before that  
pregnancy..."

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### STEP 4 - ASSUMPTIONS: Determine if there are problems with assumptions made or the underlying logic

4a. <b>INAPPROPRIATE ASSUMPTIONS</b> are made about the respondent or about his/her living situation.	YES NO
4b. <b>ASSUMES CONSTANT BEHAVIOR</b> or experience for situations that vary.	YES NO
4c. <b>DOUBLE-BARRELED:</b> Contains more than one implicit question.	YES NO

### Example – STEP 4 problem with ASSUMPTIONS (4a)

*“How confident are you in your doctor’s ability to help you with your health problems?”*

- ✓ Check YES for 4a (Inappropriate Assumptions): Assumes I have a doctor, and that I have health problems.
- ✓ Maybe want to ask first about type of care received in past 12 months.

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### Example – STEP 4 problem with ASSUMPTIONS (4b)

*“When you go out in the sun for an hour or more, how often do you wear sunscreen or protective clothing?”*

- ✓ Check YES for 4b (Assumes constant behavior): In the middle of summer? Winter?
- ✓ May want to specify whether we mean “on a sunny day during the summer.”

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**STEP 5 - KNOWLEDGE/MEMORY:** Check whether respondents are likely to *not know* or have trouble *remembering* information.

5a. <b>KNOWLEDGE</b> may not exist: Respondent is unlikely to <i>know</i> the answer to a factual question.	YES NO
5b. <b>ATTITUDE</b> may not exist: Respondent is unlikely to have formed the attitude being asked about.	YES NO
5c. <b>RECALL</b> failure: Respondent may not <i>remember</i> the information asked for.	YES NO
5d. <b>COMPUTATION</b> problem: The question requires a difficult mental calculation.	YES NO

**Example – STEP 5 problem with KNOWLEDGE (5a)**

*"Thinking about your most recent mammogram, how much did it cost, regardless of who paid for it? Include just the cost of the x-ray itself and not any fee charged by the doctor at the x-ray facility, or the cost for an office visit where the test was ordered"*

✓ Check YES for 5a (Knowledge): "The well is dry..." Maybe we should be doing a physician survey?

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## Example – STEP 5 problem with RECALL (5c)

*“How many mammograms have you had in the past 10 years?”*

- ✓ Check YES for 5c (Recall): An exact count is unreasonable to ask for.
- ✓ Difficult judgment for reviewer – what do respondents likely remember? (Good issue for cognitive interviewing.)

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### STEP 6 – SENSITIVITY/BIAS: Assess questions for sensitive nature or wording, and for bias.

6a. <b>SENSITIVE CONTENT</b> (general): The question asks about a topic that is embarrassing, very private, or that involves illegal behavior.	YES NO
6b. <b>SENSITIVE WORDING</b> (specific): Given that the general topic is sensitive, the wording should be improved to minimize sensitivity.	YES NO
6c. <b>SOCIALLY ACCEPTABLE</b> response is implied by the question.	YES NO



## Example – STEP 6 problem with SENSITIVITY (6b)

*"In the past 12 months, have you driven when you were drunk?"*

- ✓ Check YES for 6b (Sensitive wording): The term *drunk* has negative connotations. Maybe say "...when you may have had too much to drink."
- ✓ Keep in mind other problems that may be more serious – such as vagueness of the key concept (Legally drunk? Dangerously drunk?)

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## Example – STEP 6 problem with SENSITIVITY (6c)

*"Did you use condoms as protection to prevent disease?"*

- ✓ Check YES for 6c (Socially desirable response): The question suggests only one motivation – it's easy to answer YES.
- ✓ *"Did you use condoms to avoid pregnancy, to prevent disease, or for both reasons?"*

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<b>STEP 7 - RESPONSE CATEGORIES: Assess the adequacy of the range of responses to be recorded.</b>		
7a. <b>OPEN-ENDED QUESTION</b> that is inappropriate or difficult.	YES	NO
7b. <b>MISMATCH</b> between question and response categories.	YES	NO
7c. <b>TECHNICAL TERM(S)</b> are undefined, unclear, or complex.	YES	NO
7d. <b>VAGUE</b> response categories are subject to multiple interpretations.	YES	NO
7e. <b>OVERLAPPING</b> response categories.	YES	NO
7f. <b>MISSING</b> eligible responses in response categories.	YES	NO
7g. <b>ILLOGICAL ORDER</b> of response categories.	YES	NO

**STEP 7: Problems with RESPONSE CATEGORIES**

*What prompted you to have your most recent mammogram (Mark those mentioned)*

☐ Doctor recommended

☐ Other health professional recommended

☐ Part of regular checkup

☐ Friend encouraged

☐ Awareness of guidelines/need

☐ Breast problems

☐ Advertisement

☐ Other

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## STEP 7: Problems with RESPONSE CATEGORIES

*"What prompted you to have your most recent mammogram (Mark those mentioned)"*

- ✓ Mark YES for 7a (Open-Ended problem):  
Bad set of pre-codes, as respondent does not know range of acceptable answers.
- ✓ Current example could be divided up into several more specific questions

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## STEP 7: Problems with RESPONSE CATEGORIES

*"Do you consider yourself to be overweight, underweight, or about average?"*

- ✓ Mark YES for 7g (Missing response category): I may consider myself to not be overweight, but also not average. So, could use overweight, underweight, or about the right weight...".
- ✓ Note the logical problem as well (currently, the average adult is overweight...).

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**STEP 8 - OTHER PROBLEMS: Look for problems not identified in Steps 1 - 7.**

8. Other problems not previously identified.

YES NO

**STEP 8: "OTHER" – What does this mean?**

✓ **Does the question fulfill the objectives?**

- Do we KNOW the objectives...?
- Does the question involve a "Type III statistical error" (asking the wrong question)?

✓ **Does the *questionnaire* "work"?**

- Ordering of questions, sections
- Skip patterns
- Do the right people get the right sections?

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## COMMON REACTIONS TO QAS

### ✓ It's hard to choose between codes

- Don't agonize – just note the problem
- The main objective is the problem, not the code assigned

### ✓ Everything has a problem!

- *"The perfect is the enemy of the good..."*
- All problems are not equal: Focus on most egregious ones

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## COMMON REACTIONS TO QAS (continued)

### ✓ Coding is fun at first but then it gets old!

- Don't do too much at once
- Experienced reviewers can use more as a guide or "reminder" than as an algorithm
- The main objective is the *problem*, not the code assigned

### ✓ I'm not sure if my revision are better

- Have independent person subject questions to same scrutiny if possible
- Consider integration with other forms of pretesting (e.g., cognitive interviewing)

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## How unique is the QAS approach?

- ✓ Coding categories are not radical
  - Lots of this is in Payne (1951)
  - Has a lot in common with QRCS system to follow
  - Also overlaps with Jack Fowler (UMass) system:

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## Fowler: Systematic Instrument Appraisal

- ✓ **Comprehension Issues**
  - ✓ C1) Clear reference period (time)?
  - ✓ C2) Is the question hypothetical?
  - ✓ C3) Are multiple questions being asked?
- ✓ **Retrieval of Information**
  - ✓ R1) Does the question require multiple calculations?
  - ✓ R2) Does the question contain assumptions?
  - ✓ R3) Is the question an "agree-disagree" question?
- ✓ **Formation of Answer**
  - ✓ F1) Does the question make the response task clear
  - ✓ F2) Are answer categories mutually exclusive/exhaustive?
- ✓ **Usability Concerns**
  - ✓ U1) Is the question fully scripted?
  - ✓ U2) Does the question end with a question
  - ✓ U3) Are there appropriate "skip" instructions
  - ✓ U4) Are the response tasks appropriate?

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# Methods for Questionnaire Appraisal and Expert Review

ODET Short Course

November 14, 2002

Gordon Willis and Barb Forsyth

## Tools: Questionnaire Review Coding System (QRCS)



## Some similarities to QAS

- ✓ Similar purpose
  - to identify problematic features of questionnaires and questionnaire items
- ✓ Similar approach
  - question-level review
- ✓ Similar structure
  - based on a few, general categories of problems

## Some contrasts with QAS

- ✓ Process is a little different
  - QRCS relies on process of assigning codes to items to document problematic features
- ✓ Specific content is different
  - General problem categories differ a little
  - Specific problem codes differ a little more
- ✓ Nonetheless, there is considerable overlap

Is one system better than the other?

✓ Both can be useful, depending on

- purposes
- preference for detail versus general diagnosis
- your personal style

✓ Experience with QRCS:

- details very helpful in early review – preparation for cognitive interviews
- summaries more useful for characterizing questionnaire in general

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QRCS problem codes:

Five general problem categories

- ✓ Instructions
- ✓ Question comprehension
- ✓ Memory retrieval
- ✓ Judgment
- ✓ Response selection

Instructions	Comprehension	Memory Retrieval	Judgment	Response Selection
<b>Task Instructions</b>	<b>Question Content</b>			<b>Response Terminology</b>
Conflicting instructions	Complex topic	Non-routine summary or breakdown required	Guessing or estimation likely	Critical definition(s) missing
Inaccurate instructions	Under specified topic	Shortage of (memory) cues	Complex acclimation	Vague term(s)
Hidden instructions	Topic carried over	Unanchored time frame	Potentially conflicting	
Complicated instructions	Assumes competent behavior		Social desirability	<b>Response Units</b>
Separate from item	<b>Question Terminology</b>			Responses use wrong units
Nearby but not embedded in item	Critical definition(s) missing			
Instructions provided too late	Add or add to examples			<b>Response Structure</b>
Unclear examples	Ambiguous or vague term(s)			Overlapping categories
Transition needed	Multiple definitions			Missing response categories
<b>Navigation Instructions</b>	<b>Question Structure</b>			
Inaccurate instructions (move to wrong place)	Hidden question			
Confusing convention, flow or typography	Complex syntax			
Complex information	Implicit assumption			
Not collect	Several questions			
	Unclear goal			
	O/A mismatch			
	No question			
	<b>Time Frames</b>			
	Carry-over time frame			
	Undefined time frame			
	Embedded time frame			
	Absent change			
	Problematic length			

## An Example

Does this home have a bathroom, bedroom, and kitchen ALL on the SAME floor or level?

☐ YES

☐ NO

Most example items used here are hypothetical. They have been adapted from combinations of draft survey items to make specific pedagogical points.

## Another Example

Are you planning to contact a community agency in order to receive any (additional) help, assistance or services?

- ☐ YES
- ☐ NO

Most example items used here are hypothetical. They have been adapted from combinations of draft survey items to make specific pedagogical points.

## The Process

- ✓ Select code sheet
- ✓ Record item identifier
- ✓ Review question – Identify and document potential problems
- ✓ Highlight or circle appropriate codes



## A Few Pointers

- ✓ Review question and identify problems before turning to QRCS to select codes
- ✓ Document problems identified and reasons for selecting particular QRCS codes
  - e.g., on review copy of questionnaire or on QRCS form

## Another Example

Some residences have special features to assist persons who have physical impairments or health problems. Whether you use them or not, does your residence have any of these features?

	Yes	No
a. Widened doorways or hallways?	<input type="checkbox"/>	<input type="checkbox"/>
b. Ramps or street level entrances?	<input type="checkbox"/>	<input type="checkbox"/>
c. Accessible parking or drop-off site?	<input type="checkbox"/>	<input type="checkbox"/>
h. Alerting devices?	<input type="checkbox"/>	<input type="checkbox"/>

Most example items used here are hypothetical. They have been adapted from combinations of draft survey items to make specific pedagogical points.

## Examples to Illustrate Codes

If you live in a retirement community, building or complex, please check the services that are provided. Check them even if you do not use them. If you do not live in a retirement community, skip to INSTRUCTION A.

	Not provided	Provided and paid for separately	Provided and included in cost of housing
Maid or cleaning service	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Group meals	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Laundry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Transportation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Most example items used here are hypothetical. They have been adapted from combinations of draft survey items to make specific pedagogical points.

## Examples to Illustrate Codes

How often in the past 3 months has a parent taken you on any kind of outing, such as to the park, grocery store, a church, or a playground? Would you say:

- ☐ less than once a month
- ☐ once a month
- ☐ 2-3 times a month
- ☐ more than once a week but less than 5 times a week
- ☐ more than 5 times a week

**Q by Q information:** Define outings as times when parent took the child respondent on a fun, pleasurable or interesting outing.... Do not include going to the doctor or dentist or traveling to and from school.

Most example items used here are hypothetical. They have been adapted from combinations of draft survey items to make specific pedagogical points.



## Examples to Illustrate Codes

Next let's talk about your own diet. Compared to what is healthy, do you think your diet is too low, too high or about right in calories?

TOO LOW  
TOO HIGH  
ABOUT RIGHT  
DON'T KNOW

Calcium? (IF NEEDED SAY: "Would you say your diet is too low, to high, or about right in that?")

TOO LOW  
TOO HIGH  
ABOUT RIGHT  
DON'T KNOW

IF NEEDED, SAY: "The question is asking about nutrients from foods, not from vitamin pills."

Most example items used here are hypothetical. They have been adapted from combinations of draft survey items to make specific pedagogical points.

## Examples to Illustrate Codes

In the past year how often, if at all, did you take any vitamin or mineral supplement in pill or liquid form? Would you say:

- ☐ every day or almost every day,
- ☐ every so often, or
- ☐ not at all?

Most example items used here are hypothetical. They have been adapted from combinations of draft survey items to make specific pedagogical points.

## Examples to Illustrate Codes

How much does this household usually spend for food per week or per month at restaurants, fast food places, cafeterias, and vending machines?

\$ \_\_\_\_\_

Most example items used here are hypothetical. They have been adapted from combinations of draft survey items to make specific pedagogical points.

Questionnaire Review Coding System (QRCS) for Household Survey Questionnaires

Instructions	Comprehension	Memory Retrieval	Judgment	Response Selection
<b>Task Instructions</b>	<b>Question Content</b>			<b>Response Terminology</b>
Conflicting Instructions Inaccurate Instructions Hidden Instructions Complicated Instructions Separate from item Nearby but not embedded in item Instructions provided too late Unclear examples Transition needed	Complex topic Under specified topic Topic carried over Assumes consistent behavior	Non-routine summary or breakdown required Shortage of (memory) cues Unanchored time frame	Guessing or estimation likely Complex estimation Potentially sensitive Social desirability	Critical definition(s) missing Vague term(s)
	<b>Question Terminology</b>			<b>Response Units</b>
	Critical definition(s) missing Add or add to examples Ambiguous or vague term(s) Multiple definitions			Responses use wrong units
<b>Navigation Instructions</b>	<b>Question Structure</b>			<b>Response Structure</b>
Inaccurate Instructions (move to wrong place) Confusing convention, flow or typographic Complex information Not salient	Hidden question Complex syntax Implicit assumption Several questions Unclear goal Q/A mismatch No question			Overlapping categories Missing response categories
	<b>Time Frame</b>			
	Carry-over time frame Undefined time frame Embedded time frame Abrupt change Problematic length			

# Methods for Questionnaire Appraisal and Expert Review

QDET Short Course

November 14, 2002

Gordon Willis and Barb Forsyth

# Tools: Organizational Questionnaire Review Coding System (O-QRCS)

• Class experiences --  
• organizational surveys

3

## • Reviewing Surveys of • Organizations

- ✓ What differences between household and organizational surveys are likely to affect questionnaire design?

4



## Organization Survey Design

✓ What factors are likely to affect questionnaire design?

- Reporting unit is social structure
- Social dynamics are relatively formal
- Individual respondents are reporting on behalf of entire organization
- Organization memory maintained in records
- Response likely requires coordination and collaboration
- Specialized, technical vocabulary likely to enhance communication

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## O-QRCS problem codes:

### Five general problem categories

- ✓ Instructions
- ✓ Question comprehension
- ✓ Information retrieval
- ✓ Synthesis and Judgment
- ✓ Response selection

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Instructions	Comprehension	Information Retrieval	Synthesis and Judgment	Response Selection
<b>Instruction Content</b>	<b>Question Content</b>	<b>Organization Characteristics</b>	<b>Match: Record and Item</b>	<b>Response Terminology</b>
Conflicting instructions	Complex topic	Distributed knowledge likely (multiple sources)	Mismatch - item and regulatory requirements	Critical definition(s) missing
Inactivate instructions	Under specified topic	Seasonal or periodic trends	Mismatch - item and organizational objectives	Vague term(s)
Hidden instructions	Topic carried over	<b>Source Identification</b>	Variability in record units	Mismatch to technical language
Complicated content	Assumes consistent behavior	Provide assistance to help identify source(s)	Mismatch - item and system time frames	Industry-specific terminology
Complex syntax	<b>Question Terminology</b>	Source may not be accessible (for survey purposes)	<b>Judgment Processes</b>	<b>Response Units</b>
Separate from item	Critical definition(s) missing	<b>Memory Retrieval</b>	Coordination or collaboration	Mismatch - item and organization units
Nearby but not embedded in item	Add or add to examples	Non-writing summary or broken down needed	Guiding or selection likely	Responses use wrong units
Instructions provided too late	Ambiguous or vague terms	Shortage of (memory) cues	<b>Task Characteristics</b>	<b>Response Structure</b>
Under examples	Multiple definitions	Detail problem(s) specifically	Non-routine item frame	Overlapping categories
Unclear layout	Mismatch to technical language	Unanchored time frame	Complex estimation	Missing response categories
Transition needed	Industry-specific terminology	<b>Record Retrieval</b>	Potentially sensitive	
Provide assistance to identify sources	<b>Question Structure</b>	Records unavailable or don't support estimation	Social desirability	
<b>Navigation/Instructions</b>	Hidden question	Record access issues	Proprietary information	
Inactivate instructions (move to wrong place)	Complex syntax	Audacity issues	Biologic factors	
Confusing convention, flow or typography	Implicit assumption			
Complex information	Several questions			
Not edited	Unclear goal			
	QA mismatch			
	No question			
	<b>Time Frame</b>			
	Copy-over item frame			
	Unlinked time frame			
	Embedded time frame			
	abrupt change			
	Problematic length			

## An Example

As a direct result of the assistance you received, have sales been at a different level than they would have been without assistance? If no go to question 3.

☐ YES

☐ NO

Most example items used here are hypothetical. They have been adapted from combinations of draft survey items to make specific pedagogical points.

## Another Example

Are sales higher or lower?

☐ HIGHER

☐ LOWER

Most example items used here are hypothetical. They have been adapted from combinations of draft survey items to make specific pedagogical points.

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## Another Example

How much higher (or lower) have sales been than they would have been if you had not received assistance? (Cumulatively to date)

\$ \_\_\_\_\_

Most example items used here are hypothetical. They have been adapted from combinations of draft survey items to make specific pedagogical points.

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## A Few Pointers

- ✓ Think about who should be involved in appraising organizational survey items
  - methodologists
  - business experts
  - experts in relevant industries and business sectors
- ✓ Think about appraisal process
  - Collaborative? Independent?
- ✓ Think about utility of other pretest methods in combination with appraisal

# Organizational survey Questionnaire Review Coding System (O-QRCS)

Instructions		Comprehension		Information Retrieval		Synthesis and Judgment		Response Selection	
Instruction Content		Question Content		Organization Characteristics		Match, Record and Item		Response Terminology	
Conflicting instructions Inaccurate instructions Hidden instructions Complicated content Complex syntax Separate from item Nearby but not embedded in item Instructions provided too late Unclear examples Unclear layout Transition needed Provide assistance to identify sources	Navigational Instructions  Inaccurate instructions (move to wrong place) Confusing convention, flow or typographic Complex information Not salient	Complex topic		Distributed knowledge likely (multiple sources)		Mismatch – item and regulatory requirements		Critical definition(s) missing	
		Under specified topic		Seasonal or periodic trends		Mismatch – item and organizational objectives		Vague term(s)	
		Topic carried over		Source identification		Variability in record units		Mismatch to technical language	
		Assumes consistent behavior		Provide assistance to help identify source(s)		Mismatch – item and system time frames		Industry-specific terminology	
		Question Terminology		Sources may not be accessible (for survey purposes)		Judgment Processes		Response Units	
		Critical definition(s) missing		Memory Retrieval		Coordination or collaboration		Mismatch – item and organization units	
		Add or add to examples		Non-routine summary or breakdown required		Guessing or estimation likely		Responses use wrong units	
		Ambiguous or vague term(s)		Shortage of (memory) cues		Task Characteristics		Response Structure	
		Multiple definitions		Detail problem/item specificity		Non-routine time frame		Overlapping categories	
		Mismatch to technical language		Unanchored time frame		Complex estimation		Missing response categories	
		Industry-specific terminology				Potentially sensitive			
		Question Structure		Record Retrieval		Social desirability			
		Hidden question		Records unavailable or don't support estimation		Proprietary information			
		Complex syntax		Record access issues		Strategic factors			
		Implicit assumption		Authority issues					
		Several questions							
		Unclear goal							
		Q/A mismatch							
		No question							
		Time Frame							
		Carry-over time frame							
		Undefined time frame							
		Embedded time frame							
		Abrupt change							
		Problematic length							

# Behavior Coding: Tool for Questionnaire Evaluation

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QDET Conference  
Short Course

November 14, 2002

# **Behavior Coding: Tool for Questionnaire Evaluation**

Nancy A. Mathiowetz  
Joint Program in Survey Methodology  
University of Maryland

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## **Short Course Outline**

- What is behavior coding?
- Various behavior coding schemes
- Practical Considerations
- Analysis of behavior coding data
  
- Practice sessions

2



## What is Behavior Coding?

3

## What is behavior coding?

- Standardized means to quantify the interchange between the interviewer and respondent at the question level
- Detailed, *systematic* analysis of verbal behavior: interviewer, respondent, or both

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## Dynamics of Survey Interview

### ■ Step 1

- Asking of precisely worded question by the interviewer
- Or, in self-administered questionnaires, the reading of the question

### ■ Step 2

- Understanding and answering of that question by the respondent

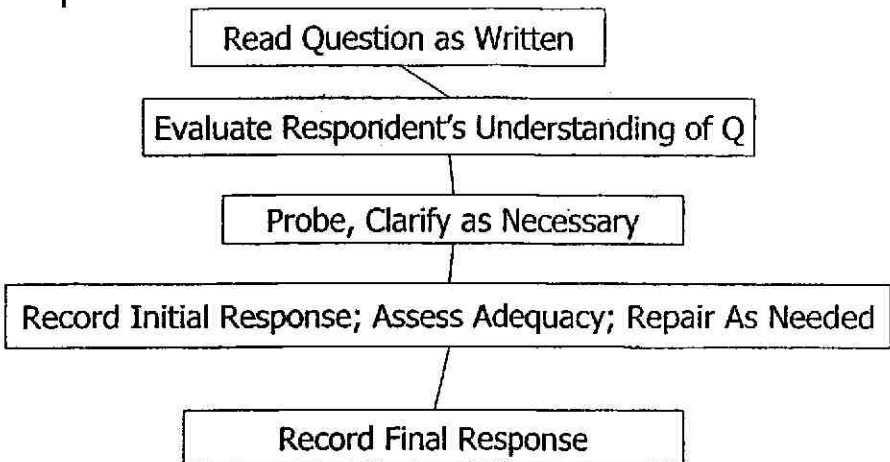
5

## Goal of the question designer

- Write questions that respondent can understand
  - Without additional intervention by interviewer
- Provide response options or permit respondent to report in such a way that corresponds to his/her representation of the information
- Encourage respondent to report accurately

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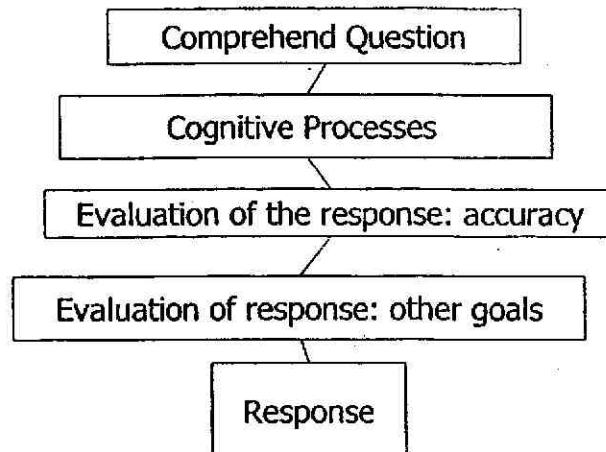
## Model of Interviewer's Task



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## Model of Respondent's Task

(Cannell, Miller, Oksenberg, 1981)



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## Focus of behavior coding

- Although problems can occur at any of the stages of the interviewer's and respondent's tasks, behavior coding (for the purposes of question evaluation) focuses on a subset of these tasks:
  - Interviewer Task: Question Reading, Clarification and Probing
  - Respondent Task: Indications of comprehension problems, inappropriate or missing response options

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## Background

- **Communication Patterns within dyads or groups (1940s and 1950)**
  - Pupil-teacher interactions to identify effective teaching techniques
  - Group interaction: Bale's (1950) *Interaction Process Analysis*
    - Coding scheme (standardized) to permit comparison of interactive patterns across small groups
- **Survey Interviews**
  - To identify sources of error in health surveys
  - Cannell, Fowler, and Marquis (1968) "the major causes of good and poor reporting are probably to be found within the interview itself, particularly in the behavior of the participants"

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## Findings from Behavior Coding Studies....

- Interviewer-Respondent behaviors frequently deviated significantly from the acceptable norms of standardized interviewing
  - First reaction: blame interviewers
  - However, further analysis indicated that the source of the problem was inadequate training and inadequate survey questions
- "The fault sometimes is not in our interviewers but in ourselves."  
(Hyman, 1975)

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## Uses of Behavior Coding

- Monitor, evaluate interviewer performance
  - Deviations from ideal performance
- Further understanding of the survey process
- Evaluation of questions
  - Effects of question form and wording on interviewer and respondent behavior
  - Goal: minimize deviations from ideal behavior through construction of question and response options

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## Matching Coding Scheme to Goals

1. **Monitor, evaluate interviewer performance**
  - Coding focuses on interviewer performance as it relates to training
2. **Further understanding of the survey process**
  - Very detailed coding scheme to fully capture the dynamics of the process
3. **Evaluation of questions**
  - Coding focuses on question problems that can be identified through interviewer or respondent behavior
  - Comprehension, lack of shared understanding of key terms, communication difficulties, cognitive difficulty processing information

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## Evaluation of questions....

- **As a pretesting tool**
  - Testing questions under conditions that replicate the actual survey conditions (field pretest)
  - Marginal cost, given that most survey organizations conduct field pretests
  - Quantitative data
    - Compliments Interviewer, Respondent debriefing
    - Useful for evaluation of split ballot designs
- **As part of data collection**
  - Evaluation of data quality; error profile; supplemental information for imputation, other analysis

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## ....compared to other question evaluation techniques

- Focus groups
  - Vocabulary, concepts, issues related to sensitivity
  - Usually not intended to test specific question wording or cognitive burden
- Cognitive Interviewing
  - Respondent comprehension
  - Performance of respondent task
  - Small, unique conditions
- Field pretest with behavior coding
  - Realistic administration by interviewers
  - Quantitative data
  - Comparison of questions across studies

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## Coding Scheme example

- | ■ Interviewer   | ■ Respondent                                |
|---|---|
| ■ Read question exactly as printed  | ■ Interrupts with answer                    |
| ■ Read question with minor wording change (does not alter meaning)  | ■ Asks for clarification or repeat question |
| ■ Read question with major wording change or incomplete reading of question (question meaning is altered) | ■ Adequate answer                           |
|   | ■ Adequate answer, qualified                |
|   | ■ Inadequate answer                         |
|   | ■ DK  |
|   | ■ Refused to answer                         |

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Example: Oksenberg, Cannell, and Kalton....

- **“How much did you pay, or will you have to pay, out of pocket, for your most recent [doctor] visit? Do not include what insurance has paid for or will pay for. If you don’t know the exact amount, please give me your best estimate.”**
  - Interviewer, major changes in reading: 17%
  - Respondent, Interruption: 23%
  - Respondent, Clarification: 10%
  - Respondent, Inadequate answer or DK: 25%
- Note: N=60

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Example: Oksenberg, Cannell, and Kalton....


- **“When was the last time you had a general physical examination or checkup?”**
- Interviewer read as worded: 97%
- Inadequate answer by R: 87%
  - “When”: no information concerning whether to report date or number or months/years since event, or even age at the time the event occurred
  - No specification with respect to level of precision needed for question

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## Behavior Coding Schemes

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### Major features of coding schemes

- Provides information at a question by question basis
- All schemes focus on quality of question reading; other interviewer behavior to be coded dependent upon goals of study
- Respondent behavior of interest: response adequacy, requests for clarification, interruptions
  - Other behaviors that are indicative of problems with the question

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## Coding Scheme Decisions

- All behaviors or selective behaviors?
  - Tradeoff between richness of data and ease of analysis
  - Most Q evaluation schemes focus on selective behaviors
- Inadequate (“bad”) behaviors or both adequate and inadequate behaviors?
- Occurrence only or sequence of behaviors?

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## Coding Scheme example

- |  |  |
|--|--|
| <ul style="list-style-type: none"><li>■ Interviewer<ul style="list-style-type: none"><li>■ Reads question exactly as printed or reads question with minor wording change (does not alter meaning)</li><li>■ Reads question with major wording change or incomplete reading of question (question meaning is altered)</li></ul></li></ul> | <ul style="list-style-type: none"><li>■ Respondent<ul style="list-style-type: none"><li>■ Interrupts with answer</li><li>■ Asks for clarification or repeat question</li><li>■ Adequate answer</li><li>■ Adequate answer, qualified</li><li>■ Inadequate answer</li><li>■ DK</li><li>■ Refused to answer</li></ul></li></ul> |
|--|--|

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## Interviewer Question Reading

- Exactly as written, minor changes
  - Changes that do not alter the meaning of the question
    - Beginning question with a neutral preface ("Now...", "the next question...")
    - Minor wording changes
    - Casual reference to R materials (e.g. calendar)
- Significant changes
  - Changes the meaning of the question
    - Omitting introductory statement
  - Substantial altering of question wording, even though the change does not obviously change the intent
    - Omitting consecutive words at any point

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## Respondent Behavior

- Interrupts
  - When R interrupts with an answer, regardless of whether answer codeable or not
- Ask for clarification
  - Request Q be repeated
  - Asking for definition
  - Asking I'er for help
- Gives adequate answer
  - Meets the goals of the study
- Adequate answer, qualified
  - Any expression of uncertainty (I guess, I think, around, about, maybe, etc.)
- Inadequate answer
  - Irrelevant to objectives
  - Less specific than required
- DK, Refused to answer

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## Sample coding form

Question Number	Q Read Exactly	Q: Major Changes	Adequate Answer	Qualified Answer	In-adequate Answer	Interrupts	Clarify

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## In addition to standard codes....

- Provide space for coder to record notes
  - Details, nature of the problem
  - Potential solutions
- To the extent possible, capture as much information as feasible, within constraints of time, money, resources

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## More detailed behavior coding schemes: Interviewer behaviors


- Details concerning Q reading
  - Stem vs. response options
  - Omitted vs. added words
  - Pace
- Details concerning Probing by I'er
  - Appropriate use vs. failure to probe
  - Desirable vs. undesirable behavior (e.g., directive vs. nondirective)
- Details concerning other behavior
  - Desirable behavior (helps R understand role, reinforces R behavior)
  - Undesirable behavior (Interrupts R, gives personal opinion)

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## More detailed behavior coding schemes: Respondent behaviors

- Coding of all verbal behaviors
  - Laughter, hesitation
- Coding sequence of behaviors
  - Order in which behaviors occurred rather than simply the occurrence of the behaviors

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## Practical Considerations: Using Behavior Coding

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## Behavior Coding Training

- Who?
  - Q designers, interviewers not involved in data collection, general coding staff
  - Familiar with objectives of survey questions
- What?
  - Introduce codes
  - Group sessions
  - Individual coding, comparison of results

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## Behavior Coding Training: Details


- Description of each code; how to use
- Group demonstration with discussion
- Group coding of short segments; discussion
- Individual coding of interviews
  - Comparison of codes
  - Discussion

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## Behavior coding interviews....


- Live or tape recorded?
  - Advantages of taping
- Entire interviews or segments?
- Measurement of consistency among coders
  - Beginning: establish norms
  - Throughout study: avoid outliers (both coders or particular codes)
  - Each coder codes the same interview; kappa statistic (see Appendix B)
- Sample size?
  - Relevant population groups for which separate analysis may be desirable
  - As part of field pretest: 50 to several hundred cases
- Paper or computer?
- Telephone or face to face?

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## Analysis of Behavior Coding Data

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## What does Behavior Coding tell you?

- If interviewer misreads question.....
  - Complicated sentence structure, awkward, difficult to pronounce
  - Answerable question is followed by further explanation
  - Question requires I'er to select from alternative wording
  - Question contains elements repeated from earlier question

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## Example

- **During those two weeks, how many times did (Person) see or talk to a medical doctor? Include all types of doctors such as dermatologists, general practitioners, and osteopaths. (Do not count times while an overnight patient in the hospital).**
  - N=12
  - Significant changes in reading of question: 100%
  - Diagnosis: Omitting, including parenthetical phrase
- What else is wrong with this question?

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## What does Behavior Coding tell you?

- If respondent requests clarification.....
  - Respondent cannot translate their own experience into response options provided in the question
  - Confusing, vague or unnatural language leaves respondents unsure of the meaning of the question
  - Concept is ambiguous

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## Example

- Next are a few questions about use of alcoholic beverages. About how old were you the very first time you had an alcoholic beverage?
  - N=24
  - Request for clarification: 30%
  - What is an alcoholic beverage? Does this include wine or beer?
  - Should a sip of a parent's drink be counted?

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## What does Behavior Coding tell you?

- If the respondent interrupts.....
  - Answerable question before interviewer finishes questions
  - Defining material follows question
  - Assumptions about response categories
    - Similar to previous questions

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## Example

- Some people have expenses that they can itemize and deduct on their income tax. Did you and your husband itemize deductions on your 2001 federal income tax, such as property taxes, interest payments, medical expenses, and charitable contributions?
  - N=65
  - Interruptions: 40%
  - Answered “no” at the end of the first sentence or before examples.

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## What does Behavior Coding tell you?

- Respondent gives inadequate or DK response.....
  - Information that is difficult to recall
    - Low salience, long reference period, never knew information
  - Level of detail requested is difficult to recall
  - Response categories unclear
  - No appropriate response category for R

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## Example

- **When was the last time you had a general physical examination or check up?**
  - N=60
  - Qualified answer: 25%
  - Inadequate response: 90%
    - Remember: all respondent behaviors are coded; percentages do not need to add to 100%
  - Asked open ended; wanted dates, responses were in the form of number of weeks/months, or calendar year

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## Common question problems identified by behavior coding

- Misread question
  - Awkward wording
  - Superfluous introduction
  - Dangling clauses
  - Missing explanation of response task
- Inadequate response
  - Q meaning unclear
  - Unclear response task
  - Response task does not fit retrieved information
  - Task too difficult
    - Effort to recall
    - Too much detail
- Clarification
  - Unclear terms or response task
  - Poor question order
- Interrupts
  - Answerable question before question is finalized
  - R doesn't realize response options will be given

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## Analysis judgments

- What level of “bad” behavior is considered unacceptable?
  - Goals of the study
  - Most analysts use 10%-20% or more as an indication that the question/response options should be examined

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## Practice Session

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## In conclusion.....

- Behavior coding: focus on the source of the data we collect, the behavior and interaction between the interviewer and the respondent
- Still much to learn, both for the evaluation of questions in the pretesting stage of design and to inform data users concerning the relationship between interviewer and respondent behavior and the quality of survey data

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○귀국 : 찰스턴 → 델라스 → 샌프란시스코 → 서울(인천공항)



<현지 관련 사진>

애틀란타(CNN 센터)



찰스턴(회의장1)



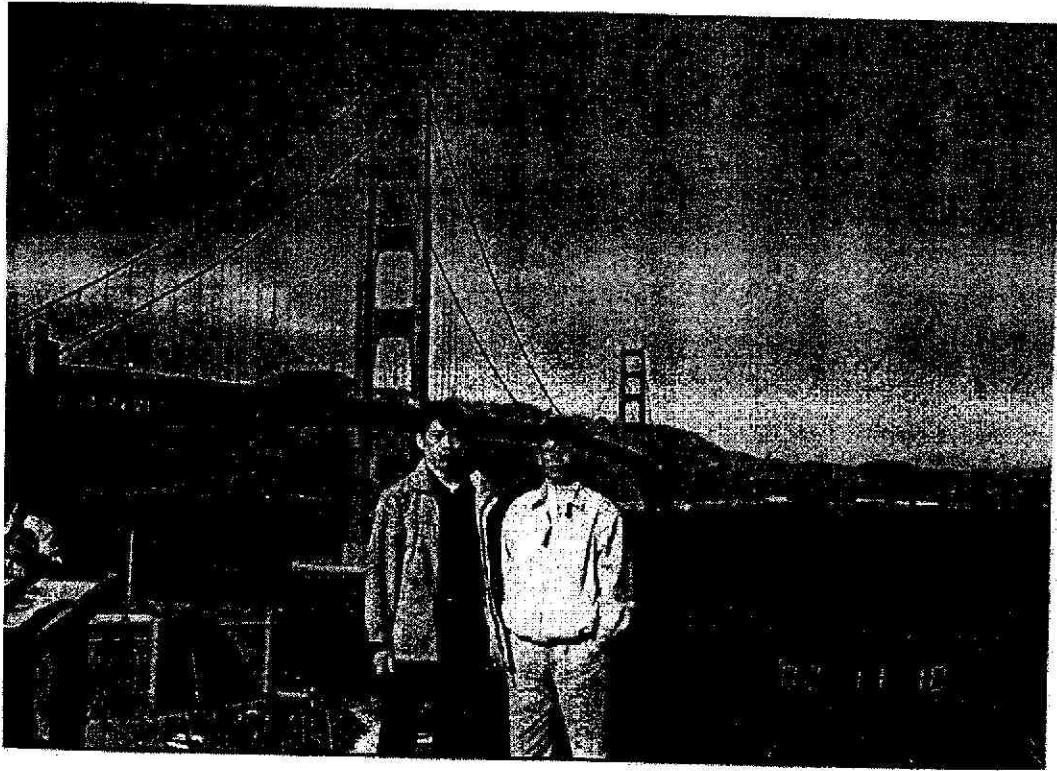
찰스턴(전통 건물)



찰스턴(회의장2)



샌프란시스코(금문교)



찰스턴

