

**QUALITY OF NEWSPAPER REPORTING
ON POLITICAL POLLS: A NEW APPROACH**

Wolfgang Wichmann

**Submitted to the faculty of the University Graduate School
in partial fulfillment of the requirements
for the degree
Master of Arts
in the School of Journalism,
Indiana University
October 2007**

Accepted by the Graduate Faculty, Indiana University, in partial fulfilment of the requirements for the degree of Master of Arts in the School of Journalism.

Master's Thesis Committee:

_____ David H. Weaver, Ph.D.
Chairperson

_____ Amy Reynolds, Ph.D.

_____ Bradley J. Hamm, Ph.D.

© 2007
Wolfgang Wichmann
ALL RIGHTS RESERVED

Acknowledgments

This study would have not been possible without the outstanding personal effort of many people. As one might expect, most of those who supported my ideas and interests work in the area of mass media research.

But without the personal and emotional support of my family, especially my mother, her partner, and my girlfriend, this study would have not been realized while I was studying in the United States in 2006-2007.

Among all scholars and experts who supported me as a student in mass media research, David H. Weaver (Ph.D.) at Indiana University, Frank Brettschneider (Ph.D.) at the University of Hohenheim (Germany), and Annie Lang (Ph.D.) at Indiana University, have been crucial and irreplaceable for this project.

David H. Weaver was the reason I came to the United States to pursue a master's degree at the Indiana University School of Journalism in Bloomington. I am more than thankful for his personal support, his willingness to share his great experience, as well as his inspiring personality.

Frank Brettschneider helped to focus my broad interests in mass media research, to keep my eyes open for further opportunities, and paved the way into the German National Academic Foundation, which paid an important share of my costs at Indiana University.

Annie Lang spent a significant amount of time to support my project and helped to work myself through the complexities of the limited capacity model, the characteristics of a well-performed experiment, and the analysis of data using SPSS.

In addition, I would like to thank Amy Reynolds (Ph.D.) and Glenda Ketcham for all their efforts to get myself accepted as a master's degree student at IU. I would like to thank Bradley J. Hamm (Ph.D.) for his support of international students at the IU School of Journalism.

I would like to thank my fellow students and friends, especially William C. Gillis, Tyra X. Robertson, and Dennis J. Michalak, for their time and efforts to support this project, and even more, to make me feel home in Bloomington, Indiana.

Finally, I would like to thank all fellow graduate students who (un-) willingly participated in the pre-tests for this study, and all other students and recipients who were willing to participate in this project.

Wolfgang Wichmann
Quality of Newspaper Reporting on Political Polls:
A New Approach

A variety of studies have drawn a fairly clear picture of what journalists do with poll results. This study was undertaken to finally answer the question: What do readers do with poll results? Mainly, this study was designed to investigate the implications of technical details about polls in newspaper poll reports, according to well-accepted guidelines, such as the standards of minimal disclosure of the American Association for Public Opinion research (AAPOR).

The study has two parts: First, using the limited capacity model pioneered by Annie Lang, an experiment was done to research the memorization of information in newspaper poll reports. Second, the recipients were asked to rate poll reports on a series of self-evaluative measures, and to provide personal comments on their perception of the given poll reports.

The results support the hypothesis that the number of AAPOR criteria in newspaper poll reports correlates significantly with the amount of information that is remembered by the readers. Information in poll reports with all eight AAPOR criteria was encoded and stored less successfully than information in poll reports with fewer technical details. Contrary to the prediction, information in poll reports with a medium level of criteria was memorized best.

As expected, information in poll reports was remembered significantly better by recipients who show heightened interest and knowledge in politics and polls, study poll-related majors, are older, have a higher class standing, have voted in the most recent election, and are experienced in the consumption of print or online news.

Part 2 of this study provides answers to the question: How do readers evaluate reliability, difficulty, credibility and informativeness of pre-election poll reports? Apparently, readers of poll reports do interpret technical details about polls. However, the results of this study suggest that the average reader is skeptical toward certain technical details, such as the methodology of telephone surveys. Thus, articles with a high number of technical details were rated significantly less reliable than poll reports with only few technical details about pre-election polls.

Table of Contents

<u>1. Introduction.....</u>	<u>1</u>
<u>2. Related Studies.....</u>	<u>5</u>
2.1 Political Polls and Poll Reporting.....	5
2.2 Quality in Survey Research and Poll Reports.....	6
2.3 Public Opinion Poll Disclosure Standards in the Literature.....	9
<u>3. Underlying Theory.....</u>	<u>12</u>
3.1 Limited Capacity Model of Mediated Messages Processing.....	12
3.2 Limited Capacity Model and Print News.....	12
3.3 Limited Capacity Model and Poll Reporting.....	15
<u>4. Hypotheses/ Research Questions.....</u>	<u>20</u>
4.1 Part A: Limited Capacity Model.....	20
4.2 Part B: Evaluative Self-Report Measures.....	23
<u>5. Methodology.....</u>	<u>24</u>
5.1 Recipients.....	24
5.2 General Procedure.....	24
5.3 Part A: Limited Capacity Model.....	27
5.3.1 Experimental Design.....	27
5.3.2 Stimulus Material.....	28
5.3.3 Independent and Dependent Variables.....	29
5.4 Part B: Evaluative Self-Report Measures.....	31
<u>6. Results.....</u>	<u>34</u>
6.1 Part A: Limited Capacity Model.....	34
6.1.1 Hypothesis 1.....	34
6.1.2 Hypothesis 2.....	35
6.1.3 Hypothesis 3.....	37
6.1.4 Hypothesis 4.....	38
6.1.5 Hypothesis 5.....	39

6.1.6 Hypothesis 6.....	41
6.1.7 Research Question 1.....	42
6.1.8 Research Question 2.....	48
6.2 Part B: Evaluative Self-Report Measures.....	50
6.2.1 Research Question 3.....	50
6.2.2 Reliability.....	53
6.2.3 Difficulty.....	58
6.2.4 Credibility.	61
6.2.5 Informativeness.....	64
7. Discussion.....	67
7.1 Part A: Limited Capacity Model.....	67
7.2 Part B: Evaluative Self-Report Measures.....	70
7.3 Methodology.....	73
8. Conclusion.....	76
9. References.....	79
10. Appendix.....	83
10.1 Pre-test Questionnaire.....	83
10.2 Sample Articles.....	85
10.2.1 Article Version A1.....	85
10.2.2 Article Version B1.....	87
10.3 Sample Cued Recall Questionnaire.....	89
10.4 Sample Recognition Questionnaires.....	91
10.4.1 Questionnaire Version A1.....	91
10.4.2 Questionnaire Version B1.....	95
10.5 Sample Post-test Questionnaires.....	99
10.5.1 Questionnaire Version A Ohio.....	99
10.5.2 Questionnaire Version B Ohio.....	101
10.6 Summary of Figures.....	103
Vita Page.....	111

Index of Figures

Figure 1: page 35

Recognition and Time ($p < .039$) - Low and Medium AAPOR vs. High AAPOR

Figure 2: page 36

Recognition and Time ($p < .979$) - Low AAPOR vs. Medium AAPOR

Figure 3: page 38

Cued Recall and Time ($p < .000$) - Low & Medium AAPOR vs. High AAPOR

Figure 4: page 39

Cued Recall and Time ($p < .227$) - Low AAPOR vs. Medium AAPOR

Figure 5: page 40

Recognition and Interest/ Knowledge in Politics and Polls

Figure 6: page 41

Cued Recall and Interest/ Knowledge in Politics and Polls

Figure 7: page 43

Interaction of Major with Recognition and Cued Recall

Figure 8: page 44

Interaction of Age with Recognition and Cued Recall

Figure 9: page 47

Interaction of News Consumption (Print) with Recognition and Cued Recall

Figure 10: page 48

Interaction of News Consumption (Online) with Recognition and Cued Recall

Figure 11: page 49

Recognition and Time for Pre-Election Poll Reports (N=179)

Figure 12: page 50

Cued Recall and Time for Pre-Election Poll Reports (N=179)

Figure 13: page 52

Means of Evaluative Self-Report Measures

Figure 14: page 57

Evaluation of Reliability (Part A) Less AAPOR criteria increase Reliability

Figure 15: page 57

Evaluation of Reliability (Part B) More AAPOR criteria reduce Reliability

Figure 16: page 61

Evaluation of Difficulty, Comments on Survey Details/ Statistics

Figure 17: page 64

Evaluation of Credibility, Relevant Aspects despite Statistics

Chapter 1

Introduction

Public opinion polls are a standard feature of American newspapers. Poll results are considered newsworthy information and are therefore featured prominently in the media: “The press is full of polls” (Paletz et al. 1980: 502). As earlier studies determined, political polls are used by some voters to make a voting decision (Blais et al. 2006). Poll results as additional sources of information are important, especially for strategic voters (Brettschneider 2003).

When poll results are published, there is often a discussion about the quality of survey results and the quality of their presentation in the media. Researchers have provided a variety of views on these objectives in the last thirty years (e.g. Yankelovich 1996, Noelle-Neumann 1997).

Most researchers have focused on published poll results when analyzing the quality of political poll reporting. By using the results of content analyses, scholars have described structural and formal aspects of political poll results (Paletz et al. 1980, Miller & Hurd 1982, Anderson 2000, etc.). To analyze articles for their formal quality, the so-called standards for minimal disclosure by the American Association of Public Opinion Research (AAPOR) have become widely prominent. These guidelines were issued by the AAPOR in 1969 to advise journalists on what technical information to include in poll reports. Due to its simplicity, researchers in several countries were attracted by the philosophy: the more, the better. As experienced journalists, Meyer and Jurgensen (1991) opposed this total-conformity model:

Putting too much in the readers' hands can create a noisy clutter that reduces the amount that reaches their heads. And that is the basic flaw of the 100 percent or more-is-better model (Meyer & Jurgensen 1991: 5).

In 1994, Edward J. Lordan showed with an experiment that methodological details did not help readers to evaluate statistics-based stories (Lordan 1994). However, the dispute for and against the total conformity model has remained unresolved.

This study takes a new approach to give more clarity to this discussion. The author believes that the quality of political poll reporting should not be measured only by the amount of information provided to the readers. Such a measure explains only one side of the problem. Instead, quality of poll reporting should also include an analysis of how the given information is actually processed and perceived by the readers.

The following questions are addressed in this study and should be kept in mind while analyzing the quality of political poll reporting: How do readers of political poll reports cognitively process the given information? How does the amount of technical information in poll reports influence the reader's capacity to understand and memorize the content? Does the amount of technical information have an impact on the perceived credibility or reliability of the poll results? Does the amount of technical information in a political poll report have an impact on the level of informativeness to the reader?

Until today, a variety of studies have drawn a fairly clear picture of what journalists do with poll results (Paletz et al. 1980, Miller & Hurd 1982, Salwen 1985, Brettschneider 1996, Anderson 2000, etc.). This study is designed to finally answer the question: What do readers do with poll results?

By using an experimental design, two aspects are analyzed from a reader's perspective:

1. The limited capacity model of mediated messages processing by Lang (2000) is applied to printed news in order to analyze how poll reports are cognitively processed and memorized by the readers.
2. By using self-evaluating measures on poll reports, the articles are rated on reliability, credibility, difficulty and informativeness by the readers.

Explanations about how readers process printed information about political polls would be of great benefit to journalists as well as to mass communication researchers.

Scholars in several fields have linked political poll results with voter turnout and voting decisions. Thus, the "Foundation for Information"¹ monitors the related research (Donsbach 2001) and the worldwide development in banning political poll reports in the days leading up to an election day (Spangenberg 2003). The impact of political poll results has also been discussed in terms of a democratic society: whether a modern constitutional democracy should provide

¹ The Foundation for Information is an independent organization registered in Amsterdam, Netherlands. It was formed in 1996 by the European Society for Opinion and Marketing Research (ESOMAR). The Foundation for Information operates on a world-wide scale. It takes action to protect the rights of individuals and commercial enterprises to obtain and make use of information without any unfair or unnecessary restrictions.

all information possible to its citizens, or if the publication of poll results should be regulated (e.g. Donsbach 2001, Wheeler 1976).

The AAPOR standards for disclosure of technical information or at least similar criteria are still present in the education of journalists. Although it never became mandatory to include all eight criteria, the results of this study can be beneficial to the education of political poll reporters. The importance of this study for active journalists becomes even clearer when reminded of an attempt in the United States of America in 1972 to pass a law that would have regulated the amount of technical information in reports about political polls (H.R. 5003, 93rd American Congress; 1973).

Until today, research did not give an answer to the question of whether technical information in poll reports gives benefit or causes distraction to the readers. Additionally, this study offers insight in how readers process written news in general, according to the limited capacity model of information processing by Lang (2000). This can lead to interesting results for journalists and to further research among mass communication researchers.

Chapter 2

Related Studies

2.1 Political Polls and Poll Reporting

There are several reasons why polls have achieved a high reputation among journalists. Polls show in “hard” numbers what the majority of people thinks, and polls benefit from their serious scientific charm; they are hard to criticize since they show a momentary snapshot of the public opinion that could be different the next day. If the results are open for criticism, the pollsters are the ones to blame, not the journalists. As Paletz and colleagues stated earlier:

Polls are newsworthy: they are topical, relate directly to issues in the news, are up-to-the-moment. [...] Polls are newsworthy, because they measure public opinion – the vital views of the people which deserve attention in a democracy (Paletz 1980: 496).

Accordingly, political poll reporting has increased over the last years. Journalists have accepted poll results as newsworthy information. They also perform their role as a “facilitator of public opinion,” according to Jürgen Habermas’s model of public sphere and the idea of a marketplace (Salmon & Glasser 1995: 452).

In addition to the publication of poll results by well known and highly accredited companies like Gallup and Harris, some media companies started to conduct their own surveys (syndicated polls), to get survey results just in time for reporting. Critics have raised their voice and made clear how easily poll results can be altered. Since media companies added their surveys to the results of the

accepted poll companies, the number of conducted and published surveys in the U.S. increased significantly, or as Salmon and Glasser put it:

[The] publication of the results of public opinion polls are rivaled only by publication of the Dow Jones Industrial Average and the Consumer Price Index (Salmon & Glasser 1995: 443).

With a higher number of political poll results available, the perception of poll results by the public increases. The best available data to describe that effect is probably for Germany. Brettschneider (2003) states that in the 1950s, only 17 percent of the Germans said that they had seen political poll results in the media; since the 1980s the number lingers at about two-thirds and three-fourths of the population.

2.2 Quality in Survey Research and Poll Reports

Since political poll results are important news and published in a wide variety of media, the quality of survey research and the reporting of survey results have been discussed repeatedly. Scholars and journalists agree that the quality of poll reports depends on both the quality of survey research and the quality of reporting the results.

Probably the most famous critique of survey research was by Daniel Yankelovich, when he received the Helen Dinerman Award from the World Association of Public Opinion Research (WAPOR) in 1995. He stated that many surveys published in the U.S. would no longer set the stage for a genuine dialogue between leaders and citizens. Instead, poll findings would often mislead policy makers.

As a keynote speaker at a WAPOR seminar in 1996, the highly respected German scholar Elisabeth Noelle-Neumann asked for an improvement of survey research and the implementation of quality standards:

Only if we succeed in finding an explanation for the indifference towards quality criteria in survey research, that we will be in a position to change the situation, to do something to ensure the future of our field (Noelle-Neumann 1997: 30).

Noelle-Neumann offered quality criteria in an intellectual sense and stated them as “validity of survey findings” (1) and “potential for discovery” (2). Noelle-Neumann pointed out that “furnishing proof of the validity of the findings and searching for new ways to verify their validity are hardly of any importance in our field” (Noelle-Neumann 1997: 30).

To analyze and possibly measure the quality of poll reporting has been one of the countless nuts to crack for mass media researchers. In his famous speech in 1995, Yankelovich addressed this complex issue. He reminded the audience that while talking about the quality of public opinion poll reports, one has to keep in mind that the quality of these articles widely depends on the information provided by the polling institutes. He described one key issue of poll reporting:

Media companies provide only “snapshots of public opinion” (Yankelovich 1996: 2) and then use the scientific sounding term “margin of error” to tell the public that their poll findings were true within a range of plus or minus 3 percent. According to Yankelovich, that might sound impressive but the results are not always that clear. Therefore Yankelovich pointed out the journalists’ responsibility to have an eye on whether the “public opinion on important policy

issues was firmly and thoughtfully held or volatile and likely to change from one form of question wording to another” (Yankelovich 1996: 6).

For the analysis of the quality of poll reporting, scholars have mainly focused on content analysis. Some of them presented their findings of a quantitative analysis along with a qualitative analysis (e.g. Andersen 2000). Others (earlier studies) presented figures and statistics without an additional interpretation of the content (e.g. Rollberg et al. 1990).

Some journalists and scholars have taken the presence or absence of technical information about polls as an indicator of quality of poll reports. The need for such indicators in mass media research is indisputable. As Noelle-Neumann stated in 1997: “It is primarily indicators that are needed—indicators of quality that can be recognized by non-experts” (Noelle-Neumann 1997: 30).

Technical information on political polls can provide additional benefit to experienced and interested readers. On the one hand it seems to make a story about politics more informative and more precise. It can therefore be treated as an indicator of quality.

But on the other hand, technical information might distract inexperienced readers from the real information of a poll story. In that case, the “non-experts” would not describe technical information as in indicator of quality.

There is a third possibility that needs to be taken into account: if “non-experts” do not understand technical information in poll reports but on the other hand do not get distracted by that information, it can still have an impact on the credibility and reliability of the presented poll results. In that case, it can again be

treated as an indicator of quality of political poll results. To find out about this, the readers need to be involved in the decision of how the quality of poll reports should be analyzed.

2.3 Public Opinion Poll Disclosure Standards in the Literature

After the publication of Philip Meyer's books on precision journalism, several researchers asked for higher standards in poll reporting. After AAPOR published its standards of minimal disclosure in 1969, other organizations followed. Today there is a variety of disclosure standards available in the U.S. Guidelines were developed and published by the American Association of Public Opinion Research (AAPOR), the National Council on Public Polls (NCPP) and Michigan Congressman Lucien Nedzi for the "Truth-in-Polling" bill (H.R. 5003). Michael Wheeler (1976) provided a similar list of items a reader should question while reading a poll report. Taken the great amount of studies on technical information, the following number of eight items was generally applied while talking about the standards of minimal disclosure for poll reports by the AAPOR:

1. Sample size
2. Firm that commissioned the poll
3. The exact wording of the voting intention question
4. The margin of error
5. Definition of population for which the survey is representative
6. Method used in the survey
7. Time of fieldwork
8. Name of responsible poll institute

A good reason to do this study was provided by Jeanne Norton Rollberg and her colleagues on the one side and Philip Meyer and Karen Jurgensen on the other side. Whereas Rollberg et al. argued in 1990 that a high amount of AAPOR

criteria would improve the quality of poll reports, Meyer and Jurgensen argued in 1991 for the opposite and that it might in fact decrease the quality of poll reports.

Rollberg et al. used the disclosure standards given by the American Association of Public Opinion Research (AAPOR) for reporting methodological details of polls (1969) to analyze quality of poll reports. Their philosophy for reporting methodological details of polls was as easy as: the more, the better.

This model has been applied since by a variety of scholars not only in the U.S. For the analysis of formal quality of poll reporting, the number of AAPOR criteria has been used by Andersen (2000) in Canada, Brettschneider (2000) in Germany, Hardmeier (1999) in Switzerland, Weimann (1990) in Israel, Suhonen (2001) in Finland, and Weaver & Kim (2002) in the US. Meyer and Jurgensen eventually opposed the total-conformity model:

Putting too much in the readers' hands can create a noisy clutter that reduces the amount that reaches their heads. And that is the basic flaw of the 100 percent or more-is-better model (Meyer & Jurgensen 1991: 5).

The demerit that technical information might distract the readers from the most important aspects was sometimes mentioned, but with the exception of Lordan in 1993, nobody acted on it. Too many different aspects seemed to be involved. It seems self-explanatory that the quality of poll reporting does not only depend on the amount of presented methodological information. A qualitative aspect about how results are interpreted, fitted into a story, and used to explain a certain situation is important just as well.

But it is at least as important to know whether the methodological information ever makes it to the readers' heads, even though it was placed in

their hands in the form of a news article. It is also important to know whether technical information is not understood by the readers or if it hinders them to understand the other relevant information presented in the poll report.

In 1993 Lordan tested the memorization of technical information in poll reports. It seems likely that Lordan used unaided recall for testing the memorized technical information.² He found out that all technical information was memorized on a very low level. He found no statistical difference between readers who had read a story with all eight AAPOR criteria either included in the text or presented in a sidebar. He also found no statistical difference between readers who had read a story either including definitions of technical terms or not. His final conclusion states:

The findings of the study do not support the idea that the inclusion of methodological details assists readers in understanding statistically oriented newspaper stories. Respondents recalled an average of two of the eight details, and even when they did recall this information, had trouble understanding what it meant (Lordan 1993: 18).

² In his study “Do methodological details help readers evaluate statistic-based stories?” of 1993, Lordan does not state how the memorization of technical information was tested. After an E-mail inquiry, Lordan replied that to his knowledge the memorization was measured by using unaided recall.

Chapter 3

Underlying Theory

3.1 Limited Capacity Model of Mediated Messages Processing

This study treats the reader's benefit as an important quality measure for poll reports. The focus on the recipient is a relevant aspect of Lang's research on how mediated messages are processed. According to the limited capacity model of mediated messages processing (Lang 2000) the recipient is seen as an information processor. The basic understanding states that a person's capacity for information processing is limited.

Receiving a message of the media is described as a complex cognitive task. In the limited capacity model, information processing is seen as a combination of several subprocesses that are performed at the same time. Some of them are controlled, others happen automatically. Recipients have to encode, process, and store the given information at the same time. Since the processing capability is limited, the recipients of mediated messages make important choices:

Because it is not possible for media users to encode and store all the information in the message, the viewer continuously (on a conscious or subconscious level) selects which information in the message to encode, process, and store (Lang et al. 2002: 216).

3.2 Limited Capacity Model and Print News

To my knowledge, the limited capacity model of information processing has not yet been applied to printed news. Only Gibbons et al. (2005) applied the model to investigate the believability of headlines in tabloids over time. Following

Lang, the model can be applied to printed messages if certain aspects are considered:

- a) What aspects of the structure of the communication situation or medium will engage the automatic resource allocation system?
- b) What aspects of the content of the communication situation or medium will engage the automatic resource allocation system?
- c) What demands does the medium or content place on cognitive load?
- d) What aspects of the situation or medium will engage the controlled allocation process (Lang, 2000: 63)?

Since the limited capacity model is applied to printed news for the first time, the following information is provided for a better understanding.

The most important differences between mediated content (like TV and radio) and newspaper content were described earlier by Miyo (1983). Printed content is only one stream of information (visual) for which pace is generally controlled by the reader. Newspaper content can be reread most of the time, until the reader finally understands. That obviously led to a different presentation of news in newspapers, compared to the presentation of news in the broadcast media.

As Miyo explains, TV news is presented in a more entertaining way and requires less education to understand and process the presented information. In contrast, newspapers present news most of the time more serious and on several sublevels and therefore require more knowledge and a higher interest of the recipients. Thus, if one wants to apply the limited capacity model to printed news, it is important to control 'time' and 'reading-pace,' at least to a feasible degree.

An interesting aspect is implied in the "self-imposed information ceiling" concept by Ettema and Kline (1977). Since mediated news are mostly presented

on a less detailed level, the consumers (both groups, less and better educated) of mediated news are more likely to gain the same amount of knowledge over time. But newspaper readers are able to gain detailed knowledge of newspaper articles, according to their interest, prior education, and knowledge. Ettema and Kline argue that some newspaper readers actually gain more information from written news than others.

As Tichenor and his colleagues described in 1970 that results in a “knowledge-gap” (Tichenor et al. 1970). They argued that people who know more about a certain issue, learn easier about related topics than persons who do not have any related memories yet.³ This leads to the conclusion that newspaper content is not processed and memorized equally by every reader.

According to Tichenor et al. and the “knowledge-gap hypothesis,” the amount of information processed by an individual recipient depends on the amount of education received. Readers with a better education status are generally more likely to gain knowledge than readers with less education history and skills.

Thus, complex information about political polls might rather be processed and memorized differently, according to the individual knowledge and interest in politics of the readers.

Referring to the “level of processing framework” by Craik & Lockhart (1972) and Miyo (1983), complex content requires on the other hand more semantic and cognitive analysis. If this additional semantic and cognitive work is done by the reader, the information will be processed at a deeper level of the cognitive structure and will therefore be remembered better by recipients. Non-complex

³ For further information please see “knowledge-gap” in Tichenor et al., 1970.

information is generally not processed as deeply and is therefore more likely to be forgotten by the reader.

3.3 Limited Capacity Model and Poll Reporting

As stated earlier, poll reports are newsworthy information to journalists and are therefore prominently presented in the newspapers. But dealing with political poll results is difficult. The results of polls depend on several aspects of professional polling. Eight important aspects are summarized in the AAPOR disclosure standards. They are labeled with statistic-related terms like “margin of error” and “sample size,” which do not seem likely to be familiar to the general readership.

To explain these terms seems even more difficult, since that requires interest in sociological research methods. Applying Lang’s limited capacity model, more technical information about polls could eventually overload the reader’s capacity of information processing. A high number of technical information about polls could in fact reduce the reader’s benefit from a poll report. It could lead to less understanding and memorization of the published information.

To understand how printed information is processed according to the limited capacity model, the three subprocesses ‘encoding,’ ‘storage’ and ‘retrieval of information’ (compare Lang 2002: 216) have to be applied to the specific characteristics of printed information.

Encoding: To analyze the encoding process, it is important to find out what content or structural elements of printed news lead to a transformation of information into the working memory. One pre-condition for encoding are orienting responses (ORs). Novel and signal stimuli lead to orientation response and therefore to encoding of information (Lang 2000: 52 and Lang et al. 2002: 218). Orienting responses lead to changes of body functions that can be measured (physiological measures), such as slower heart-beat rate, increased skin-conductivity, and alpha-blocking in the EEG (Lang 2000: 55).

According to Lang's model, several aspects of content and structure elicit orienting responses. ORs cause automatic allocation of resources to encode the received information. As long as resources are available, the reader transforms the type of information that caused an orienting response into the working memory. Information that is related to the specific interest of a reader (e.g. one is looking for an article about his favorite candidate in an election campaign), also leads to an increased and controlled allocation of resources to encode that type of information.⁴

The allocation of processing resources is difficult to measure. As Lang suggests, resource allocation can be measured by presenting a second task (e.g. push a button according to a certain signal, like flashing light) while processing another stimulus (reading newspaper content). Lang states, "Variation in resource allocation can be successfully measured using the secondary task reaction time" (Lang 2000: 56).

⁴ Several words are used to describe the same subprocesses of the encoding process. They are called automatic (uncontrolled) and intentional (controlled or voluntary) allocation of resources.

In this study, poll articles are considered novel stimuli, since they generally present new information in a current environment. People who are interested in politics might even wait for the latest available results to update their knowledge about certain candidates or issues, especially during election periods. If we consider our test articles prominently presented (e.g. front-page articles) with above-average headline size, the structural information can be considered novel, too. If a dramatic headline-wording is used to present the survey results prominently, then the content can be considered novel, as well. Depending on the personal interests of the reader (relevance), the articles in this study might be considered signal-stimuli. That depends on the individual recipient.⁵

Encoding is measured with a recognition-test that is explained in further detail in the methodology section.

Storage: To analyze the storage process, both automatic and controlled processes have to be taken into account. Compared to mediated news, it can be expected that the encoding and storage processes do not limit each other to the same extent for printed news.

The amount of resources that are generally allocated to the storage process depends mainly on the reader's needs and goals. Readers who are interested in politics are expected to allocate more resources to the content. These readers are more likely to connect the new stored information with earlier stored memories.

⁵ Further information on the significance of orienting response can be found in the studies of Lang 1990, Lang et al. 1993, and Thorson & Lang 1992.

They should therefore be more likely to remember the information of the story. Readers who are interested in other topics might just store enough information to follow the basic information of the story.

For this study recipients expected to be tested on the presented news and have likely allocated more resources to the encoding and storage processes. Their goal might have been to memorize as much of the content as possible. According to Lang's application of the capacity-model to television news, the recipients are more likely to encounter a situation in which information processing resources limit the amount of encoded and stored information.

Even though these "alerted" recipients store (and encode) the content on a deeper cognitive level, the limited capacity for processing information will lead to a limited allocation of resources to the storage (and encoding) processes.

The storage process is measured with a cued-recall test that is explained in further detail in the methodology section.

Retrieval: To analyze the retrieval process, it should be divided in later retrieval and concurrent retrieval, according to Lang (Lang 2000: 54). Later retrieval of information depends strongly on the earlier subprocesses of encoding and storage. If information was not encoded and stored before, it cannot be retrieved at a later point of time.

While reading an article, concurrent retrieval is necessary to associate new information with earlier memorized information. High demand of cognitive resources for concurrent retrieval leads to less resources for encoding and storing of information. According to Lang, readers with expertise in the field, on which

the article focuses, need fewer resources for concurrent retrieval. Their memorized information is better connected and easier accessible.

If the reader is unfamiliar with the information in the article, more resources are needed for the concurring retrieval process. Thus fewer resources are available for encoding and storage.

The success of encoding, storage and retrieval can be measured by analyzing the memorized information. In Lang's work, memory is conceptualized as having varying degrees (Lang 2000). Recognition is presented as a control variable for encoding. Cued recall is presented as a measure for how thoroughly the information was stored. Free recall is a measure for the retrieval process.

Chapter 4

Hypotheses/ Research Questions

4.1 Part A: Limited Capacity Model

According to Lang, the reader (a), the medium (b), and the content (c) influence how messages are processed by the reader. Regarding the story's content, there are two relevant aspects in addition to emotion (Lang 2000: 54) that influence the processing of information of printed news. Relevance (1) and difficulty (2) lead to controlled allocation of processing resources (Lang et al. 2002: 217).

Since the recipients were explicitly told that they were going to be questioned about the content of the news article, controlled allocation of information processing resources is taken as given. The recipients are viewed to have tried (depending on their capacities) to focus on the content and allocate as many resources to the text as possible during the experiment.

The interesting question remains: How many processing resources are allocated automatically for the encoding and storage processes?

The independent variable (IV) in part A of this study is the number of technical information in each pre-election poll report, according to the AAPOR disclosure standards. The number of technical information is varied in three levels: high (eight criteria), medium (four criteria) and low (one criterion). The dependent variables (DV) are recognition (encoding) and cued recall (storage).

According to the findings stated above the study should support the following hypotheses:

Hypothesis 1: Recognition (encoding) should score lowest for paragraphs including all eight AAPOR criteria (HC).

Hypothesis 2: Recognition (encoding) should score highest for paragraphs including fewer AAPOR criteria (LC).

Accordingly, further hypotheses are:

Hypothesis 3: Cued recall (storage) should score lowest for paragraphs including all eight AAPOR criteria (HC).

Hypothesis 4: Cued recall (storage) should score highest for paragraphs including fewer AAPOR criteria (LC).

The writing of the story and its presentation influence how carefully the stories are read and how hard the readers try. Following Lang et al. (2002: 217) this depends on (1) how interesting the subject is, (2) how relevant the information is, or simply (3) whether the reader wants to remember it.

Lang refers to earlier studies with TV messages: “They found [...] that increasing structural complexity decreased recognition memory for messages globally” (Lang 2000: 59). In a study of Thorson and Lang (1992) familiar topics were treated as low cognitive load (easy), and unfamiliar topics were treated as high cognitive load (difficult). After orienting responses towards the message,

recognition and cued recall were better for familiar compared to unfamiliar topics. Therefore hypotheses 5 and 6 are:

Hypothesis 5: Recipients who are more interested and knowledgeable in politics and political polls should do better in encoding (recognition) of information in pre-election poll reports.

Hypothesis 6: Recipients who are more interested and knowledgeable in politics and political polls should do better in cued recall (storage) of information in pre-election poll reports.

According to the limited capacity model, the allocation of resources (storage and encoding) should correspond with certain demographic factors. It can be expected that recognition and cued recall are higher, if recipients study poll-related majors, have a higher class standing, have voted in the most recent election (November 2006), and frequently read print and online news. Thus, the following research question is investigated:

Research Question 1: How does the allocation of information processing resources (recognition and cued recall) change in regard of academic major, age, class standing, political participation, and habits of news consumption?

Recognition (storage) and cued recall (encoding) are tested for three different spots within a story: at the beginning (1), the middle (2), and at the end (3) of each pre-election poll report. The experiment is designed to find out if

information early in a story is generally encoded and stored better than information in the middle, or at the end of a story. This can help to evaluate if the allocated resources for information processing stay stable over the time-span of a story. Certain patterns could give additional explanations on how people read pre-election poll reports in newspapers. So far, nobody has applied the limited capacity model of information processing to printed news. Thus, the following aspect is investigated according to the following research question:

Research Question 2: How does the allocation of information processing resources (recognition and cued recall) change throughout a pre-election poll report?

4.2 Part B: Evaluative Self-Report Measures

Given the information provided in the post-test questionnaires, the following second research question should be investigated:

Research Question 3: How are pre-election poll reports rated (seven-point scale) and evaluated (open-ended comments) in terms of reliability, difficulty, credibility and informativeness, if the stories are altered by the number of AAPOR criteria included in the text (low, medium, and high)?

Chapter 5

Methodology

5.1 Recipients

One-hundred seventy-nine recipients participated in this study's two parts: A and B. One-hundred sixty-nine recipients were recruited from undergraduate classes at the Indiana University School of Journalism in Bloomington, Indiana. Fifty-six students were recruited in a class for media law, and 113 students were recruited in an introduction class for reporting, writing, and editing. Ten non-students participated in the study in order to determine if their results varied significantly from the results of the students.

5.2 General Procedure

As mentioned above, this study was completed in two separate parts that were completed by all participants. The two parts will be referred to as part A and part B. Part A represents an experiment based on the limited capacity model by Annie Lang, and part B represents the usage of evaluative self-report measures by the recipients according to their interpretation of reliability, difficulty, credibility, and informativeness of pre-election poll reports. The two parts were organized as five steps to be completed by all recipients:

- | | |
|---------------|---|
| | <i>Step 1: Completing a pre-test questionnaire</i> |
| Part A | <i>Step 2: Reading an article</i> |
| | <i>Step 3: Completing the cued recall questionnaire</i> |
| | <i>Step 4: Completing the recognition questionnaire</i> |

Part B | *Step 5: Completing a post-test questionnaire with evaluative self-report measures*

The recipients participated in groups in this study. At the beginning of each session, the participants were greeted and introduced to the upcoming tasks. The study was organized to be completed in less than 30 minutes. Each of the five parts had to be completed on separate sets of papers. Each participant was given an individual number (such as a seat number or similar), to assure that the five sets of papers could be identified anonymously with each recipient after the whole study was completed.

Step 1. Every time before Steps 2 to 5 were done for this study, the participants had to complete the same pre-test questionnaire to determine their academic major, their interest and engagement in politics, journalism, and political polls, and to investigate their media-using habits.

Step 2. In a second step, each participants received an article (see 5.3.2 Stimulus Material for further information) and was told to read the article completely and closely. Since the theory for the allocation of information processing is based on the characteristic of an ongoing flow of information (such as television content, radio content, web presentations), time and reading pace need to be controlled, at least to a feasible degree. Thus, the participants were asked not to “jump” within the text, and not to go back and forth as if they wanted to memorize the text just like a poem. Instead they were asked to read the text as if they were reading it at home, and they were told that they should be prepared as if they had to discuss the content with their parents, partner, or teacher afterward.

The recipients were asked to stop reading as soon as they had finished reading their article, and return it to the instructor.

Step 3. As soon as all articles had been collected, the appropriate cued recall questionnaire was handed out to the recipients, according to the article they had read. They were asked to read the given questions carefully and answer to the best of their memory by using short answers. In case they did not know the correct answers, the recipients were asked to fill in a dash so that the instructor was able to see that the recipient had at least seen the question, but was not able to answer it. After having completed the cued recall questionnaire, the students were asked to turn the paper back in to the instructor.

Step 4. As soon as all cued recall questionnaires had been collected, the appropriate recognition questionnaire was handed out to the recipients, according to the article they had read. Again, the participants were asked to read the given questions/phrases carefully and choose the one of the four answers that they think was taken from the text they had just read. In case they did not know the correct answer for sure, the recipients were asked to check the answer they felt was most familiar from reading the text. After having completed the recognition questionnaire, the students were asked to turn the paper back in to the instructor.

Step 5. As soon as all recognition questionnaires were collected, the recipients were asked to complete the final task for the study. According to the article they had read previously, all students were asked to complete the post-test questionnaire (please see the appendix for a sample post-test questionnaire for articles A and B), and to provide evaluative self-report measures for one

paragraph of the story (one pre-election survey) that they had read. They were explicitly told that the final questionnaire referred only to the text that appeared on the post-test questionnaire. Additionally, the recipients were told to take some time to complete the open-ended questions on the post-test questionnaire, since this information was especially valuable for the study. After completing the post-test questionnaire, the recipients were asked to return all papers, and were thanked for their participation.

5.3 Part A: Limited Capacity Model

5.3.1 Experimental Design

The design for this experiment was a 2 x 2 x 3 (Repetition x Low/High AAPOR criteria x Question Order) within subject factorial design. The experimental design allows a within-subject comparison for a high vs. low and a high vs. medium amount of AAPOR criteria in the articles, but only a between-participant comparison for a high amount of AAPOR criteria in the articles. That is why the high/medium/low amount of AAPOR criteria was used as a within-participant factor with two levels.

The between-participant comparison for a high amount of AAPOR criteria was used to compare the two groups of recipients (either high vs. low or high vs. medium) for similarities.

All data was evaluated by using the software SPSS, version 11.5 (Statistical Product and Service Solutions).

5.3.2 Stimulus Material

The stimulus consisted of two different versions of the same *Los Angeles Times* pre-election report (articles A and B). To assure high external validity of the experiment, the articles were designed and printed in the *Los Angeles Times* corporate layout, cut out, and photocopied. An article, originally written by *Los Angeles Times* reporter Ronald Bernstein and published on October 25, 2006 (Bernstein 2006), was used as the basic text for the two articles that were used for this experiment.

The article was altered in order to present pre-election poll results of four different heavily contested states in the United States during the election campaign that preceded the November 8, 2006, elections for the U.S. Congress and Senate.

Each of the two article versions (Articles A and B) included four paragraphs with each paragraph presenting the pre-election poll results of one state (Ohio, Missouri, Virginia, or New Jersey).

The first article (article A) presented pre-election poll results by alternating a high amount of AAPOR criteria for two surveys (Virginia and New Jersey), with a low amount of AAPOR criteria for the other two surveys (Ohio and Missouri).

The second article (article B) presented pre-election poll results by alternating a high amount of AAPOR criteria for two surveys (again Virginia and New Jersey) with a medium amount of AAPOR criteria for the other two surveys (Ohio and Missouri).

For each of the two different articles (Articles A and B) the order of the four paragraphs was varied in four different ways (A1 – A4 and B1 – B4) to assure that each of the four paragraphs appeared in each possible position the same number of times. Thus, the order of the four paragraphs in each of the two different articles can be neglected as a relevant influence on the results. (For further details please see the two articles A and B in the appendix).

The two articles (articles A and B) generally used the same wording. They varied only by their amount of AAPOR criteria. Therefore the article that compared a high/medium amount of AAPOR criteria (article B) was slightly longer than the article that compared a high/low amount of AAPOR criteria.

In each session of data gathering, the present recipients were divided in two groups of similar sizes to achieve a similar number of students that completed the study by reading article A (high/low amount of AAPOR criteria) and article B (high/medium amount of AAPOR criteria). Finally, of all 179 participants, 86 had read article A and 93 had read article B. Since the 10 non-student participants had all read article B, the two groups were almost perfectly similar (86 and 83 student participants).

5.3.3 Independent and Dependent Variables

The independent variable for the part A of this study (limited capacity model) is the amount of enclosed technical information, according to the aforementioned eight AAPOR criteria. The independent variable has three levels. The first level is a high amount of AAPOR criteria (HC), referring to a pre-election poll report including all eight AAPOR criteria. The second level was a

medium amount of AAPOR criteria (MC), referring to a pre-election poll report including four AAPOR criteria, and the low level (LC) presented only one AAPOR criteria.⁶

The dependent variables in part A of this study are recognition and cued recall. To analyze the information processing performance for the given articles, recognition was used as an indicator of encoding. Cued recall was used as a measure for the analysis of the storage process.

Due to practical reasons, cued recall was tested before recognition. For the recognition test, information has to be provided that would have been helpful to answer the cued recall tests.

Cued Recall. To investigate the storage process through testing the quality of cued recall, all recipients had to answer three questions on each of the four paragraphs of the article they had read previously. The questions were arranged to investigate if the recipients remembered specific information that was included in the beginning, the middle section, or the end of the paragraph. Thus, it was possible to investigate what part of a paragraph the recipients remembered better or worse.

The quality of cued recall was tested by using a questionnaire with a set of 12 open-ended questions. (Please see the appendix for a complete list of all cued recall questions.) The order for the cued recall tasks for each paragraph were

⁶ The average amount of AAPOR criteria in a pre-election poll reports ranges between three and four, according to earlier studies by Salwen (1985) and Miller & Hurd (1982). According to a study by Marton & Stephens (2001) the following four criteria were included in all pre-election poll reports with a medium amount of AAPOR criteria (MC): Sponsor, Poll Institute, Sample Size, and Population Studied (Marton & Stephens 2001: 493). In all pre-election poll reports with a low amount of AAPOR criteria (LC), only the Sponsor was mentioned.

presented in four different orders to assure that the questions for each paragraph appeared in each of the four possible positions on the questionnaire.

Recognition. Recognition was measured through a forced choice recognition test. All participants had to complete five questions/phrases on each of the four paragraphs. For each question or phrase, the correct answer from the text (targets) and three structurally and semantically similar answers (foils) were given. The first three questions of the recognition test were arranged to investigate if the recipients remembered specific information that was included in the beginning, the middle section, or the end of the paragraph. The final two questions for each paragraph were designed to specifically investigate the memorization of technical information (AAPOR criteria) within the paragraph.

The quality of recognition was tested by using a questionnaire with a set of 20 multiple-choice questions for each recipient. (Please see the appendix for a complete list of all recognition questions.) The recognition tasks for each paragraph were presented in four different orders to assure that the questions for each paragraph appeared in each of the four possible positions on the questionnaire.

The cued recall and recognition tests were pre-tested among a group of twelve graduate students of the Indiana University School of Journalism.

5.4 Part B: Evaluative Self-Report Measures

After part A of the study was completed (limited capacity experiment), a post-test questionnaire for part B was handed out to the recipients. Each questionnaire included one single paragraph of the article that they had just read

(please see the appendix for a sample post-test questionnaire of article A and B). Each paragraph was randomly assigned to the recipients and asked for four dimensions of credibility and comprehensibility of the given pre-election poll report.

All post-test questionnaires for part B of this study asked the same questions related to the same four dimensions of the given article on a seven-point scale.

a. reliability of the information

Question: “How would you rate the reliability of the information presented for?”

b. difficulty of the text

Question: “How would you rate the difficulty of the text in terms of reading?”

c. credibility of the results

Question: “How would you rate the credibility of the text?”

d. informativeness

Question: “How would you rate the informativeness of the story?”

All four questions were followed by the open-ended request: “Please comment why?” The personal evaluation of a pre-election report according to the four dimensions mentioned above was performed to determine if the recipients evaluated the stories differently, depending on the amount of included AAPOR criteria. The evaluation of these aspects was measured on a seven-point scale

between reliable/not reliable, difficult/not difficult, credible/not credible, and informative/not informative.

For part B of this study (evaluative self-report measures) the independent variable was again the amount of AAPOR criteria in the pre-election poll report (LC = low, MC = medium, and HC = high amount of criteria). The dependent variables were the evaluation of reliability, difficulty, credibility, and informativeness on the seven point scale.

The answers to the open-ended request to comment on their decisions were transcribed and gathered together to gain insight in reoccurring patterns of all answers.

Chapter 6

Results

6.1 Part A: Limited Capacity Model

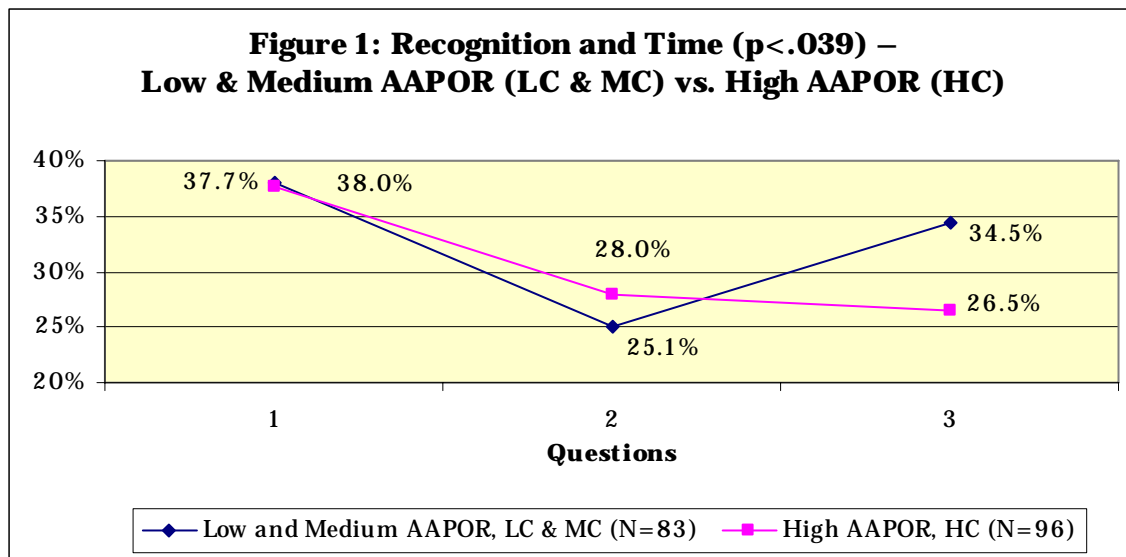
6.1.1 Hypothesis 1

The first hypothesis predicted that encoding (recognition) would be better for stories with fewer criteria (LC & MC) compared to stories with all eight AAPOR criteria (HC). The main effect for criteria (with two levels, LC&MC and HC) was significant ($F(1) = 12.722$, $p < .000$, $\eta^2 = 0.067$). As expected, stories with fewer AAPOR criteria were encoded better (LC&MC = 36.6%) than stories with all eight AAPOR criteria (High = 31.2%). The number of AAPOR criteria explained 6.7 percent of the variance in recognition.

As mentioned before, the recognition test included five questions per story. The first three questions were asked to determine if information was encoded better at the beginning, the middle, or at the end of a story. Questions four and five were designed to investigate if information about AAPOR criteria was encoded by the recipients.

For the first three questions, the interaction of criteria and time was significant ($F(2) = 3.275$, $p < .039$, $\eta^2 = .018$). As can be seen in Figure 1, encoding was similar at the beginning of each story (LC&MC = 38%, HC = 37.7%). But for stories with all eight AAPOR criteria, encoding gets increasingly worse as the story continues. At the end of the text, encoding is better for stories with fewer criteria (LC&MC = 34.5%) compared to stories with all of the AAPOR criteria (HC = 26.5%).

The main effect of AAPOR criteria for the encoding of AAPOR criteria information (final two questions only) was also significant ($F(1) = 16.946$, $p < .000$, $\eta^2 = .087$). For stories with fewer AAPOR criteria, encoding of AAPOR criteria information was better (LC&MC = 42.6%) than for stories with all eight AAPOR criteria (HC = 32%). The difference in AAPOR criteria was responsible for 8.7 percent of the variance.

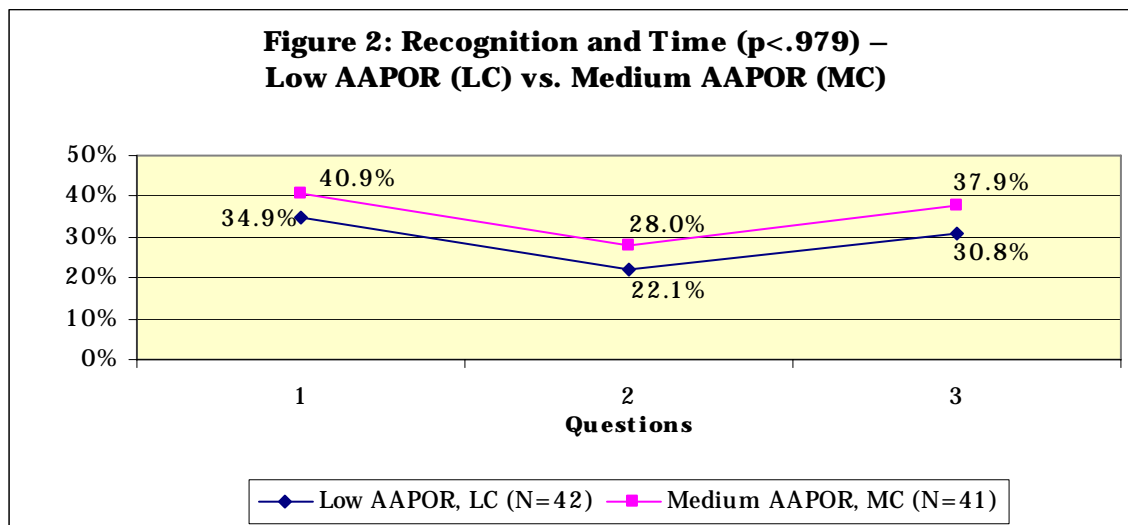


6.1.2 Hypothesis 2

This hypothesis predicted that encoding (recognition) should be better for stories containing a low (LC) compared to a medium number of AAPOR criteria (MC). For the encoding of general information (first three questions only), the main effect for AAPOR criteria was significant ($F(1) = 4.313$, $p < .039$, $\eta^2 = .024$). Contrary to the prediction, information was encoded better for stories

with a medium number of AAPOR criteria (MC = 35.6%) compared to stories with a low number of AAPOR criteria (LC = 29.3%).

For the first three questions, the interaction of AAPOR criteria and time was not significant ($F(2) = .022$, $p < .979$, Eta squared = .000). The differences of means in encoding for questions one to three can be seen in Figure 2. The graph shows that information was generally encoded better for stories including a medium number of AAPOR criteria (MC), compared to stories including a low number of AAPOR criteria (LC).



For the encoding of AAPOR criteria related information (final two questions) in stories with a low number of criteria (LC) and a medium number of criteria (MC) the main effect for criteria was not significant ($F(1) = .122$, $p < .727$, Eta squared = .001).

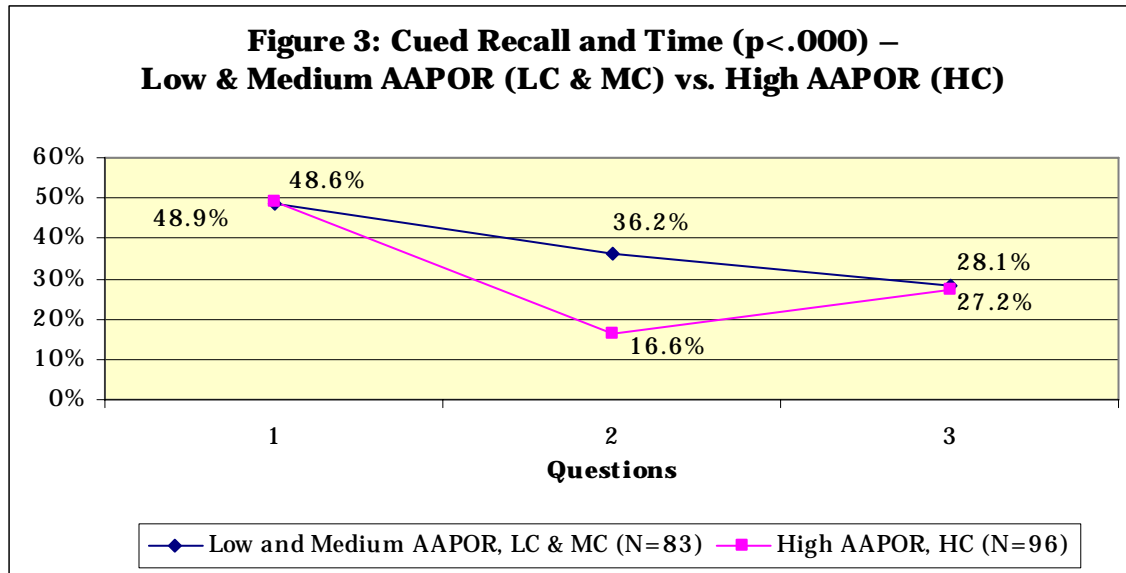
The means for recognition (LC = 43.3% and MC = 41.9%) are in the predicted direction which may suggest that information related to AAPOR criteria was encoded better in stories including a low number of AAPOR criteria

(LC), compared to stories including a medium number of AAPOR criteria (MC). However, the effect was not significant.

6.1.3 Hypothesis 3

This hypothesis predicted that cued recall would be better for stories containing fewer AAPOR criteria (LC and MC) than for those with all eight criteria (HC). The main effect for criteria (with two levels, LC/MC and HC) was significant ($F(1) = 12.19$, $p < .001$, Eta squared = .064). As expected, stories with fewer AAPOR criteria were remembered better (LC&MC = 37.6%) than those with many AAPOR criteria (HC = 30.9%). The number of AAPOR criteria explained 6.4 percent of the variance in cued recall.

In addition to the main effect for criteria, the interaction of criteria and time was also significant ($F(2) = 11.920$, $p < .000$, Eta squared = .063). The effect size was 6.3 percent. Figure 3 illustrates this interaction. As can be seen, initially and at the end of a story, the number of criteria in the message has no effect on cued recall; in the middle however, the information input of articles with all eight AAPOR criteria reduces storage capacity more quickly, compared to the recipients of low/medium AAPOR stories.

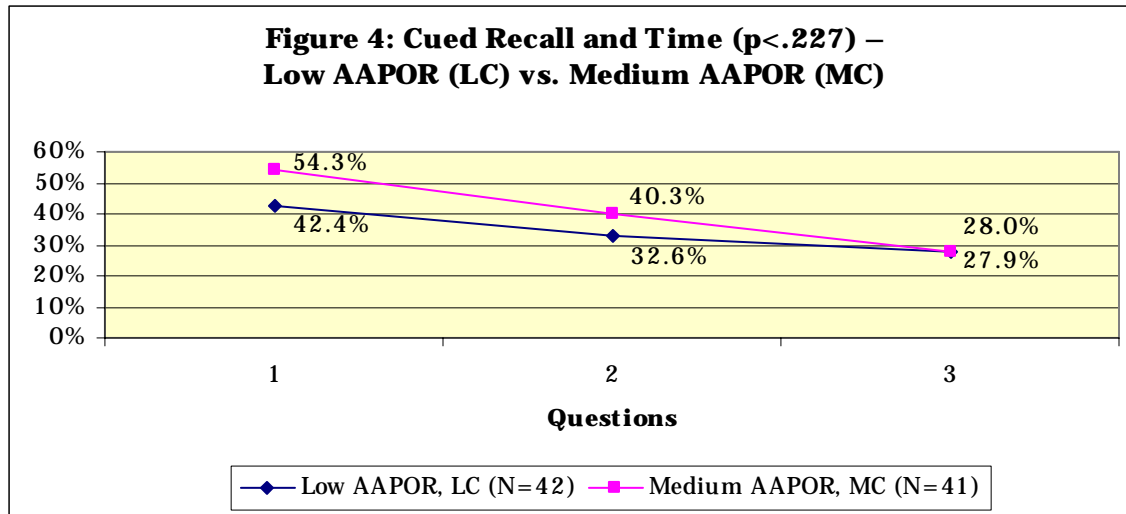


6.1.4 Hypothesis 4

The fourth hypothesis predicted that cued recall should be better for stories containing a low compared to a medium number of AAPOR criteria. The main effect for criteria approached significance ($F(1) = 3.191$, $p < .076$, Eta squared = .018).

The means show that contrary to the prediction, stories with a medium number of AAPOR criteria may be remembered slightly better (MC = 40.9%) than paragraphs with a low number of AAPOR criteria (LC = 34.3%).

The interaction of criteria and time on the cued recall data was not significant ($F(2) = 1.491$, $p < .227$, Eta squared = .008). However, as can be seen in Figure 4, the difference in criteria makes a difference in storage early in the message (LC = 42.4%, MC = 54.3%). But by the end of the message, all conditions are remembered equally well (LC = 27.9%, MC = 28%). Thus, information presented early in the message does better with a medium level of criteria.



6.1.5 Hypothesis 5

This hypothesis predicted that encoding (recognition) on average should be performed better by recipients who are generally more interested in, and knowledgeable about politics and political polls.

The relevant variables to investigate this hypothesis were “political interest,” “election 2006 interest,” “interest in polls,” “interest in polls of the 2006 election.” Cronbach’s Alpha⁷ as a measure of reliability for the four variables of all 179 recipients of the study computed .8415. Since the correlation matrix showed no negative correlations, the four variables were considered to be additive, and were recoded in a new latent variable called “interest in politics and polls.”

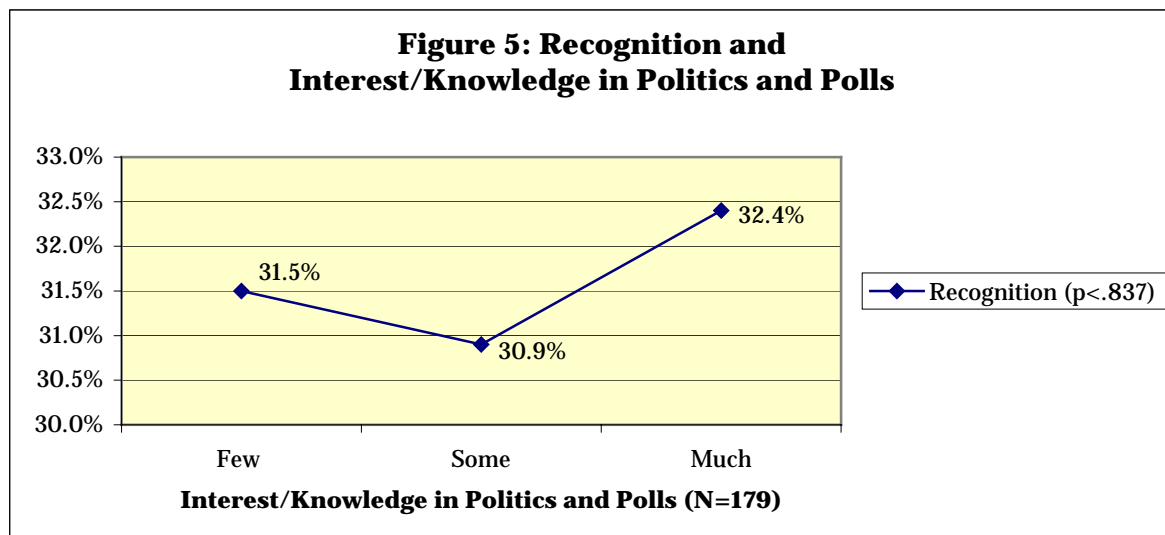
The new latent variable was split in three similar sized groups of recipients with little interest in politics and polls (N=59), some interest in politics and polls

⁷ Cronbach’s Alpha is a measure of reliability of a psychometric instrument. It helps to determine whether several variables can be regrouped to a “latent” variable (LV) or if several variables apply to the same group of respondents. Therefore the selected variables must be additive.

(N=55), and much interest in politics and polls (N=65). This differentiation was used for further calculations.

By computing an analysis of variance between groups (ANOVA) with the between-subjects variable “interest in politics and polls,” the hypothesis was not supported ($F(2) = 0.178$, $p < .837$, Eta squared = .002). The correlation of interest/knowledge in politics and polls and recognition is illustrated in Figure 5.

As can be seen, recipients with much interest/knowledge in polls encoded more information (32.4%) than recipients with some (30.9%) or few (31.5%) interest/knowledge in politics and polls. However, the differences for the levels of interest and knowledge were not significant.



As was expected, the differences in “interest/knowledge in politics and polls” were not significant for any other interaction with level of criteria or time.

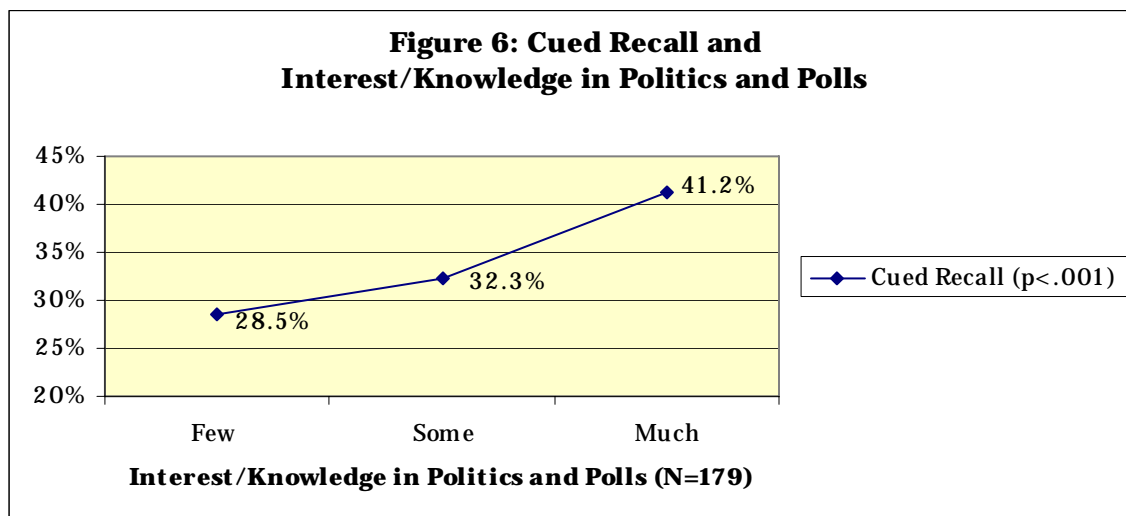
6.1.6 Hypothesis 6

Hypothesis six predicted that storage of information (cued recall) on average should be performed better by recipients who are generally more interested and knowledgeable of politics and political polls.

By using the new latent variable “interest in politics and polls” another analysis of variance between groups (ANOVA) was computed. The hypothesis was supported. For the correlation of the cued recall results and the poll/political interest of the recipients, the effect of interest/knowledge in politics and polls was significant ($F(2) = 7.011$, $p < .001$, $\eta^2 = .074$) and the results are illustrated in Figure 6.

As predicted, information was remembered better by recipients with much interest/knowledge in politics and polls (41.2%) compared to recipients with some (32.3%), or few (28.5%) interest/knowledge in politics and polls.

As was expected, the differences in “interest/knowledge in politics and polls” were not significant for any other interaction with number of criteria or time.



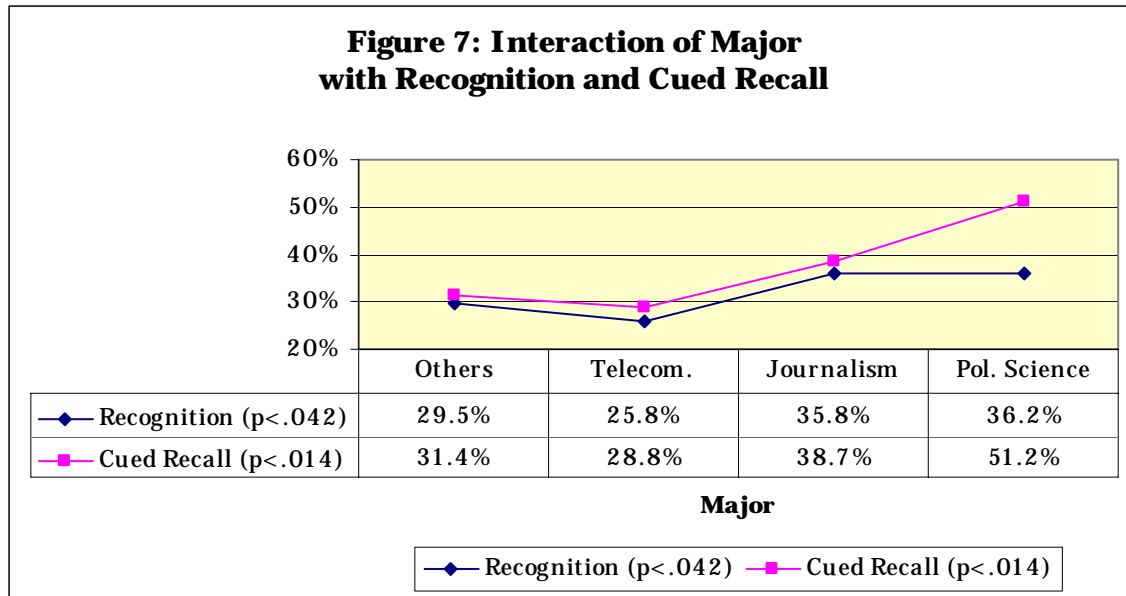
6.1.7 Research Question 1

a) Academic Major

Of all 179 participants in this study 156 stated their major. Political Science (N=8), Journalism (N=40), and Telecommunications (N=11) were considered poll-related majors in declining order. All other majors (N=97) were considered not to be poll related. The results suggest that it is easier for students of poll-related majors to encode and store information in pre-election poll reports.

As predicted by the limited capacity model, the pre-election poll reports were encoded better by students of poll-related majors (e.g. Political Science: 36.2 percent) than by students of not poll-related majors (Others: 29.5 percent). In recognition, the main effect for major was significant ($F(3) = 2.792$, $p < .042$, Eta squared = .052).

In addition, the poll reports were remembered better by students of poll-related majors compared to students of other majors. For cued recall, the main effect for major was significant ($F(3) = 3.657$, $p < .014$, Eta squared = .068). The differences in encoding and storage in interaction with the recipients' academic major is illustrated in Figure 7.



Students of poll-related majors also did better in encoding information that was specifically related to technical information about polls (questions 4 and 5 of the recognition test). The main effect for major approached significance on the recognition data of poll-related information ($F(3) = 2.506$, $p < .061$, Eta squared = .047).

Only for the storage process (cued recall), a difference in level of criteria for pre-election poll reports in interaction with the recipients' major was significant. Students of poll-related majors remembered more information than students of non-poll-related majors. However, a high level of criteria significantly reduced the amount of information that was stored by recipients of all majors ($F(3) = 3.069$, $p < .030$, Eta squared = .057).

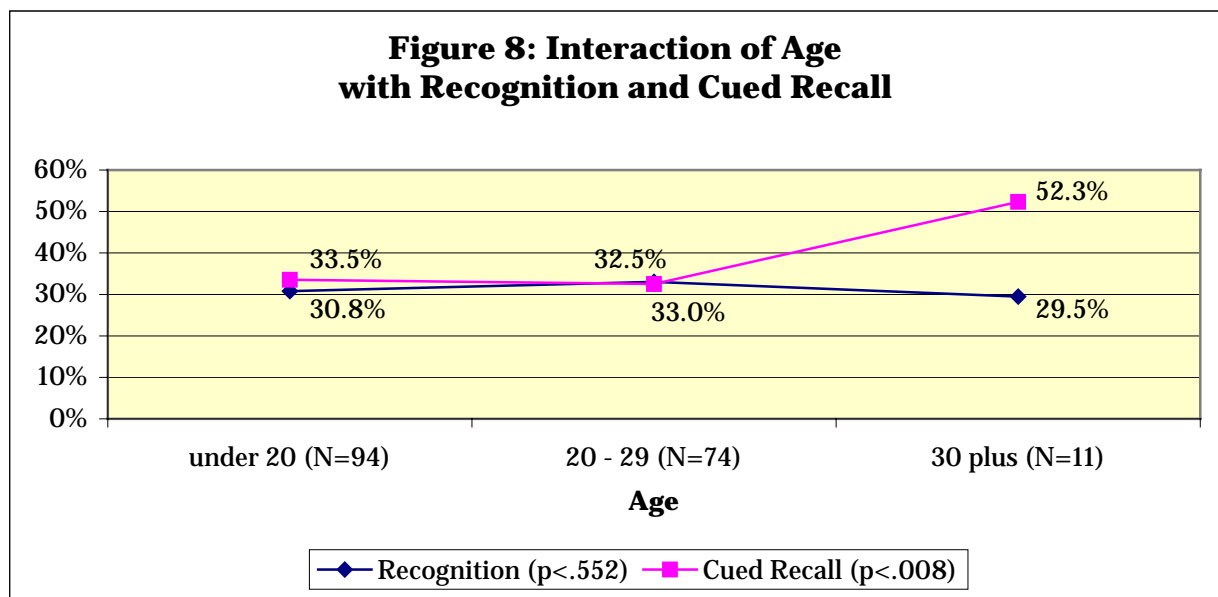
b) Age

The 179 participants of this study were between 18 and 71 years old. Since most of them were students, the average age was 22 years and the most common

age among the recipients was 19 years. 52 percent of all recipients were 19 years old.

As predicted by the limited capacity model it was expected that older recipients would have higher levels of recognition and cued recall. However, the results suggest that age did not matter significantly for the encoding process, but did matter significantly for the storage process. After splitting the recipients in three groups (younger than 20 years, 20 to 29 years, and 30 years and older), the main effect for age was significant on the cued recall data ($F(2) = 5.026, p < .008$, Eta squared = .054).

As expected, the older recipients remembered information in pre-election poll reports better (52.3 percent) than the recipients under 20 years (33.5 percent), and the recipients in their 20s (32.5 percent). The interaction of age with recognition and cued recall is illustrated in Figure 8.



c) Class Standing

Of all 179 participants of this study, 168 stated their class standing or academic education. The recipients were grouped in freshman (N=77), sophomore (N=51), junior (N=23), senior (N=12), and recipients who had achieved at least an undergraduate degree (N=5). The results suggest that there is a positive correlation between class standing and storage of information in pre-election poll results.

The interaction of class standing and encoding of information (recognition) was not significant. However, the interaction of class standing and cued recall of information was significant ($F(4) = 3.009$, $p < .020$, Eta squared = .069). Recipients who had already completed at least a bachelor's degree remembered information in poll reports significantly better (55 percent) than students in their senior year (40.3 percent), junior year (36.7 percent), sophomore year (35.8 percent), or first year of college (30 percent).

d) Political Participation

Of all 179 recipients of the study, 37 stated that they had voted in the most recent election (November 2006). According to the limited capacity model it was expected that these recipients would score higher in recognition and cued recall.

The interaction of political participation in the most recent election and recognition (encoding) was not significant. But the main effect for political participation on the cued recall data (storage) was significant ($F(1) = 18.677$, $p < .000$, Eta squared = .096). Recipients who had voted in the November 2006

election remembered the messages significantly better (46.5 percent) than recipients who had not voted in the most recent election (31.2 percent).

e) News Consumption

To evaluate their habits of news consumption, the recipients were asked on how many days per week they regularly read print and online news. According to the limited capacity model it was expected that recipients who frequently read print and online news scored better than others on recognition and cued recall. The results show that recognition was significantly better for recipients who frequently read online news but not for frequent readers of print news. Storage was significantly better for recipients who frequently read print or online news.

The effect for online news consumption was significant for recognition ($F(6) = 2.172, p < .049, \text{Eta squared} = .085$). Recipients who read online news every day encoded significantly more information (37.9 percent) than recipients who read online news only once a week (29.8 percent). For the consumption of print news however, the main effect was not significant for recognition.

The main effect for news consumption of print and online news were both significant on the storage data (print news: $F(6) = 3.300, p < .004, \text{Eta Squared} = .111$, and online news: $F(6) = 2.414, p < .030, \text{Eta squared} = .094$). Recipients who read print news almost every day of the week stored information better (45.2 percent) than those who read print news only once a week (22.7 percent).

The same trend can be seen for recipients who read online news, but overall with a somewhat weaker effect. Recipients who read online news almost

every day remembered the messages better (45.5 percent) than those who read online news only once a week (29.4 percent).

The interaction of print news consumption with recognition (encoding) and cued recall (storage) is illustrated in Figure 9, the interaction of online news consumption with recognition and cued recall is illustrated in Figure 10.

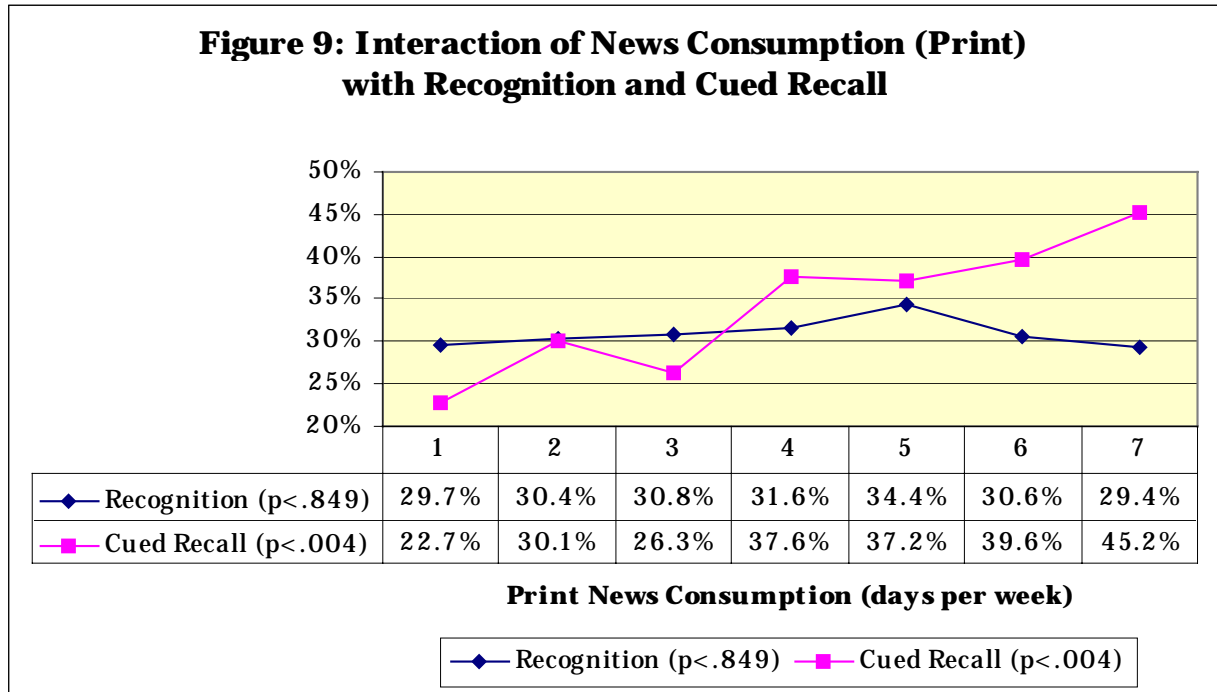
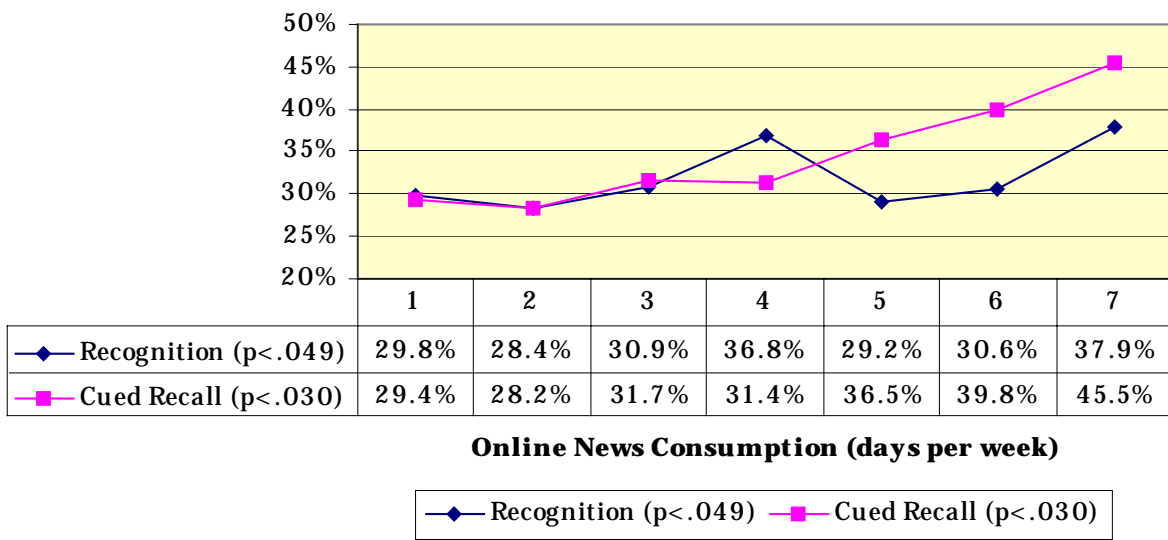


Figure 10: Interaction of News Consumption (Online) with Recognition and Cued Recall



6.1.8 Research Question 2

This research question focused on how the allocation of information processing resources for recognition and cued recall changed throughout a pre-election poll report, no matter how much technical information was included.

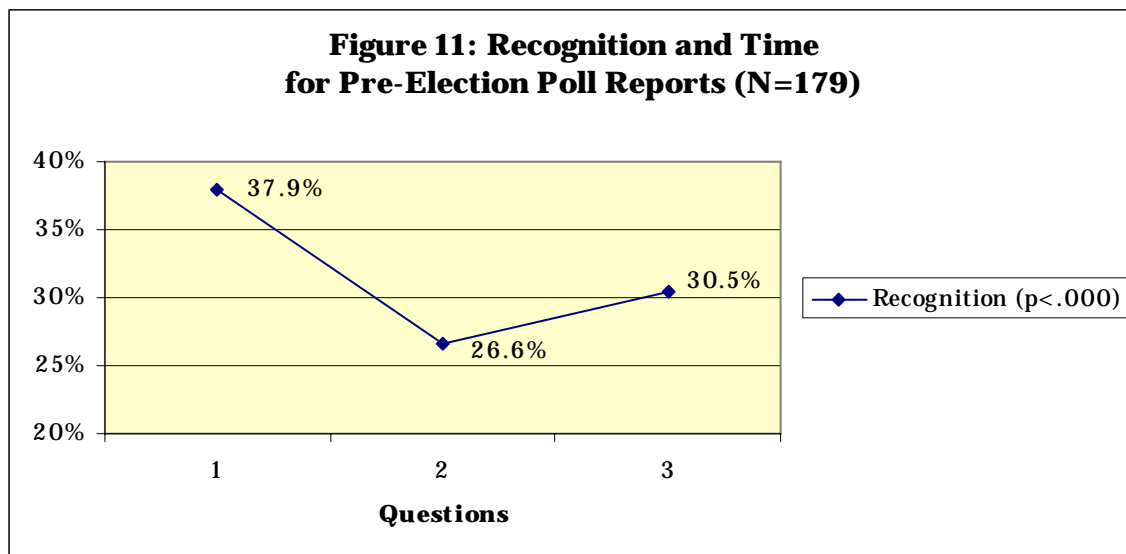
a) Recognition

As mentioned before, encoding of information (recognition) was tested with five questions for each story. The first three questions were designed to investigate if information was encoded differently at the beginning, the middle, or the end of a story. The final two questions were designed to investigate specifically how information about AAPOR criteria was encoded.

The interaction of recognition and time was significant for the first three questions ($F(2) = 13.413$, $p < .000$, $\eta^2 = .070$). The effect was

responsible for 7 percent of the variance in the recognition data. The interaction of recognition and time (first three questions of all pre-election poll reports) is illustrated in Figure 11.

As can be seen, recognition was always best for information at the beginning of a story. Information in the middle section was generally encoded less successfully. Toward the end of a story encoding was slightly better again. However, information at the beginning was still encoded better than information at the end of a pre-election poll report.

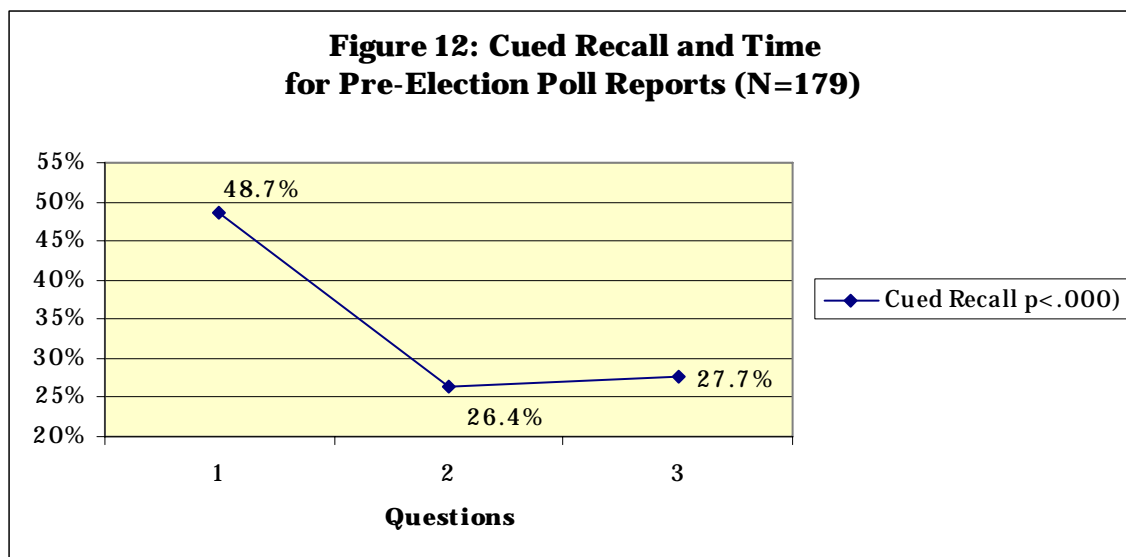


b) Cued Recall

Just as for recognition, the questions for cued recall were designed to investigate if information at the beginning of a story was remembered differently than information in the middle or at the end of a poll report. For all stories, cued recall differed significantly depending on where the information was presented (F

(2) = 56.316, $p < .000$, Eta squared = .241). The effect of question was responsible for 24.1 percent of the variance in the cued recall data.

As can be seen in Figure 12, cued recall shows a similar pattern as recognition, but a stronger effect for information early in a poll report. Storage of information early in a story was better than for information in the middle, or at the end of a story. However, information at the end of a story was remembered slightly better than information in the middle of a poll report.



6.2 Part B: Evaluative Self-Report Measures

6.2.1 Research Question 3

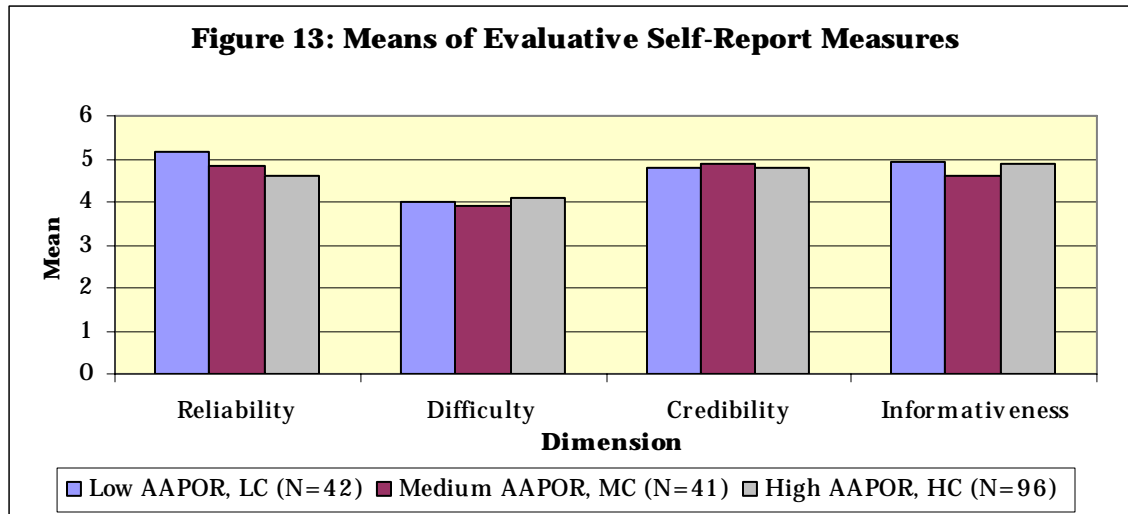
The third research question asked how the average scores differed for four dimensions of evaluative self-report measures (reliability, difficulty, credibility, and informativeness), if the amount of technical information (AAPOR criteria) was changed in a pre-election poll report.

The evaluative self-report measures had to be rated each on a seven-point non-comparative scale, and were added to the experimental part A of this study, to gain insight in the recipients' opinions on the given poll reports. The answers to research question number two are given in two separate sections:

- a) by analyzing the ratings on the seven point scales, and
- b) by content-analyzing the written comments for each dimension.

For further analyses, the results of the evaluative self-report measures were regrouped according to the criteria level of the poll-report that had been evaluated on the post-test questionnaire (LC, MC, or HC criteria level). The pre-election poll reports for Virginia and New Jersey included all eight AAPOR criteria (HC). Stories on the election campaigns in Ohio and Missouri included either a low number of AAPOR criteria (LC), or a medium number of AAPOR criteria (MC).

According to the version of article the recipients (N=179) had read on the post-test questionnaire, they were separated in a low level (LC, N=42), medium level (MC, N=41), or high level (HC, N=96) AAPOR criteria group. The means of evaluative self-report measures for all four dimensions according to the criteria-level of poll report is illustrated in Figure 13.



By computing analyses of variance (ANOVA) for all four dimensions and the three levels of AAPOR criteria, the difference in means for reliability of low level (LC) and high level (HC) criteria articles was significant ($F=4.049$, $p<.046$). The differences in means for all other dimensions and levels of AAPOR criteria were not statistically significant.

But the analysis of ratings on the seven-point scale should not be overrated. A first analysis of personal comments revealed that the recipients often interpreted the given scale differently. In addition to a thorough content analysis of the recipients' comments, the scale ratings offer more reliable information on the evaluation of reliability, difficulty, credibility, and informativeness of pre-election poll reports.

The content analyses of comments are focused on the question "What are factors that influence a reader's evaluation of reliability, difficulty, credibility, and informativeness of a pre-election poll report?." An extra paragraph for the content analysis of comments on each dimension is dedicated to offer answers to this question.

6.2.2 Reliability

a) Analysis of Scale-Ratings

All recipients of this study rated “reliability” of the given pre-election poll reports with a mean of 4.793 on a seven-point scale, with 1 being “does not seem reliable” and 7 being “seems very reliable.” For all comments, the median was 5 and the mode was 6. The means according to the number of AAPOR criteria included in the reports, were LC=5.143, MC=4.854, and HC=4.615.

An analysis of variance between the reliability ratings of low level (LC) and high level (HC) AAPOR criteria articles was significant ($F=4.049$, $p<.046$). The difference in AAPOR criteria (independent variable) was responsible for 2.9 percent of the variance in evaluation of reliability for the two groups of articles. Pre-election poll reports with only one AAPOR criteria were rated significantly more reliable than paragraphs with all eight AAPOR criteria.

The differences in reliability for the other constellations of AAPOR criteria were statistically not significant.

b) Content Analysis of Personal Comments

157 of 179 recipients offered a personal comment on their self-report evaluation of reliability on the rating scale. The comments were grouped according to the level of AAPOR criteria in the pre-election poll report that was evaluated by the recipients (LC, N=36, MC=35, N=35, or HC AAPOR criteria, N=86).

Comments on high level (HC) AAPOR reports:

For the evaluation of reliability, 25 recipients referred to aspects that were not directly related to the given poll results in the story. Seven referred to the source of information (e.g. the newspaper, or explicitly the *Los Angeles Times*) and rated the poll report more reliable.⁸ The other 18 comments referred to other reasons for the evaluation of reliability, such as the amount of information in the article, the fact that the text was confusing, the interpretation of a political situation, or that the article was well written.

Most recipients of high AAPOR reports (61 of 86) referred somehow to the statistics, numbers, the poll, or the methodology that was mentioned in the article. The given survey-related information led sometimes to a more reliable, sometimes to a less reliable evaluation.⁹ Few recipients stated that surveys were generally a not reliable measure for public opinion, or that the article/ survey results were biased and therefore less reliable.

Fourteen recipients commented that they had evaluated the article more or less reliable, simply because statistics and numbers of a survey were included. As a result, most of them (13 of 14) rated the poll report more reliable.

Forty-one recipients wrote comments that showed that they had in fact somewhat interpreted the given poll results in order to evaluate the reliability of the article. Most of them (and 31 of 61 comments) used at least one AAPOR

⁸ An article was seen as rated “more reliable” if the rating for the individual pre-election poll report ranged between 5 and 7. If the rating for the individual pre-election poll report ranged between 1 and 4, the article was seen rated as “less reliable.”

⁹ For example, recipient No.115 stated, “It gave facts and figures with seemingly proper analysis,” compared to recipient No.41 who stated, “The survey includes people with telephones not everyone.”

criteria for their personal interpretation of the survey results. The comments referred to the sample size (N=11), margin of error (N=9), methodology (N=9), and the survey institute (N=8).

Of all 31 recipients that referred to an AAPOR criterion, six people rated the pre-election poll report more reliable. Twenty-five recipients criticized the technical details and the survey results were interpreted as less reliable.

The types of technical information (sample size, margin of error, etc.) show differences in how they affected the rating of reliability. In seven of 11 cases (64 percent) where the recipient referred to the sample size, the poll report was evaluated less reliable.

If the recipient referred to the methodology of how the survey was done, eight of nine times (89 percent) the survey results were interpreted as less reliable. In most comments, telephone surveys were criticized as generally being a not reliable and scientific method for surveying people.

If the recipient referred to the margin of error, the report was rated less reliable in six of nine cases (67 percent).¹⁰

If the recipient referred to the survey institute that carried out the survey, in three of five cases (60 percent) the poll report was rated less reliable – mostly because the comments asked for the name of the responsible survey institute.

Some recipients referred specifically to the reputation of the polling organization or the source that published the report. Every time the imaginary Triple AAA Research Center, Bloomberg, and the *Los Angeles Times* were named

¹⁰ In all three instances when the margin of error led to an interpretation of higher reliability, the margin of error was mentioned by itself, without being related to the sample size.

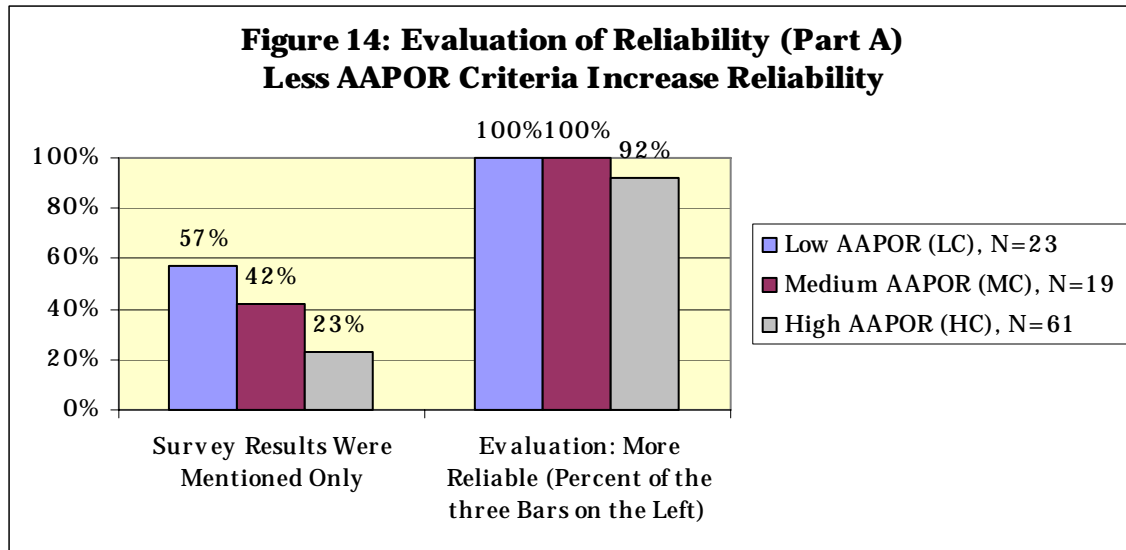
in the comment, it led to a more reliable evaluation of the poll report, or to a less reliable evaluation if the name of the responsible polling organization was missed by the reader.

Comments on low (LC) or medium level (MC) AAPOR reports:

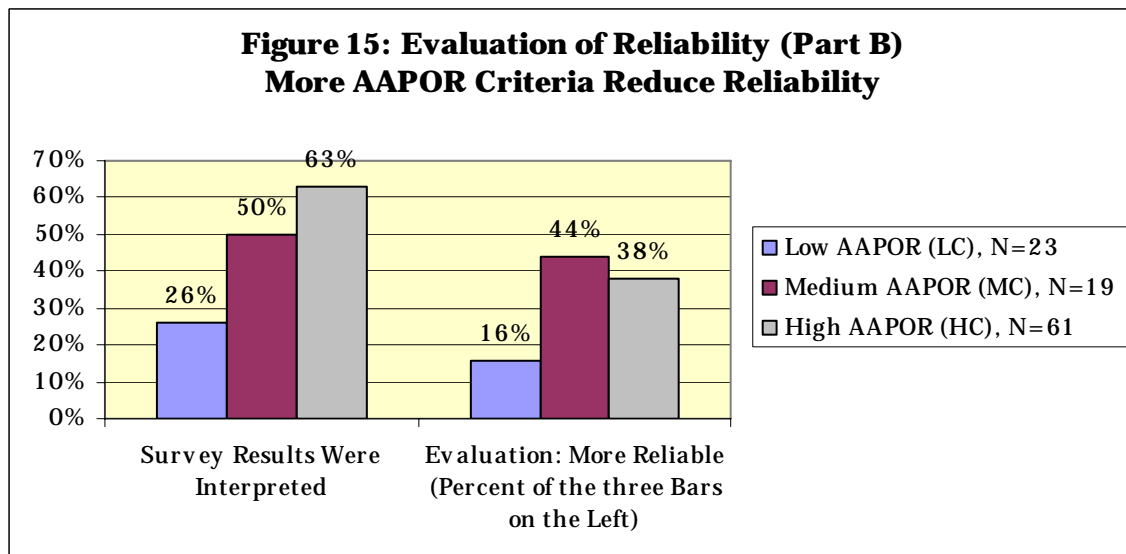
A complete content analysis of all comments tends to be more confusing than helpful. Thus, only those comments that might help to detect realistic patterns and trends are mentioned for recipients who have read either a (MC) or a low AAPOR (LC) pre-election poll report on their post-test questionnaire.

While comparing the comments for high level (HC) AAPOR reports with the comments for medium or low level (MC & LC) AAPOR reports, it became clear that the AAPOR criteria were often used for the evaluation of reliability, if the AAPOR criteria were included in the report. If technical details were not included, the recipients mostly mentioned the statistics without further interpreting the given AAPOR criteria. As a result, most poll reports were rated more reliable, since technical information about the survey was not provided.

The percentages of comments that simply referred to statistics and numbers in the poll reports are illustrated in Figure 14. The figure also shows what percent of the related articles were rated more reliable.



If technical information about the poll (AAPOR criteria) was provided in the article, most recipients interpreted the given details. As a result, most poll results were rated less reliable. The percentages of comments that interpreted the given survey details are illustrated in Figure 15. The figure also shows how many percent of the related articles were more reliable.



6.2.3 Difficulty

a) Analysis of Scale-Ratings

The mean for all comments on the rating of difficulty was 4.022 on the seven-point scale rating from 1: “Easy. No problem” to 7 “Confusing. Needs revision.” The median was 4 and the mode was 5.

According to the number of AAPOR criteria in the pre-election poll reports, the means were LC=3.977, MC=3.902, and HC=4.094.

An analysis of variance (ANOVA) for the rating of difficulty and the three levels of AAPOR criteria (independent variable) did not compute any significant correlations.

b) Content Analysis of Personal Comments

For the evaluation of difficulty, 141 (of 179) recipients offered a comment to explain why they had rated their pre-election poll report more or less difficult to read. The comments were grouped according to the AAPOR criteria level of the poll report that was read on the post-test questionnaire (LC, N=33, MC, N=32, and HC, N=76).

Comments on high level AAPOR reports:

The majority of recipients of high level AAPOR criteria articles (N=76) did not directly refer to statistics, numbers, or technical information about polls while rating the difficulty of the text. Forty-six recipients referred to the wording of the text, the vocabulary, the recipients’ own knowledge about politics in

general, or the order of how the information was presented. Only 29 recipients referred explicitly to the given statistics and the presentation of the poll results.

Among the group of high level criteria readers, there was no clear trend detected on whether the text was too confusing, or if the information was presented well in the text. In the comments, 23 recipients stated that the information or statistics in the pre-election poll report were “causing confusion” (No. 166), “difficult to follow” (No. 20), “hard to follow” (No. 44), or would have better be “shown in a graph” (No. 28). However, 27 recipients stated explicitly that the information in the report “wasn’t confusing” (No. 153), “easy to follow” (No. 51), and “not too tough or too much info” (No. 124).

Five recipients commented similarly that the poll report was not difficult to read, but the great number of facts (or statistics) made the article “extremely monotonous” (No. 158), “not as interesting when it’s a bunch of numbers” (No. 162), or just “very boring” (No. 119). The major trends in the comments on the evaluation of difficulty are illustrated in Figure 16.

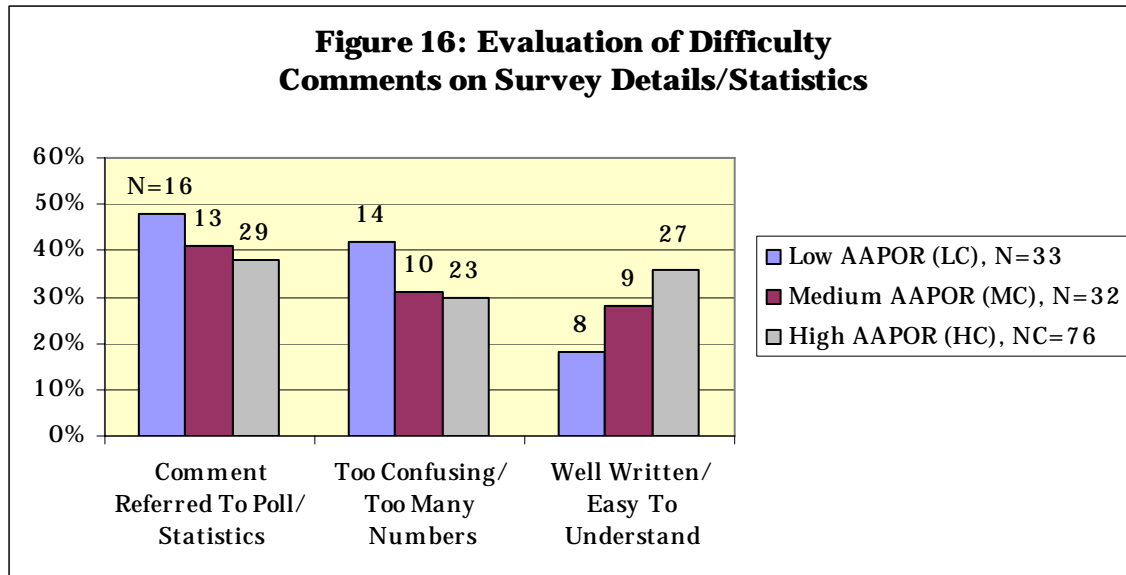
Comments on low (LC) or medium level (MC) AAPOR reports:

Thirty-two recipients of medium-level criteria poll reports offered a comment on why they had rated the text more or less difficult. The majority of 19 recipients stated generally if they thought that the text was difficult to read or not. Few wrote down their personal opinion that the text “appeared to be written to a 6th grade level” (No. 176), was “conversational” (No. 15), or presented a “good amount to remember” (No. 112).

Thirteen recipients referred specifically to the statistics, numbers, or survey results that were provided in the text. As for readers of high-level criteria (HC) poll reports, the readers of medium-level (MC) reports did not agree if the articles were difficult to read or not. Ten recipients comment explicitly that the text was “hard to keep focused on” (No. 151), “easy to get lost in” (No. 5), or that the article would “need more explanation for terminology and not so many numbers” (No. 173). Contrary, nine recipients stated that the text was “easy to understand” (No. 6), “easy to read” (No. 116), or that “the content isn’t difficult” (No. 21).

Thirty-three recipients of low-level criteria (LC) poll reports offered a comment for their difficulty rating. As can be seen in Figure 16, 17 comments either stated a personal opinion about the difficulty of the text (difficult or not) or referred to political implications of the poll report. Sixteen recipients evaluated the difficulty of the text while referring to numbers, statistics, or the presented survey results.

Fourteen recipients stated that the poll report was “a little confusing” (No. 31) to them, would not “read easily for everyone” (No. 74), or presented “too many statistics and numbers” (No. 60). Contrary, eight recipients commented that the poll report “explained well” (No. 70), included “straight forward comments” (No. 46), or was “not too complex” (No. 50). Four recipients referred to the text as boring, lame, or not entertaining.



6.2.4 Credibility

a) Analysis of Scale-Ratings

For all comments on the evaluation of credibility, the mean was 4.809 on the seven-point scale with 1: “Does not seem credible” and 7: “Seems very credible.” The median was 5 and the mode 6. According the number of AAPOR criteria in the poll report, the articles were rated on average LC=4.781, MC=4.878, and HC=4.792.

An analysis of variance (ANOVA) between the three groups of low, medium, and high level AAPOR articles compared to the recipients’ ratings of credibility of the text did not compute any significant correlations.

b) Content Analysis of Personal Comments

For their evaluation of credibility of the text, 128 of 179 recipients offered a written comment on why they had rated the poll report more or less credible.

After grouping the comments according to the related post-test questionnaire articles, 72 comments were given by readers of high-level (HC) criteria reports. 30 readers of medium-level (MC) AAPOR criteria, and 26 readers of low-level (LC) AAPOR criteria reports offered a comment on their evaluation of credibility.

Comments on high level (HC) AAPOR reports:

For the evaluation of credibility of the pre-election poll on the post-test questionnaire, 30 of 72 recipients referred to the statistics, numbers, or survey related information in the text. The other 42 recipients simply stated their personal opinion about credibility (15 comments), or they referred to the amount of information and facts (three comments), the quality of research (four comments), the writing style (three comments), the political relevance of the results (one comment), or the fact that sources were professionally quoted in the report (two comments). A list of aspects that were relevant for the evaluation of credibility, despite the given statistics, is illustrated in Figure 17.

A very popular aspect among all 72 comments was the reference to a well-known and accepted survey institute, newspaper, or news source. If the name of the institute, newspaper, or news source were recognized by the readers, the poll report was generally rated more credible; the opposite was the case if the names were not recognized in the text.

Nine of 30 survey-related comments referred to at least one AAPOR criteria while evaluating credibility of the text. The recipients referred to the methodology (five comments), the survey institute (four comments), and the margin of error (one comment). As was the case for the evaluation of reliability,

the article was rated less credible in three of the five times when the recipient referred to the methodology of a telephone survey.

Comments on low (LC) or medium level (MC) AAPOR reports:

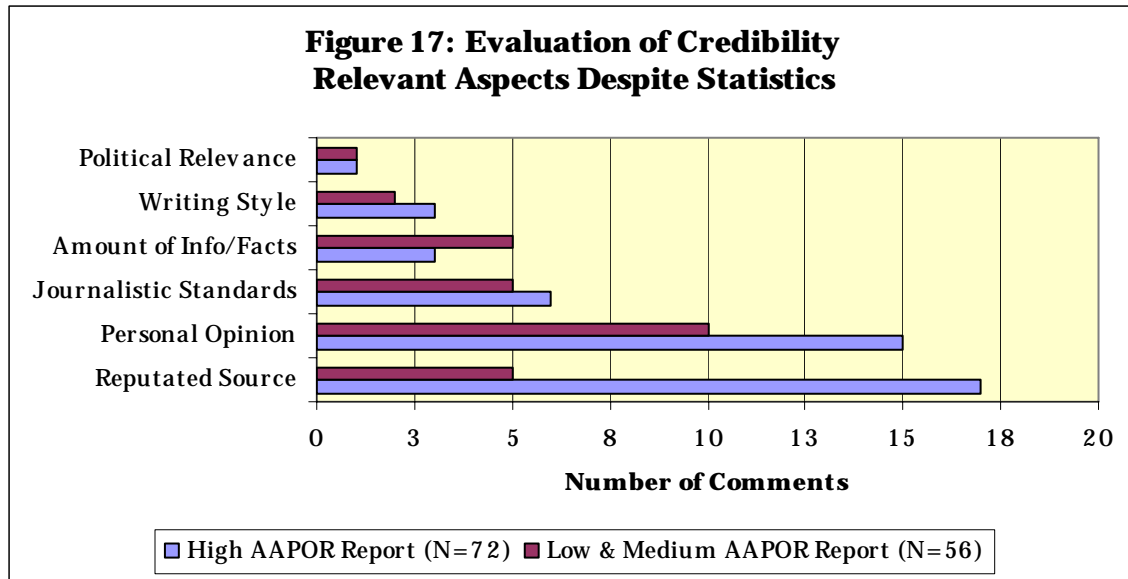
Of all recipients who had read a medium level (MC), or a low level (LC) criteria poll report, 30 recipients (MC) and 26 (LC) recipients offered a comment on why they had rated the article more or less credible.

As was the case for the comments for high level (HC) criteria reports, less than half of the comments referred to the given survey results, statistics, or numbers while evaluating the text (MC, N=11, LC, N=14).

The other recipients referred to a personal opinion about credibility, the given amount of information, the writing style, journalistic standards, the political relevance of the results, or a general dislike of scientific polls.

Again, a very popular aspect for the evaluation of credibility of the pre-election poll report was the name of the survey institute or newspaper that published the article. Of all low and medium criteria comments, nine referred explicitly to the survey institute or the newspaper name.

Five recipients of the low and medium level comments referred to AAPOR criteria while evaluating the credibility of the text. While sample size, methodology, and margin of error led to a less credible evaluation, the survey institute led to a more reliable evaluation.



6.2.5 Informativeness

a) Analysis of Scale-Ratings

The average evaluation on “informativeness” of all articles given on the post-test questionnaires was 4.847 on seven-point scale with one “Not very informative” and seven “Very informative.” The median was 5.0 and the mode was 5.0.

According to the number of AAPOR criteria included in the reports, the average rating on “informativeness” was LC=4.949, MC=4.610, and HC=4.905. An analysis of variance (ANOVA) between the groups did not calculate any significant correlations.

b) Content Analysis of Personal Comments

For the evaluation of “informativeness,” 125 comments were provided by the recipients that had read either a low level, medium level, or a high level

AAPOR criteria report on their post-test questionnaire. According to the number of criteria in the article, LC, N=19, MC, N=30, and HC, N=66 comments were provided.

Comments on high level (HC) AAPOR reports:

A content analysis of the comments for high-level criteria articles suggests that the given statistics are not a relevant aspect of the evaluation of informativeness of a pre-election poll report. Of all 66 comments provided, only 11 referred to the numbers, statistics, or percentages in the text.

Most recipients of high-level poll reports referred to the amount of information included in the text. Twenty-three recipients somehow stated that they had rated the article more or less informative because of “lots of facts” (No.124), “it gives complete information” (No. 166), or because “it was accurate and gave info from all angles” (No. 131). Five recipients complained that the text included “more info than necessary” (No. 113), “tons of facts – almost too many” (No. 16), and that “too much info, makes you skip lines” (No. 1).

Other important aspects for the rating of informativeness were the political relevance of the information (six times), journalistic standards such as writing style and reliable sources (five times), the quality of information provided (two times), the personal benefit of knowledge that was gained by the readers (two times), and the recipients’ personal opinions about informativeness (eight times).

Comments on low (LC) or medium level (MC) AAPOR reports:

The structure of the comments for low-level and medium-level criteria poll reports does not show great differences from each other, nor from the comments on high-level criteria reports.

Of all 49 comments on the rating of informativeness for the articles with fewer AAPOR criteria (LC & MC), 19 referred to the numbers, figures, and percentages provided.

Comments on the large amount of information provided in the article, was not mentioned as often as for high-level criteria reports. Six of the medium-level and one comment of the low-level criteria articles referred to aspects, such as “good amount of info” (No. 22) or “a lot of info that is needed about the candidates” (No. 30). Only one recipient for the low-level, and one recipient for the medium-level criteria reports complained that the article included “too much information for an average newspaper reader” (No. 179) and that the recipient was “overloaded with info” (No. 71).

However, the comments for medium-level criteria articles focused on journalistic standards, such as writing style and objectivity, the quality of the information, the personal gain of knowledge, and the recipients’ personal opinions on what was informative and what was not.

The comments for low-level criteria articles focused on the quality of information, the political relevance of the information, the personal gain of knowledge, and the recipients’ personal opinions.

Chapter 7

Discussion

7.1 Part A: Limited Capacity Model

As it seems, for the first time the limited capacity model by Annie Lang was applied to analyze the information processing of print messages. Of the three major sub-processes of message processing (encoding, storage, and retrieval), this study investigated encoding and storage.

As Lang puts it, “encoding is the act of creating a mental representation of a stimulus” and “the process of selecting information from the environment for further processing” (Lang 2006: 59). Storage is described as “the linking of recently encoded information to previously stored information” (Lang 2006: 60).

Both sub-processes occur simultaneously and continuously with the third sub-process of retrieving previously stored information. For all three sub-processes the controlled or automated allocation of resources is necessary. The recipients’ interests, the message content, and the structure of the message are responsible if resources are allocated or not.

The results of Part A of this study suggest that recipients of pre-election poll reports in newspapers do best with articles including a medium level of AAPOR criteria. Compared to poll reports with a high level or a low level of criteria, the most information was recognized and remembered if the article included a medium level of criteria.

The results suggest that the differences in recognition and storage between low and medium level of criteria articles were not as distinct as the differences between low/medium and high level of criteria articles. But they were still significant on the recognition data or approached significance on the cued recall data.

The results also suggest that articles with a high level of criteria significantly complicated the sub-processes of information processing. As can be seen on the recognition data, encoding gets increasingly difficult if the text is filled with all eight AAPOR criteria. A similar effect is found on the cued recall data. Messages with all eight AAPOR criteria significantly reduced the storage capacity more quickly than messages with a low or medium level of criteria.

Interestingly, the level of criteria in pre-election poll reports also shows an effect on the encoding capacities for AAPOR criteria information. As can be seen in the analysis of recognition data, information on AAPOR criteria was encoded more successfully if the article included fewer criteria. This suggests that a high level of criteria limited the automatic allocation of resources to the encoding and storage processes. In comparison, a low or medium level of criteria poll report presents fewer technical details to the reader. These fewer details are in return more likely of being encoded.

Recipients who are generally more interested and knowledgeable of politics and polls, older than the average student, have more academic education, and voted in the most recent election were more likely to store information of pre-election poll reports successfully. However, they did not encode information

of pre-election poll reports more successfully than others. This supports findings of earlier studies on the limited capacity model.

As Lang describes it, knowledge and interest allow for a better memorization of information since new facts can be incorporated more easily into an already existing net of related knowledge. “The more links a new piece of information has to old information, the better it is stored,” Lang suggests (Lang 2006: 60).

It seems that all recipients had enough resources available to transform the given information into working memory. Perhaps due to the experimental design and the announced tests, all recipients intentionally allocated sufficient resources (controlled allocation) to encode the information given in the pre-election poll reports.

However, recipients who are generally more knowledgeable of polls and politics, older, more educated, and voted in the most recent election, seemed more likely to automatically allocate additional resources for the storage processes. In addition to already existing memories of related information, these experienced recipients were more successful in remembering the content of pre-election poll reports.

The results suggest that the academic major is a significant indicator for the quality of encoding and storage of poll related information. Students of Political Science and Journalism scored significantly higher in encoding and storage of general information in pre-election poll reports. Their information processing capacities (for recognition and cued recall) of technical information

about polls was also close to or even significantly better than the capacities of students of other majors.

Another interesting indicator for the allocation of information processing resources for pre-election poll reports is the habit of news consumption in print or online media. Frequent recipients of online and print news remembered information in poll reports significantly better than infrequent recipients of online and print news. Frequent recipients of online news also scored significantly higher in encoding than infrequent recipients of online news media.

For the general assimilation of information in print news, the results show that information at the beginning and at the end of a message is encoded more successfully than information in the middle of a text. Information that is provided early in the message is encoded best.

A similar pattern is seen for the storage process. The results show that information that is provided early in the message is most likely of being remembered, compared to information that is presented in the middle or toward the end of a pre-election poll report.

7.2 Part B: Evaluative Self-Report Measures

For the scale rating of pre-election poll reports on the dimensions of reliability, difficulty, credibility, and informativeness, the different levels of AAPOR criteria did not play an important role. Only the aspect of reliability was rated significantly different from recipients of high level, compared to recipients of medium and low level criteria poll reports.

Overall, the pre-election poll reports of this study were rated rather reliable than unreliable (4.8 on a seven point scale). Surprisingly, pre-election poll reports with all eight AAPOR criteria were rated significantly less reliable than articles with only one AAPOR criteria. A content analysis of comments on the recipients' evaluation revealed possible reasons.

The comments show that statistics in general do perceive high support from recipients and are generally rated positively (more reliable), as long as the technical details remain unknown or at least unspecified. As soon as technical information about polls is provided, lots of recipients demonstrated a skeptical attitude toward poll results and rated the results less reliable.

As was seen in the comments, the methodology of how the survey was done (telephone survey), the margin of error (4 or 5.5 percentage points), and the sample size (385 or 593 likely voters) led to a negative interpretation of the survey results. In contrast, the names of the responsible polling organization (the fictitious Triple A Research Center), the poll sponsor (Bloomberg and *Los Angeles Times*), and newspaper (*Los Angeles Times*) led to an interpretation of greater reliability.

One has to keep in mind that the given survey results might indeed be criticized for a relatively small sample size and a relatively high margin of error. However, further research might reveal if the interpretation of reliability by recipients is directly related to a general skepticism toward technical details of polls, or to the factual qualities of the pre-election poll. This study cannot give a satisfactory answer to this question.

The scale rating of difficulty of the pre-election poll reports revealed an undecided verdict (4.0 on a seven point scale). The results show that the level of criteria did not matter significantly for the evaluation of difficulty.

The content analysis of comments revealed that statistics generally play an important role in evaluating the difficulty of a newspaper article. However, the numbers and figures seemed less important for the evaluation of difficulty for high-level criteria articles (38 percent) than for medium-level (41 percent), and low-level criteria articles (48 percent).

The pre-election poll reports in this study were rated rather credible than not credible by the recipients (4.8 on a seven point scale). The medium-level criteria reports were rated most credible; however, the differences to low-level and high-level criteria reports were not significant.

A content analysis of the comments provided by the recipients suggests that the numbers and statistics in the reports were not the most important information to evaluate credibility.

Not surprisingly, the name of the polling institute (the fictitious Triple A Research Center) and the names of the responsible media groups (Bloomberg and *Los Angeles Times*) were often used to rate the poll reports more credible. In contrast, if the names of the institutions were not given or found by the readers, the poll reports were generally rated less credible.

The scale-rating of informativeness on a seven-point scale did not calculate any significant differences between the poll reports of different levels of

criteria. Overall the pre-election poll reports were rated rather informative with an average of 4.8.

The content analysis of the comments suggests that statistics and numbers are not the most important aspect for the evaluation of informativeness. Despite the amount of information that was provided, the personal gain of knowledge seemed an important aspect for the evaluation of informativeness of the given pre-election poll reports in this study.

7.3 Methodology

The main work for this study was performed between August 21, 2006 and October 3, 2007. The experiment seemed the most appropriate methodology for the research on the relevance of technical details of pre-election polls in newspaper articles. The decision on the experimental design was made after a significant amount of reading and research. Since the author combines scientific, as well as journalistic experience, scientific and journalistic interests were weighted toward each other while planning the experimental design:

From a scientific perspective, a 3 x 2 x 3 factorial design would have been great for the idea of testing three levels of AAPOR criteria in the poll reports. The design would have provided three levels of criteria, two repetitions for within-subjects comparisons, and three questions for each paragraph.

From a journalistic perspective, this design was not acceptable. A 3 x 2 x 3 design would have required each recipient to read a story of six paragraphs for part A of this study. Each paragraph would have represented a different survey with separate technical criteria. In the author's opinion, this experimental design

would have not allowed for a realistic pre-election poll report and therefore for realistic results of this study.

The decision to conduct an experiment with a 2 x 2 x 3 within subject factorial design was a compromise between the scientific and journalistic goals of the author. For part A of this study, each recipient had to read an article with four paragraphs on pre-election poll results in four different states in the United States. The article was designed to be read in about ten minutes, which proved realistic.

The mean of the evaluative self-report measure of reliability was 4.8 on a seven-point scale. This shows that the stories were still rated reliable, rather than not reliable. It also suggests that the articles in this study were perceived realistically and that the results are generally trustworthy. In addition, the comments that were provided for part B of this study gave no hints that the experimental design had intensively influenced the validity of the experiment.

However, by reducing the levels of criteria in the experimental design, the study lost power. Some may criticize this decision, but it was the author's intention to create an experimental design with a realistic and interesting pre-election poll report in order to gain reliable and valid results.

The realization of part B of the study was not as successful as it possibly could have been. Since the ratings of reliability, difficulty, credibility, and informativeness did not produce significant results, the comments that were provided by the recipients gained much more importance.

Some comments suggested that the rating on a seven-point non-comparative scale was not the best method to use. Another type of scale rating might have been better for this type of research. After one year of working on this study, a seven or five-point Likert scale would have most likely produced more valid results.

Additionally, it seems likely that the evaluative self-report measures should have been tested in a setting which was more independent from part A of the study. Despite the verbal and written advice that only the report on the post-test questionnaire should be rated, some comments suggested that the recipients were not able to do so. It seems as if it was very difficult to rate only one paragraph of the complete story that the recipients had read before.

From a scientific perspective it would have been ideal if each recipient would have had to evaluate one story for each level of criteria (LC, MC, and HC). However, from a journalistic perspective it does not seem possible to gain valid results if recipients were asked to read three stories, to rate them according to four dimensions, and to provide intelligent comments for each scale-rating.

Using different dimensions for the evaluative self-report measures may have been a better approach. Few comments suggested that the evaluation of reliability and credibility were too similar for some recipients to differentiate.

Chapter 8

Conclusion

This study was conceptualized to investigate the meaningful question: What do readers do with poll results? The results of this study were gained from an experimental, and a self-evaluative section.

The results have drawn a fairly clear picture of how the recipients have perceived and memorized the information provided in pre-election poll reports. As was suspected, information that is provided early in the article is generally better encoded and better stored by the recipients.

In addition, recipients who are more experienced in, interested in, and knowledgeable about politics and polls, do better in memorizing information of pre-election poll reports.

The amount of technical information about polls (AAPOR criteria) has been an important factor for the analysis of how recipients encode and store information in pre-election poll reports. The results of the experiment, which was based on the limited capacity model of Lang (2000) and earlier findings of related studies, suggest that pre-election poll reports with all eight AAPOR criteria are encoded and stored less successfully than reports with fewer criteria.

In addition it seems fairly clear that pre-election poll reports with only one AAPOR criteria were encoded and stored less successfully than reports with a medium number of AAPOR criteria.

The comments provided in Part B of this study also suggest that a high number of AAPOR criteria not only hinders the encoding and storage processes of the recipients, but can also lead to a evaluation of less reliability of the pre-election poll report.

Thus, the results of this study strongly recommend a change of course for newspaper journalists and the education of young journalists. It seems fairly clear that pre-election poll reports with only a few, but important, technical details about political polls, are better encoded and stored by the majority of newspaper readers.

Yet two aspects should not be overlooked: First, this study also showed that experts in politics and polls do better in memorizing information in pre-election poll reports. Second, the comments on the evaluation of reliability proved that recipients generally tend to interpret the information that is provided as background information of a political poll. Thus, the question remains: Does it make sense to take important information, such as technical details about polls, away from these readers?

It has to be taken into account that this study was only a first step in the important discussion about the impact of technical information of polls on the process of understanding and evaluating pre-election poll reports. However, as a journalist by trade, the author feels a strong commitment to join the well-known colleagues Meyer and Jurgensen in their denial of the “100 percent or more-is-better model” (Meyer & Jurgensen 1991:5).

Backed by the results of this study, it seems important to get poll experts, scholars and poll reporters together to discuss a future policy of how political poll results should be published in newspaper reports. To date, the historical standards for minimal disclosure by renowned organizations, such as the American Association for Public Opinion Research (AAPOR), or the World Association for Public Opinion Research (WAPOR) seem inadequate.

The results of this study also show a need for further research to investigate whether the results are stable for newspaper reports on other survey results, and if encoding and storage processed show similar patterns for different types of media.

Chapter 9

References

Andersen, Robert (2000) "Reporting Public Opinion Polls: The Media and the 1997 Canadian Election," in: *International Journal of Public Opinion Research*, Vol. 12 Autumn, 285-298.

Bernstein, Ronald (2006) "Election 2006, Senate rule for Dems? According to polls, Democrats could take over majority position if they can win at least 2 races in 3 red states," in: *Los Angeles Times*, published on October 25, 2006.

Blais, André; Gidengil, Elisabeth & Nevitte Neil (2006) Do Polls Influence the Vote? in: Brady Henry E. & Johnston Richard, *Capturing Campaign Effects*, The University of Michigan Press, Ann Arbor, 263-279.

Brettschneider, Frank (1996) Wahlumfragen und Medien. Eine empirische Untersuchung der Presseberichterstattung über Meinungsumfragen vor den Bundestagswahlen 1980 bis 1994 (Election Polls and the Media. Empirical Research on the Reporting of Opinion Polls before the Federal Elections 1980 through 1994), in: *Politische Vierteljahresschrift*, Vol.37 No.4, 475-493.

-. (2000) "Demoskopie im Wahlkampf – Leitstern oder Irrlicht?" (Opinion Polling in Election Campaigns: Lodestar or Ghost Light?) in: Klein, Markus, Jagodzinski, Wolfgang, Mochmann, Ekkerhard & Ohr, Dieter (Eds.) (2000) *50 Jahre Empirische Wahlforschung in Deutschland. Entwicklung, Befunde, Perspektiven, Daten (50 years of Empirical Research on Elections in Germany. Development, Findings, Perspectives, Data)*, Wiesbaden: Westdeutscher Verlag, 477 – 505.

-. (2003) "Wahlumfragen: Medienberichterstattung und Wirkungen" (Election Polls: Media Coverage and Effects), in: Wüst, Andreas M. (Ed.) *Politbarometer. Festschrift für Dieter Roth*, Opladen: Leske & Budrich, 257-282.

Craik, F.I.M. & Lockhart, R. (1972) "Levels of processing: A framework for memory research," in: *Journal of Verbal Learning and Verbal Behavior*, Vol.11, 671-684.

Donsbach, Wolfgang (2001) *Who's Afraid of Election Polls? Normative and Empirical Arguments for Freedom of Pre-Election Surveys*, Paper presented at the annual ESOMAR conference, Amsterdam: Foundation for Information.

Ettema, J. & Kline, F.G. (1977) "Deficits, differences and ceiling: Contingent conditions for understanding the knowledge-gap," in: *Communication Research* No.4, 179-202.

Gibbons, Jeffrey A.; Lukowski, Angela F. & Walker, W. Richard (2005) "Exposure increases the believability of unbelievable news headlines via elaborate cognitive processing," in: *Media Psychology*, Vol.7 No.3, 273-300.

Hardmeier, Sybille (1999) "Political Poll Reporting in Swiss Print Media," in: *International Journal of Public Opinion Research*, Vol. 11, No. 3 (Fall 1999), 257-274.

H.R. 5003 (1973) *Public Opinion Polls. Hearings before the Subcommittee on Library and Memorials of the Committee on House Administration. House of Representatives. Ninety-Third Congress. First Session on H.R. 5003 to provide for the Disclosure of certain Information related to certain Public Opinion Polls*, September 19, 20, 21; October 5, 1972; U.S. Government Printing Office, Washington: 1973.

Krosnick, Jon A. & Alwin, Duane F. (1987) "An Evaluation of a Cognitive Theory of Response-Order Effects in Survey Measurement," in: *The Public Opinion Quarterly*, Vol.51, No.2, 201-219.

Lang, Annie (1989) "Effects of Chronological Presentation of Memory of Information on Processing and Memory for Broadcast News," in: *Journal of Broadcasting and Electronic Media*, Vol.33 No.4, 441-452.

-. (1990) "Involuntary attention and physiological arousal evoked by structural features and mild emotion in TV commercials," in: *Communication Research*, Vol.17 No.3, 275-299.

-. (2000) "The information processing of mediated messages. A framework for communication research," in: *Journal of Communication*, Vol.50, 46-70.

-. (2006) "Using the Limited Capacity Model of Motivated Mediated Message Processing to Design Effective Cancer Communication Messages," in: *Journal of Communication*, Vol.56, 57-80.

Lang, A.; Geiger, S.; Strickwerda, M. & Sumner, J. (1993) "The effects of related and unrelated cuts on viewers' memory for television: a limited capacity theory of television viewing," in: *Communication Research*, Vol.20 No.1, 4-29.

Lang, A.; Borse, J.; Wise, K. & David, P. (2002) "Captured by the World Wide Web: Orienting to structural and content features of computer presented information," in: *Communication Research*, Vol.29 No.3, 215-245.

Lang, A.; Potter, Deborah; Grabe, Maria Elizabeth (2003) "Making News Memorable: Applying Theory to the Production of Local Television News," in: *Journal of Broadcasting and Electronic Media*, Vol.47, 113-123.

Lordan, E.J. (1993) "Do methodological details help readers evaluate statistic-based stories?" in: *Newspaper Research Journal*, Vol.14, No.3/4, 13-19.

Marton, Krisztina & Stephens, Lowndes, F. (2001) "The New York Times' conformity to AAPOR standards of disclosure for the reporting of public opinion polls," in: *Journalism and Mass Communication Quarterly*, Vol.78, No.3 (autumn), 484-502.

Meyer, Philip & Jurgensen, Karen (1991) "Beating disclosure to death: A rejoinder to Rollberg, Sanders and Buffalo," in: *Newspaper Research Journal*, Vol. 12, No. 3 (Summer 1991), 2-7.

Miller M. M. & Hurd, R. (1982) "Conformity to AAPOR Standards in Newspaper Reporting of Public Opinion Polls," in: *Public Opinion Quarterly*, Vol.46 No.2 (Summer), 243-249.

Miyo, Y. (1983) "The knowledge-gap hypothesis and media dependency," in: R. Bostrom (Ed.), *Communication yearbook* (7), Beverly Hills, CA: Sage, 626-650.

Noelle-Neumann, E. (1997) "Quality criteria in survey research," in: *International Journal of Public Opinion Research*, Vol.9 No.1, 29-32.

Paletz, D.L.; Short, J.Y.; Baker, H.; Cookman Campell, B.; Cooper, R.J. & Oeslander, R.M. (1980) "Polling in the media: Content, credibility, and consequences," in: *Public Opinion Quarterly*, Vol.44 No.4 (Winter), 495-513.

Potter, R.F.; Lang, A. & Bolls, P.D. (1998) "Orienting to structural features in radio messages," in: *Psychophysiology*, Vol.34 (Suppl. 1), S72.

Robinson, Edward S. & Brown, Martha A. (1926) "Effect of Serial Position upon Memorization," in: *The American Journal of Psychology*, Vol.37, No.4 (Oct.), 538-552.

Rollberg, Jeanne N., Sanders, Luther W. and Buffalo, M. D. (1990) "Down to the Wire: How Six Newspapers Reported Public Opinion Polls During the 1988 Presidential Campaign," in: *Newspaper Research Journal* 11 (Fall 1990), 80-93.

Salmon, Charles T. & Glasser, Theodore L. (1995) "The Politics of Polling and the Limits of Consent," in: Glasser Theodore L. & Salmon Charles T.: *Public Opinion and the Communication of Consent*, 437-458.

Salwen, M.B. (1985) "The reporting of public opinion polls during presidential years. 1968-1984," in: *Journalism Quarterly*, Vol.62, 272-277

Spangenberg, Frits (2003) *The Freedom to Publish Opinion Poll Results: Report on a Worldwide Update*, Foundation for Information, WAPOR/ ESOMAR.

Suhonen, P. (2001) "Opinion Polls and Journalism: The Case of Finland," in: Splichal, S. (Ed.) *Public opinion and Democracy. Vox populi – vox dei*, Cresskill: Hampton Press, 311-335.

Thorson, E. & Lang, A. (1992) "The effects of television videographics and lecture familiarity on adult cardiac orienting responses and memory," in: *Communication Research*, Vol.19 No.3, 346-369.

Tichenor, P.J.; Donohue, G.A. & Olien, C.N. (1970) "Mass media flow and differential growth in knowledge," in: *Public Opinion Quarterly*, Vol.34, 159-170.

Weaver, David & Sung, Tae Kim (2002) "Quality in Public Opinion Poll Reports: Issue Salience, Knowledge and Conformity to AAPOR/WAPOR Standards," in: *International Journal of Public Opinion Research* 14 (2), 202 – 212.

Weimann, G. (1990) "The obsession to forecast: Pre-election Polls in the Israeli Press," in: *Public Opinion Quarterly*, Vol. 54, 396-408.

Wheeler, Michael (1976) *Lies, Damn Lies and Statistics. The Manipulation of Public Opinion in America*, Published by George J. McLeod Limited in Toronto, Canada.

Yankelovich, D. (1996) "A new direction for survey research," in: *International Journal of Public Opinion Research*, Vol.8 No.1, 1-9.