

NAVAL POSTGRADUATE SCHOOL

Monterey, California



THESIS

**AN EXPERIMENT IN USING CONTENT PLACED ON THE
INTERNET AS A VEHICLE FOR INFLUENCING PUBLIC
OPINION**

by

Kari Schwab

June 2003

Thesis Advisor:

James Bret Michael

Thesis Co-Advisor:

Raymond Buettner

Approved for public release; distribution is unlimited

THIS PAGE INTENTIONALLY LEFT BLANK

REPORT DOCUMENTATION PAGE			<i>Form Approved OMB No. 0704-0188</i>	
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instruction, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188) Washington DC 20503.				
1. AGENCY USE ONLY (Leave blank)		2. REPORT DATE June 2003	3. REPORT TYPE AND DATES COVERED Master's Thesis	
4. TITLE AND SUBTITLE: An Experiment in Using Content Placed on the Internet as a Vehicle for Influencing Public Opinion			5. FUNDING NUMBERS	
6. AUTHOR(S) Kari Schwab				
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Naval Postgraduate School Monterey, CA 93943-5000			8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING /MONITORING AGENCY NAME(S) AND ADDRESS(ES) N/A			10. SPONSORING/MONITORING AGENCY REPORT NUMBER	
11. SUPPLEMENTARY NOTES The views expressed in this thesis are those of the author and do not reflect the official policy or position of the Department of Defense or the U.S. Government.				
12a. DISTRIBUTION / AVAILABILITY STATEMENT Approved for public release; distribution is unlimited			12b. DISTRIBUTION CODE	
13. ABSTRACT (maximum 200 words) In this thesis we explore the potential for using content placed on the Internet as a vehicle for influencing public opinion. We conducted an experiment with 110 subjects to test whether subtle changes in a headline for a news article, without changing the content of the article, can affect a user's perception of the news event reported in the article. These online news articles were assembled from a number of major news organizations. The subjects were divided into three groups, each of which was exposed to a different version of the headline: positively biased, negatively biased, and unchanged from the original headline. Afterwards the subjects completed a survey to indicate their views on the news events. We then analyzed this data to determine the cause-effect relationship between perception of the news event and the version of the headline. We found a detectable influence when using positively biased headlines to lessen the impact of negatively biased news stories, although the influence was not statistically significant. No evidence regarding the influence of negatively biased headlines on negatively biased news stories was discovered. This research was focused on detecting the potential influence of subtle changes and does not address the potential influence of less subtle changes.				
14. SUBJECT TERMS Persuasion, Internet, Perception Management			15. NUMBER OF PAGES 117	
			16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT Unclassified	18. SECURITY CLASSIFICATION OF THIS PAGE Unclassified	19. SECURITY CLASSIFICATION OF ABSTRACT Unclassified	20. LIMITATION OF ABSTRACT UL	

NSN 7540-01-280-5500

Standard Form 298 (Rev. 2-89)
Prescribed by ANSI Std. Z39-18

THIS PAGE INTENTIONALLY LEFT BLANK

Approved for public release; distribution is unlimited

**AN EXPERIMENT IN USING CONTENT PLACED ON THE INTERNET AS A
VEHICLE FOR INFLUENCING PUBLIC OPINION**

Kari Schwab
Ensign, United States Navy
B.S., Rensselaer Polytechnic Institute, 2002

Submitted in partial fulfillment of the
requirements for the degree of

**MASTER OF SCIENCE IN SYSTEM'S TECHNOLOGY
(JOINT COMMAND, CONTROL AND COMMUNICATIONS)**

from the

**NAVAL POSTGRADUATE SCHOOL
June 2003**

Author: Kari Schwab

Approved by: James Bret Michael
Thesis Advisor

Raymond Buettner
Co-Advisor

Dan C. Boger
Chairman, Department of Information Sciences

THIS PAGE INTENTIONALLY LEFT BLANK

ABSTRACT

In this thesis we explore the potential for using content placed on the Internet as a vehicle for influencing public opinion. We conducted an experiment with 110 subjects to test whether subtle changes in a headline for a news article, without changing the content of the article, can affect a user's perception of the news event reported in the article. These online news articles were assembled from a number of major news organizations. The subjects were divided into three groups, each of which was exposed to a different version of the headline: positively biased, negatively biased, and unchanged from the original headline. Afterwards, the subjects completed a survey to indicate their views on the news events. We then analyzed this data to determine the cause-effect relationship between perception of the news event and the version of the headline. We found a detectable influence when using positively biased headlines to lessen the impact of negatively biased news stories, although the influence was not statistically significant. No evidence regarding the influence of negatively biased headlines on negatively biased news stories was discovered. This research focused on detecting the potential influence of subtle changes and does not address the potential influence of less subtle changes.

THIS PAGE INTENTIONALLY LEFT BLANK

TABLE OF CONTENTS

I.	INTRODUCTION.....	1
II.	SCIENCE OF INFLUENCE.....	5
A.	RUSHKOFF	5
1.	Internet as the New Money-Making Machine.....	6
2.	“Eye-Ball Hours”	6
3.	Atmospherics	7
B.	CIALDINI.....	7
1.	Basic Weapons of Influence	8
a.	<i>Commitment</i>	8
b.	<i>Consistency</i>	8
c.	<i>Social Proof</i>	8
d.	<i>Liking</i>	9
e.	<i>Authority</i>	9
2.	Usefulness.....	9
C.	PRATKANIS AND ARONSON	10
1.	Persuasive Messages	10
2.	Prevalence = Importance.....	10
3.	Confirmation Bias	11
III.	INFLUENCE IN OUR LIVES.....	13
A.	INFLUENCE VIA NEWSPAPERS/HEADLINES.....	13
1.	The Induction of Opinion Through Suggestion by Means of “Planted Content”	13
a.	<i>Experiment</i>	14
b.	<i>Conclusions</i>	14
c.	<i>Usefulness</i>	15
d.	<i>Caveat</i>	15
2.	Incrimination Through Innuendo: Can Media Questions Become Public Answers?	15
a.	<i>Experiment</i>	16
b.	<i>Results</i>	16
3.	The Objectivity of the New York Times in Covering the Palestinian-Israeli Conflict.....	16
4.	Who Deliberates?	17
a.	<i>Slanting of the News</i>	17
b.	<i>Techniques</i>	17
B.	INFLUENCE VIA COMPUTERS/INTERNET	18
1.	Nass/Reeves.....	18
a.	<i>Lessons-Learned</i>	19
2.	Study’s by Arthur Lupia	19
a.	<i>The Web White and Blue Network</i>	19
b.	<i>Can Websites Change Citizens?</i>	21

3.	Captology	21
a.	<i>What is a Persuasive Technology</i>	22
b.	<i>How Can They be Used</i>	22
c.	<i>Important Questions</i>	23
C.	TACTICS/TECHNIQUES AND LIMITATIONS.....	23
1.	Which Hold Promise?	23
2.	Potential for Information Operations	23
3.	Thesis Experiment	24
IV.	EXPERIMENTAL DESIGN.....	25
A.	PHYSICAL LAYOUT	25
1.	Color	25
2.	Font.....	26
3.	Layout	27
4.	Lack of Pictures.....	28
5.	Same Articles.....	28
B.	HUMAN SUBJECT RESEARCH CONSIDERATIONS	29
1.	Fictional Articles	29
2.	No Source Credibility	29
3.	Residual Effects.....	29
C.	RANDOMNESS	30
1.	Random Group Selection	30
2.	Random Article Order	30
a.	<i>Skim Tactics</i>	30
b.	<i>Primacy</i>	30
c.	<i>Recency</i>	30
D.	HEADLINE SETUP	31
1.	Headlines.....	31
2.	Psychology of the Headlines.....	32
a.	<i>Word/Labeling</i>	32
b.	<i>Innuendo</i>	32
c.	<i>Fear</i>	33
E.	QUESTIONS SETUP REASONING	33
1.	Questions.....	33
a.	<i>Question 1</i>	33
b.	<i>Question 3</i>	34
c.	<i>Question 5 and 6</i>	34
2.	Likert Scale.....	34
F.	ONLINE LAYOUT.....	35
V.	ANALYSIS	37
A.	RAW DATA	37
B.	STATISTICAL ANALYSIS	40
1.	Box Plots	40
a.	<i>Question 1</i>	40
b.	<i>Question 3</i>	41
c.	<i>Question 5</i>	42
d.	<i>Question 6</i>	43

2.	Pooled Variance t Test.....	43
3.	Expected vs. Actual Results	44
4.	Lessons Learned.....	46
a.	<i>Homogenous Pool of Users</i>	46
b.	<i>Narrow Scope</i>	46
c.	<i>Written Questions</i>	46
d.	<i>Small Scale</i>	47
e.	<i>Subjective Questions</i>	47
f.	<i>Unnatural Environment</i>	47
VI.	CONCLUSION AND FUTURE WORK	49
	APPENDIX A. EXPERIMENTAL TEXT	51
A.	CONSENT FORM.....	51
B.	HEADLINES	52
C.	ARTICLE 1	52
D.	ARTICLE 2	53
E.	ARTICLE 3	54
F.	ARTICLE 4	55
G.	ARTICLE 5	57
H.	ARTICLE 6	58
I.	ARTICLE 7	59
J.	ARTICLE 8	59
K.	SURVEY	60
L.	EXPERIMENT COMPLETE PAGE	62
	APPENDIX B. EXPERIMENT SCREEN SHOTS.....	65
	APPENDIX C. BACKGROUND RESEARCH	71
A.	COERCION BY: DOUGLAS RUSHKOFF.....	71
1.	Critique/Usefulness.....	71
B.	INFLUENCE: THE PSYCHOLOGY OF PERSUASION BY: ROBERT B. CIALDINI, PH.D.....	72
1.	Critique/Usefulness.....	73
C.	AGE OF PROPAGANDA BY: ANTHONY PRATKANIS AND ELLIOT ARONSON	73
1.	Critique/Usefulness.....	74
D.	THE MEDIA EQUATION BY: BYRON REEVES AND CLIFFORD NASS	75
1.	Critique/Usefulness.....	76
E.	WHO DELIBERATES? BY: BENJAMIN I. PAGE	76
1.	Critique/Usefulness.....	77
F.	PAPER ON THE WEB WHITE AND BLUE NETWORK BY: ARTHUR LUPIA.....	77
1.	Critique/Usefulness.....	78
G.	THE INDUCTION OF OPINION THROUGH SUGGESTION BY MEANS OF “PLANTED CONTENT” BY: ALBERT D. ANNIS AND NORMAN C. MEIER.....	79
1.	Critique/Usefulness.....	80

H.	PUBLIC OPINION, POLITICAL COMMUNICATION AND THE INTERNET BY: HEATHER SAVINGNY	81
1.	Critique/Usefulness	82
I.	CAN WEB SITES CHANGE CITIZENS? BY: ARTHUR LUPIA.....	83
1.	Critique/Usefulness	83
J.	THE OBJECTIVITY OF THE NEW YORK TIMES IN COVERING THE PALESTINIAN-ISRAELI CONFLICT BY: RASEM ABID	84
1.	Critique/Usefulness	84
K.	THINKING ABOUT POLITICAL PSYCHOLOGY BY: JAMES KUKLINSKI ONLY IMPORTANT ARTICLE BEING “WHO CAN PERSUADE WHOM?” BY: ARTHUR LUPIA	85
1.	Critique/Usefulness	85
L.	THE DEMOCRATIC DILEMMA BY: ARTHUR LUPIA AND MATHEW MCCUBBINS.....	86
1.	Critique/Usefulness	87
M.	COMMUNITY-BUILDING AND PERMISSION MARKETING IN AN INFORMATION OPERATIONS PERCEPTION MANAGEMENT CAMPAIGN BY: SOPHIA KWON.....	88
1.	Critique/Usefulness	89
N.	INCRIMINATION THROUGH INNUENDO: CAN MEDIA QUESTIONS BECOME PUBLIC ANSWERS? BY: WEGNER	89
1.	Critique/Usefulness	90
O.	CAPTOLOGY (B. J. FOGG).....	91
1.	Critique/Usefulness	92
	LIST OF REFERENCES.....	93
	INITIAL DISTRIBUTION LIST	95

LIST OF FIGURES

Figure 1.	Question 1 Box Plot.....	40
Figure 2.	Question 3 Box Plot.....	41
Figure 3.	Question 5 Box Plot.....	42
Figure 4.	Question 6 Box Plot.....	43
Figure 5.	Consent Form.....	65
Figure 6.	Main Page.	66
Figure 7.	Sample Headline Page with Article.	67
Figure 8.	Sample Headline Page with Survey.....	68
Figure 9.	Sample Headline Page with Debrief Form.	69

THIS PAGE INTENTIONALLY LEFT BLANK

LIST OF TABLES

Table 1.	Raw Data Table.....	39
Table 2.	Likert Scale Questions Summary.....	45
Table 3.	Headlines.....	52

THIS PAGE INTENTIONALLY LEFT BLANK

ACKNOWLEDGMENTS

I would like to thank my advisors, Bret Michael and Raymond Buettner, for their supervision and support. They were always available when I needed them. Without their help, this thesis would not have been possible. I would also like to thank Anthony Pratkanis for his assistance with the psychology aspects of this thesis, Douglas MacKinnon for his help with the data analysis and Dan Boersma for his help with the web server and webpage coding.

THIS PAGE INTENTIONALLY LEFT BLANK

EXECUTIVE SUMMARY

For thousands of years, businesses and militaries alike have employed psychological operations and influence techniques. Since the early 1900's, a number of studies have been conducted which demonstrate the ability of newspapers to influence a user's opinion. More recently, a number of books have been written which describe some of the tools and tactics used in persuasion such as compliance, fear appeals and commitment. Many of them are based upon short-cuts humans have developed to make decisions in a timely fashion. Influence tactics are designed to exploit these shortcuts. This thesis explores the potential for using such tactics in content placed on the Internet as a vehicle for influencing public opinion.

In order to do so, we will first investigate the known studies of the effects of innuendo and planted content, and then explore the new field of captology, which involves influence via a computer/Internet. The goal of this research is to bridge a gap between influence via newspapers and influence via the Internet.

There is a great importance for the study of influence as it progresses from newspapers to the Internet. Possibly the most devastating way the Internet is used today is to recruit terrorists. By understanding the methods already in practice in both newspapers and the Internet, we can try to impact their recruitment efforts.

Another important use of influence over the Internet involves the military specifically. The military calls influence tactics, "perception management" which they define as "actions to convey and/or deny selected information...to foreign audiences to influence their emotions, motives, and objective reasoning; and to intelligence systems and leaders at all levels to influence official estimates, ultimately resulting in foreign behaviors and official actions favorable to the originator's objectives." (United States, Joint Chiefs of Staff, Joint Publication 1-02: Dictionary of Military Terms (Washington, D.C.: Headquarters, 1994)) We argue that web-enabled perception-management tactics can be developed and used to manipulate the opinions of large populations of people without using expensive technology. Such techniques are already in use by news

services. One instance is the deliberate use of pessimistic news-story headlines about Operation Iraqi Freedom in certain large-circulation newspapers. (“Media Bias in War Coverage,” Shepard Smith, Studio B with Shepard Smith, Foxnews, 02 April 2003.) These headlines and the content of the associated articles can influence domestic and foreign public opinion about the war, and potentially cast a negative impression of the war’s execution.

After careful study into the science of influence and persuasion, we hypothesized that changes in online news headlines could influence a person’s opinion of a world event. We then created an online experiment to test the lower limit of this theory. In order to minimize the effects of other contributing factors, we used a uniform and basic color, font and web layout. The experiment was administered to a large group of human subjects. The subjects viewed, via a web browser, web-page content that contains headlines with a positive/negative spin, the purpose of which is to sway the subjects’ opinions about a fictitious world event. In addition to reading this material, subjects were also required to read the corresponding online articles which were assembled from a number of major news organizations. Afterwards, the subjects completed a survey to indicate their views on the news events. The articles were identical for all groups so that any differences in opinion between the positive/negative/actual groups were based solely upon the differences in the headlines.

We conducted the experiment over a two-week period on an internal server at the Naval Postgraduate School. We had 110 responses with 36 subjects each in the positive and negative groups and 38 subjects in the actual group. We analyzed the data using box and whisker plots and pooled-variance t tests to determine the cause-effect relationship between perception of the news event and the version of the headline. We found only one value which was significantly different than the actual group. Therefore, we cannot reject the null hypothesis and statistically, the results are equal. However, when looking at the experiment as a whole, we conclude that there was some discernible influence detected in two of the questions. In both of those questions, the participants in the positive group reported scores that were more positive than the actual group. However, for both of those questions, no such influence was detected for the negative group. This information suggests that there is potential for lessening negative spin but no potential for

increasing it. This finding is very important with regard to counter-terrorism plans. This study provides the basis for the use of positive spin with regard to counter-terrorism sites and to stay away from negative spin.

While our information is promising, we found the overall lack of statistically supporting evidence contrary to our intuition and therefore we proceeded to explore the possible flaws in our experimental design. A number of flaws were indicated that might explain the lack of statistical significance. We recommend that this experiment should be redone with the following changes:

- use a seven-point scale
- use less subjective terminology
- reword the evaluation questions so they are less ambiguous
- create a larger site with more headlines and articles
- change the instructions so that the users are told to ‘interact’ with the site instead of read every article.

Another major factor we might consider revising is the fact that the topic selected for the experiment was completely hypothetical and therefore we can say nothing about the impact of such techniques on the reader when dealing with a topic that they care about. In other words, if you don’t care about the topic, you have no opinion to change. An experiment using real topics might yield more satisfactory results.

We feel that these changes might elicit the differences in opinion that we expected to observe from the experiment.

More research and experimentation needs to occur before we can conclusively say that headlines alone can elicit changes of public opinion. In the interim, there are many different variations of this experiment that can be conducted that test the other aspects of website design that we selectively eliminated in our procedure. Such examples include the effects of color on a person’s viewpoint or the trustworthiness of information received in a larger more flowing font. The power to influence others is something humans recognized a long time ago. With the advent of the Internet, the ability to influence others became something that can be done simultaneously to many people and without

their knowledge. This type of research into the science of influence should be continued so that in the near future we may develop and employ a simple tool that we could use to counter terrorist recruitment sites on the Internet.

I. INTRODUCTION

For thousands of years, businesses and militaries alike have employed psychological operations and influence techniques. Whether it is to sell a product or outmaneuver an enemy, the overriding goal underlying the use of influence is to cause the customer or opponent to think or act in a way that is advantageous to the source of the influence.

During the Vietnam era, massive distrust in the media and government spawned great interest in the science of influence. As such, many books have been written which describe some of the tools and tactics used in persuasion. Some of these books include Influence by Robert Cialdini and Age of Propaganda by Anthony Pratkanis and Elliot Aronson both of which will be discussed in Chapter II.

The tactics mentioned in these books concern things such as compliance, fear appeals and commitment. Many of them are based upon short-cuts humans have developed to make decisions in a timely fashion. These short-cuts were borne out of the necessity to make sense out of the massive sensory information humans receive in any given second. Influence tactics are designed to exploit these shortcuts.

Since the early 1900's, there have been a number of studies which demonstrate the ability for newspapers to influence a user's opinion. A selection of these studies will be discussed in Chapter III including "The Induction of Opinion Through Suggestion by Means of 'Planted Content'" by Albert D. Annis and Norman C. Meier and "Incrimination Through Innuendo: Can Media Questions Become Public Answers?" by Daniel M. Wegner et al.

Today, however, we are seeing a paradigm shift in the science of persuasion. This shift is from newspapers to the Internet. Over the past few decades, we have seen the Internet evolve from a small government project used to connect four universities to an indispensable media device that affects billions of people. It is now estimated that there are over three billion web pages on the Internet with each one of those three billion pages having the potential to change your opinion.

Later in Chapter III, we will discuss recent studies which have begun to look at this phenomenon of influence over the Internet/computers. We will also discuss the new field of science that has been created to study these effects: captology.

In this thesis, we will try to bridge the wealth of knowledge about influence and its use in newspapers to the new studies involving influence and the Internet. We are seeking to measure the influential effects of headlines as they apply to web-based articles. Based upon the known effects of innuendo and planted content from the previous studies, we hypothesize that subtle differences in news article headlines can produce subtle differences in a user's opinion of the severity of a world event. Thus, we have created a website experiment in which to test this effect which is described in Chapter IV.

The experimental design consisted of a web-based survey, which was administered to a large group of human subjects. The subjects viewed, via a web browser, web-page content that contains headlines with a subtle positive/negative spin, the purpose of which is to sway the subjects' opinions about a fictitious world event. In addition to reading this material, subjects were also required to read the corresponding online articles which are identical for all groups. In this manner, when the subjects were given a survey at the end of the readings, any differences in opinion between the positive/negative/actual groups were based solely upon the differences in the headlines.

An important shortfall of this design is the unrealistic nature the users are emplaced. As described later, when users on the Internet have too much to read, they tend to select certain sentences such as headlines and only read them. In our experiment, we instructed the subjects to read all the corresponding articles with the headlines, which is something that most subjects would not do in a natural environment. In this manner, since our articles themselves were identical, any subtle effect caused by the headline might have been overshadowed by the content of the articles.

There is great importance in bridging the gap between influence with newspapers and with the Internet. As mentioned earlier, both militaries and businesses have used influence techniques to obtain a specified result. Possibly, the most devastating way the

Internet is used today is to recruit terrorists. By understanding the methods already in practice in both newspapers and the Internet, we can try to impact their recruitment efforts.

Another important use for influence over the Internet involves the military specifically. The military calls influence tactics, “perception management” which they define as

actions to convey and/or deny selected information...to foreign audiences to influence their emotions, motives, and objective reasoning; and to intelligence systems and leaders at all levels to influence official estimates, ultimately resulting in foreign behaviors and official actions favorable to the originator's objectives. (United States, Joint Chiefs of Staff, Joint Publication 1-02: Dictionary of Military Terms, (Washington, D.C.: Headquarters, 1994).

We argue that web-enabled perception-management tactics can be developed and used to manipulate the opinions of large populations of people without using expensive technology. We are seeing such techniques already in use by news services, for instance, through the deliberate use of pessimistic news-story headlines about Operation Iraqi Freedom in certain large-circulation newspapers. (“Media Bias in War Coverage,” Perf Shepard Smith, Studio B with Shepard Smith, Foxnews, 02 April 2003.) These headlines and the content of the associated articles can influence domestic and foreign public opinion about the war, and potentially cast a negative impression of the war’s execution.

The final portions of this thesis will include the analysis of the survey results, recommendations for future research and any conclusions that can be made about the efficacy of this influence technique.

THIS PAGE INTENTIONALLY LEFT BLANK

II. SCIENCE OF INFLUENCE

Over the last few decades, there has been a myriad of books which delve into the subtle art of influence. Three of the most widely known books are Coercion by Douglas Rushkoff, Influence by Robert Cialdini, and Age of Propaganda by Anthony Pratkanis. A good portion of each of these books analyzes the tactics and techniques used by businesses in order to obtain customer compliance. By having a good understanding of these techniques, they might then be manipulated so that they can be applied to the persuasion of personal opinion. We will now look at some of the more important aspects of these books as they relate to websites and designing influential messages.

A. RUSHKOFF

In this book, Rushkoff argues that

whether we are strolling through Times Square, exploring the Internet, or even just trying to make friends at a local bar, we are under constant scrutiny and constant assault by a professional class of hidden persuaders. In most cases, if the coercion works according to plan, we don't even recognize it has been used. [1]

It seems that no matter how self-aware we as customers become, the people who want to influence us will constantly be one step ahead with some new form of stealthy persuasion.

Later on, Rushkoff goes on to discuss the automation of coercion.

The automation of coercive practices is a threat more menacing than any sort of human manipulators. For unlike with real human interaction, the coercer himself is nowhere to be found. There is no man behind the curtain. He has become invisible. [1]

It is this automation which has provided a baseline for the methods of influence employed on the Internet and with this thesis.

Today, the Internet is quickly becoming the influence mechanism of choice. Ironically, in the beginning it was seen as a way to counter government influence, due to its ability for anybody (with access to the technology) to speak their mind and therefore offer a more balanced view.

This dichotomy in the Internet's role in influence began in the late 1980's. The user's perspective of the Internet as a bidirectional communication medium. The business perspective seeing the Internet as a unidirectional medium much like that of a television and meant to broadcast instead of communicate. Dedicated to controlling this new medium, businesses had to make a concerted effort to alter a user's perception of the Internet, and this is exactly what they did.

1. Internet as the New Money-Making Machine

Although businesses had failed in their efforts to capitalize on the initial surge in Internet use, the race was on to find a way to make money online. Many different companies, working independently, arrived at a similar strategy. The first step was to reverse the do-it-yourself attitude that the computer keyboard had provoked, and restore the supremacy of commercial content over social contact. The trick would be to change the perception of the Internet as a communications medium to a broadcast medium, which meant convincing users that our interaction with one another was less important than the data we could download and the things we could purchase with our new equipment. [1]

Almost fifteen years later, the role of the Internet is still unclear, while the commercial aspect of the Internet is huge, the communications sector has grown as well. This is not a bad thing for those who would influence us, rather, it merely provides two different angles with which to seduce us. On one hand, they can use a "hard sell" technique to sell their product by giving it exposure on many sites with heavy advertising or they can create websites that manipulate using a "soft sell" technique by having people rate a product and only put the positive responses on the website. With all the abundance of information and products on the Internet however, marketers, businesses and potential persuaders need to understand the notion of "eye-ball hours".

2. "Eye-Ball Hours"

"Although online real estate is essentially infinite, the willingness of human beings to sift through it in real time is not." [1] "...the only limiting factor on the business community's ability to earn more money online was the number of 'eye-ball hours' they could wrest from an Internet user." [1] This notion of "eye-ball hours" can relate directly to the art of persuasion. Since the Internet is so vast and there are so many informational sites out there, in order to influence people you must be able to do two things: get people to your site and keep them there with some sort of incentive or

attention-keeping mechanism. Put frankly, in order to influence you need to get the attention, the “eye-ball hours,” necessary to make an impression on your audience. This length of time can vary greatly, however, depending upon what type of influence you are trying to accomplish and how long you want those effects to last. In fact, there are dozens of timing considerations when trying to influence people. Some of these include the timing of your message, the decay of the persuasive effects, the proper intervals between successive influence segments and sleeper effects. While these alone could fill a thesis, they will instead serve as a marker for future research with regard to the Internet and we will proceed to another aspect of Rushkoff’s book: atmospherics.

3. Atmospherics

While the fast-paced world of today requires marketers to utilize blitzkrieg tactics to influence individuals, a hundred years ago it was a different story. Department stores were the location of the persuasive techniques and it was in those early years of the 1900’s that Frank Baum, author of *The Wonderful Wizard of Oz* perfected the first retail “theme” for the department stores, that of affluence. This worked great for almost a decade until store designers realized they needed a “more advanced theme to elicit more targeted consumption desires.” [1] From this desire, the “quest to create individual departments that matched the psychology of their clientele” began. [1]

“Whether the store owners developed this strategy purposefully, designers soon came to recognize the tremendous psychological effects of their theme environments on customers’ ability to make rational decisions about purchases.” [1] This realization gave birth to a new term: “atmospherics which means the conscious planning of atmospheres to contribute to the buyer’s purchasing propensity.” [1]

While the term atmospherics relates directly to a buyer’s purchasing propensity, the notion itself of altering the environment to maximize your influence is important. This notion is highlighted in Cialdini’s book, Influence.

B. CIALDINI

The notion of atmospherics was demonstrated in a study involving a hiring situation. Applicants that were well groomed “accounted for more favorable hiring decisions even though the interviewers claimed that appearance played a small role in their choices.” [2] The takeaway from this study and the notion of atmospherics is that

you must control what the user “sees” in order to maximize your influence effects. These effects of environment are so strong that the users do not even notice them working. Taking this into account, when designing a website to influence people, it is crucial that atmospherics be taken into account. Atmospherics are, in fact, especially crucial to computer-based communication because not only can the designer create a welcoming web atmosphere using color, font and layout, but they have the potential to tailor persuasive messages to each particular receiver. [3]

1. Basic Weapons of Influence

Cialdini’s book discusses seven basic weapons of influence. These include reciprocation, commitment and consistency, social proof, liking, authority and scarcity. All of these weapons can be applicable to the online environment. In particular, commitment, consistency, authority, social proof and liking all can be used to help influence people to make a certain decision or be in a certain mind frame.

These five influence weapons can be defined as follows.

a. Commitment

Once a person has made a small commitment, it is easier to get them to make another and or larger commitment (also part of consistency). In addition, written commitments or public displays of commitment are harder to counteract than secret or verbal displays of commitment. This means that active interaction with a website might make it more influential as such things like polls, surveys and message boards can play an important role in making your website persuasive.

b. Consistency

Once a person has made a choice or taken a stand, they will encounter personal and interpersonal pressures to behave consistently with that commitment. Once again, we will stress the importance for active interaction with a site that motivates the user to make some sort of display of their views with either a poll or a message board. Once this is done, they will be more compelled to stay with that view.

c. Social Proof

One means used to determine what is correct is to ascertain what other people think is correct. In particular, we are more influenced by people we perceive as

being similar to ourselves. One way to exploit this is by making a person believe you are like them, and then demonstrating what you are doing in an attempt to get them to do the same.

d. Liking

People tend to trust people that they like or admire. This can include liking the way they act or the way they look or simply a person who compliments them. As such, by feeding into the desire to be complimented or to copy someone they admire, we can potentially create dynamic pages that can be made more likable to each individual.

e. Authority

We have learned from birth that obedience to proper authority is right so therefore, later in life when we perceive someone as being the authority, we will tend to listen to them. This works whether it is a newspaper that is an authority for proper news writing or simply your boss at work. In this manner, simply by portraying yourself as an authority figure might elicit the influential effects we are seeking.

2. Usefulness

The reasoning behind these five mechanism's usefulness lies in the fact that "very often, we don't use all the relevant available information; we use instead, only a single, highly representative piece of the total." [2] "Despite the susceptibility to stupid decisions that accompanies a reliance on a single feature of the available data, the pace of modern life demands that we frequently use this shortcut." [2] The need for humans to use shortcuts when making decisions and the fact that people have limited attention spans, particularly when using the Internet, can help us when trying to exploit these tendencies in a fast-paced online environment.

Since we know time is such an important commodity, we ensured our website experiment was streamlined while preserving a natural progression leading to our desired thoughts. In this manner, when people use "short-cut" to make their decision in an effort to save time, it will ultimately lead them to our desired outcome.

Now that some of the basic influence mechanisms have been addressed, we move onto the Age of Propaganda by Anthony Pratkanis and Elliot Aronson, which discusses specifics about the message itself, and the message environment as tools of influence.

C. PRATKANIS AND ARONSON

This book covers much of the same background as does the Cialdini book in that it discusses the methods that are used to influence others. In addition, it highlights small experiments often using college students to demonstrate how these influences are at work in our daily lives. However, this book deals with the flows necessary to procure a persuasive message and the slight nuances in an environment that might assist the message's conveyance to a user.

1. Persuasive Messages

A persuasive message is persuasive when it rewards the recipient at each of the following stages of psychological processing. a) The message must attract the recipient's attention b) The arguments in the message must be understood and comprehended c) The recipient must learn the arguments contained in the message and come to accept them as true d) We act on this learned knowledge and beliefs when there is an incentive to do so. [4]

These four stages do not all have to happen but rather "the successful persuasion tactic is one that directs and channels thoughts so that the target thinks in a manner agreeable to the communicator's point-of-view; the successful tactic disrupts any negative thoughts and promotes positive thoughts about the proposed course of action." [4] On paper this seems fairly simplistic, however, in practice, it can turn into a very arduous task as you might know what you want your user to think in the end, but achieving this objective is much more complicated. This is due to the individuality of each person and their own unique takeaway from the information presented.

2. Prevalence = Importance

Though many people might think otherwise, a link exists between

what stories the mass media cover and what viewers consider to be the most important issues of the day. The content of mass media sets the public's political and social agenda. [4]

This notion is very important when thinking about how to construct a website that will successfully influence people. As demonstrated by an editorial by Rasem Abid concerning the New York Times and its coverage of the Israeli/Palestinian conflict [5], it appears that simply by putting out more information about a certain topic, people will believe it to be more important and or more valid.

3. Confirmation Bias

Beyond simple prevalence, “people tend to acquire information mostly about things they find of interest and tend to avoid information that does not agree with their beliefs.” [4] This is known as the confirmation bias, the notion that people tend to believe things that are in concert with things they already believe and reject those things which are not. This finding is significant because the people that willingly go to a website will already be interested in the topic which makes any influence attempt somewhat skewed. Furthermore, in order to influence the people that go to a website, it will need to be “form-fitted” to each user so that the messages appear to be in concert with the reader’s views so the opportunity to be influenced by the messages will exist. Since personal interests are an important factor in influence, dynamic web pages with the ability to accommodate different people, are preferred.

Much research has been conducted into the subtle art of persuasion. There are numerous things that can be manipulated in order to make your message more effective. Some of the things already mentioned have been the importance of environment, personalization, prevalence of opinion, and attracting/maintaining user. While these three books discuss the basics of the science of influence, we will move now to the specific ways people are influenced in their daily lives by the computer and newspapers. We have already seen how businesses have scrambled to control the realm of the Internet. When we combine that with the basics of influence, we can begin to scope out the basis for this thesis, making the leap from influence on paper and in person, to influence from afar using a computer and the Internet.

THIS PAGE INTENTIONALLY LEFT BLANK

III. INFLUENCE IN OUR LIVES

Influence occurs in our lives today in many ways. It occurs in our homes, while at work and at all the places in between. Two of the most prevalent tools for this influence are the computer/web and newspapers. The simple fact that many people do not go more than a day without referencing one of these sources helps to explain why so much time and effort is being spent to make these venues persuasive. The goal of this thesis is to make the transition from influence on paper to influence on the web. In order to accomplish this task, the history of influence in papers and the Internet must be understood. As such, the following is a small collection of books and articles, which will help clarify how these influences occur in our daily lives.

A. INFLUENCE VIA NEWSPAPERS/HEADLINES

The earliest documented record of an experiment using altered newspapers as an influence mechanism occurred in the 1934 experiment by Albert Annis and Norman Meier which used “planted content” in their news articles. This was shown to be a useful influence tactic when used properly. In 1981, a study by Daniel Wegner demonstrates that simple innuendo in a newspaper headline can elicit similar influential effects. Almost a decade ago, Benjamin Page discussed the slanting of the news with regard to modern democracy and a few months ago, an editorial was published charging the *New York Times* with slanting their news pro-Israeli concerning the Arab-Israeli conflict. In fact, the *O'Reilly Factor* on the FoxNews channel, leveled similar charges against the *New York Times* and the *LA Times* concerning the negative slanting of the war in Iraq. This should come as no surprise to anyone who reads the newspapers. Since newspapers are only a selection of the top news stories around the world, it should be obvious that the stories selected would therefore seem more “important.” As mentioned in the Pratkanis book, prevalence=importance.

1. The Induction of Opinion Through Suggestion by Means of “Planted Content”

This paper, by Albert D. Annis and Norman C. Meier in 1934, deals with the belief that the press can shape listeners’ opinions through the use of propaganda. As such, a study was done using a new technique to

determine the effect of defined propaganda stimuli presented through the newspaper editorial. The central purpose was to find the extent to which favorable and unfavorable opinion concerning a person could be built up through suggestion by means of ‘planted’ editorials, starting from complete ignorance of the person on the part of the readers. [6]

a. Experiment

The chosen topic of the propaganda was Mr. W. Morris Hughes, the Prime Minister of Australia from 1915-1923. The “planted content” technique involved substituting, without the subjects’ knowledge, editorials with planted content for ones of similar length and appearance in current issues of the local college newspaper. (University of Iowa’s Daily Iowan) In total, 30 planted editorials were created, half being favorable and the other half unfavorable to Mr. Hughes.

The study used Editorial Opinion Tests to test the “extent to which an opinion had been formed and whether the opinion was favorable or unfavorable to Mr. Hughes.”[6] In addition, an information check test was given to ensure that no one already had knowledge of the subject in question: Mr. Hughes.

Two hundred three male and female students from three introductory psychology classes were used for this study. These students were divided into three sections. The first two sections were further divided in half so that one half read the editorials that were favorable and the other the unfavorable editorials. Five days after the last editorial was read, the Editorial Opinion Test was given to all groups. In addition, four months after the study, the Editorial Opinion Test was given again to see if the opinions were retained.

b. Conclusions

After all the information was reviewed, a number of conclusions were made in regards to “planted” editorials. 1) A considerable number of the subject’s reading the favorable editorials became favorably biased towards the person selected as the propaganda object with a similar outcome for the subjects reading the unfavorable editorials. 2) There were no reliable differences found between the groups reading fifteen editorials and those reading only the last seven. 3) The mean scores for those just after the study were not significantly different than those on the same test four months later. 4) No reliable sex differences were found.

c. Usefulness

This study is very relevant to this thesis since it proves that “planted” information can have long term effects on a person’s opinion. This can provide a strong basis for conducting a similar experiment to the Internet.

This project is the first definitive study found that used propaganda in news articles to see how it influenced people’s opinions. It, therefore, serves as a baseline for this work that will be transitioned to the Internet.

d. Caveat

It is also important to note, however, that at the time this experiment was conducted, the world was a very different place. People did not have thousands of different sources for information readily available. Instead, people might have one or two methods of getting information, both of which were very trusted. Nowadays, however, people can access information from anywhere in the world each with their own views. As a result, the level of trust has declined with many forms of information as the fight for user’s “eyeball-hours” has gone up. This can potentially make the job of influencing people both easier and harder. Easier in the sense that with the Internet, you can have access to many more people, but harder in that you must make your information that much more impressive in order to be chosen out of the vast flow of information, and even then it must be trusted.

2. Incrimination Through Innuendo: Can Media Questions Become Public Answers?

This paper, written by Daniel M. Wegner et al., examined the “effects that incriminating innuendo delivered by media sources may have on audience impressions of innuendo targets.”[7] In this paper, innuendo is defined in terms of two critical features. The innuendo that is commonly seen consists of “(a) a statement about a person and (b) a qualifier about the statement.” [7] In this manner, “a direct assertion linking the person with some quality of activity” is underscored through the use of the qualifier which reduces the likelihood that the statement is true. Some examples given are “George may be a thief”; “Lulu did not hold up the liquor store” and “Is Jane using drugs”. These three examples demonstrate the three types of innuendo mechanisms tested in the experiment: assertion, denial and question. [7]

a. Experiment

In the experiment, 48 undergraduate students were used as subjects. The subjects were exposed to a set of four headlines about political candidates and then were asked to indicate their impressions of each candidate on a series of evaluative rating scales. The students were broken into four groups with each group reading six headlines. Two of the headlines were mere fillers and one was used for neutral. The last three used each type of innuendo. These techniques were counterbalanced among the four groups so that if one group saw the first headline using assertion, the next group saw it as a question and so forth. The students were then asked to report their impressions of each of the subjects of the headlines on a series of 7-point bipolar adjective scales. (i.e., good-bad, kind-cruel, etc.)

b. Results

The results of the experiment were impressive. The analysis revealed that the headlines formed with an incriminating assertion produced evaluations significantly more negative than the control headline. More interesting, though, is that the headlines using the question technique also produced a significantly more negative bias. The headlines that used the denial technique, while not significantly different from the control, still produced a more negative effect than the control. “These findings offer a clear laboratory illustration of the innuendo effect.” [7]

This experiment takes the notion of influence using newspapers to a new level. It serves as the broad basis for my experiment. While many aspects of the Wegner study will be incorporated into this thesis, the Wegner experiment was done using physical articles, whereas our experiment will be done using the Internet to see if it can yield similar results.

3. The Objectivity of the New York Times in Covering the Palestinian-Israeli Conflict

This article, by Rasem Abid, highlights a recent small survey that suggests that a large majority of readers of the New York Times believe that the paper is not objective when reporting about the Palestinian-Israeli conflict. The belief was that the paper held more salient pro-Israeli views. This belief was created after looking at the paper’s content, layout and headlines.

The summary of this article states that “the NYT news articles and pictures denote a pro-Israeli political statement on the Palestinian-Israeli conflict.” [5] Furthermore, the paper’s bias has

done away with objective elements such as space given to the Israeli and Palestinian news, location of articles and pictures, and headlines and captions. The bias found in the NYT attempts to convince the audience that Israeli crimes are reactions to the Palestinian terror, and deplore the Palestinians from their human sides. [5]

This article demonstrates some of the subtle ways that newspapers and other media can influence readers simply by word choice and layout. These important issues of website content, layout and headlines and their order can have a significant impact on what a user will remember from a website. In addition, the number of articles with a specific viewpoint can also skew readers’ thoughts. These facts provide relatively unobtrusive mechanisms for influencing people that have often gone unnoticed in our fast-paced world.

4. Who Deliberates?

This book, by Benjamin I. Page, highlights the notion that “the public can sometimes be fooled, deceived or manipulated by what is printed and broadcast in the mass media.” [8] It looks more closely at the actual science behind many of the charges made by Rasem Abid against the *New York Times*.

a. *Slanting of the News*

A special section of this book particularly relevant to this thesis work discusses the slanting of news. “Informal observation and common sense” have shown that in many newspapers “political points of view are not confined to editorial and op-ed pages but pervade news stories as well.” [8]

b. *Techniques*

The book demonstrated some of the well-known techniques for slanting the news, as mentioned by Rasem Abid above, such as:

- control the prominence with which a story is pursued or displayed (prominence and repetition promote reader attention and therefore retention) (Demonstrated in 1995 when the Clinton Administration vetoed a resolution of the UN Security Council that was going to chastise Israel for its taking of Palestinian lands that was never given special attention so as not to embarrass the aforementioned parties. [8])

- to solicit, select and shape quotations around which a news story is built
- to choose which facts to report so as to advance editorial purposes (facts reported tend to reflect political views of editors and reporters)
- frame the meaning of news stories so as to further media editors' and owners' political purposes ("Framing is often accomplished at the very outset of a news story, in an opening interpretive sentence or sentences, organizing the first facts and quotations that are presented.", [8])
- use overtly evaluative words and statements

Editors can never be completely unbiased when they publish a paper. There will always be the story they chose to be the cover story and the length that any given story is allotted. Each of the subtle techniques for influencing people with newspapers as mentioned above will always exist no matter how careful an editor may be. We move now to the more recent developments with regard to influence: influence via the computer and the Internet.

B. INFLUENCE VIA COMPUTERS/INTERNET

In 1996, the same year that Benjamin Page was looking at the mass media and their effects on modern democracy, two professors from Stanford, Byron Reeves and Clifford Nass, were publishing their book The Media Equation which is a ten-year look at the computer and how people treat them and other technologies like human beings. This book is the crossover literature that makes it possible to use the influence tactics that have been mentioned thus far and apply them to the Internet. This chapter will also look at a massive study done by Arthur Lupia which looked at websites and highlighted the potential of the Internet to expand citizen participation in our democracy. Among the analysis of this study, Lupia looked at the potential for websites to change citizens. Finally, we will look at the burgeoning new field called captology which is the study of computers as persuasive technologies.

1. Nass/Reeves

This book provides the crossover information necessary to make the leap from general influence techniques, to influence techniques that can be applied to computers and the Web. It theorizes that humans treat computers and media like they do other people. This means that the influence techniques described and employed in the Cialdini and Pratkanis books can also be used when a human is interacting with a computer or webpage.

Their research shows that media is not just a tool.

Media are treated politely, they can invade our body space, they can be a teammate, and they can elicit gender stereotypes. Media can evoke emotional responses, demand attention, threaten us, influence memories, and change ideas of what is natural. [9]

This means that influence effects that can be elicited by planted content in newspapers should also work for the Internet.

a. Lessons-Learned

There were eight “lessons-learned” from this book as stated by the authors:

- everyone responds socially and naturally to media
- media are more similar than different (same effects no matter the media which means that our influence should work over the Internet, making it a very nice tool because of the ease of distribution)
- the media equation is automatic, meaning that these effects are unconscious
- many different responses characterize the media equation, meaning that the effects of this are much more passive than one would expect
- what seems true is more important than what is true, this is particularly important when dealing with influence and trust, as long as the user perceives the information to be true, it is true and will be treated as thus
- people respond to what is present, meaning that people sometimes tend to use the information that is readily available to them and not consider who sent the item or what their intentions were, by exploiting this fact, influence can become a lot easier
- people like simplicity, therefore, by offering your site as a simple means, people will “like” it, and therefore, believe the information more.

By having a good understanding of these lessons they can now be applied directly when designing a website or computer program to make them more influential.

2. Study’s by Arthur Lupia

a. The Web White and Blue Network

This paper is a 164 page evaluation of “The Web White and Blue Network 2000”, a project with “a consortium of 17 of the largest Internet news and news organizations who came together to highlight the potential of the Internet to expand citizen participation in our democracy. [10] The highlight of this network was the first-

ever online presidential debate which ran from October 1 through November 8, 2000 and was carried simultaneously on the 17 major Web White and blue sites including, for example, CNN.com. In addition to the online debate which consisted of a ‘Question of the day’ and rebuttals, there were also a daily selection of links to online political information.

This evaluation is “designed to provide broad audiences with new insights on how the Internet changes politics.” [10] The evaluation consisted of five parts:

Web White & Blue network usage statistics, a voluntary user survey, in-depth interviews with representatives of the charter sites, Internet-based interviews with a random sample of Americans that gauge the effect of particular web sites across broad populations, and laboratory experiments that reveal how differences between websites affect the extent to which they change users’ political beliefs and behaviors. [10]

The laboratory experiments are of particular interest since they can give insight into ways websites can be made more appealing. One conclusion drawn from the first experimental comparison found that “media-linked brand names are crucial determinants of which sites election information seekers visit.” [10] Furthermore, when designing next generation sites, it is important to realize the extreme difficulty in trying to steer people from the sites they already know and trust. An interesting note, however, is that when asked if the users would revisit a site after only one viewing of the site, 40 percent said they would go back to a site that was unknown previously which is still a large percentage after only one viewing which at least suggests a “users’ appreciation of the site”. [10]

The second experiment demonstrated that “in users minds, destination sites and syndicated content sites are to a considerable degree categorized as distinct entities.” Furthermore, “to the extent that the public consciousness focuses on sites with familiar and media-linked brand names, this categorization would seem to limit the potential of .org destination sites...this outlook would change if brand-name syndicated content sites became more of a political information fixture in the future.” [10]

Thus, two important lessons learned from this paper are the importance of brand names and the unimportance of brand names. Firstly, the experiment showed that

people more often visited sites with brand names. However, research also demonstrated that when users were asked if they would revisit a lesser known site, a good number of those people indicated that they would return. This suggests that if a site has information that is useful or novel, people will revisit even if it is a lesser known site. The caveat to this, however, is how to get people to your site initially.

b. *Can Websites Change Citizens?*

This next article looked at the same Web White and Blue project but drew a few other distinct conclusions. As mentioned earlier, this project sought to “study how news and information web sites affect citizens”. [11] To do so, it used a combination of laboratory experiments, user surveys, and Internet polls in order to improve estimates of normal usage conditions. [11]

One of the important findings from the survey questions revealed a “sizeable exodus from newspapers to the Internet as the primary source of election information.” [11] The survey also showed, logically, that “respondents’ site evaluations provided a good indicator of whether they would revisit a site on their own.” [11]

As mentioned in the earlier evaluation of this study, “the lure of brand names is high in the political Internet.”[11] It was also shown that if you provide useful or novel information people will visit your site. This implies that those who wish to increase their web visibility must provide “*unique content or presentational strategies* if they are to attract an audience.” [11] This fact becomes crucial when trying to create a website that will attract an audience. Since we have established that people do not like to read on the Internet, preferring instead to skim, not only will our message have to be short and to the point, but it will also need to be unique and useful in order for the message to be received.

3. *Captology*

The notion of captology, created from an acronym for Computers As Persuasive Technologies, was first developed at CHI 97, a conference on Human Factors in Computing Systems, with ringleader B. J. Fogg. Captology is defined as

the study of computers as persuasive technologies. This new area of inquiry explores the overlapping space between persuasion in general

(influence, motivation, behavior change, etc.) and computing technology (the Web, desktop software, special devices, etc.) [12]

“From Cicero’s oratory to modern TV commercials, communicators have tried to persuade audiences.” [13] Persuasive technology offers the next frontier of persuasion. The computer offers the ability to go beyond one-way rhetoric and become interactive. Interactivity and engaging activities can potentially be more effective than simply passively receiving messages.

One important factor raised in discussions about captology and HCI is web credibility. According to Fogg, the perception is based on two factors: trustworthiness and expertise. In his book, *Persuasive Technology: Using Computers to Change What We Think and Do*, Fogg goes into some detail about these two factors and how to achieve them.

The application for persuasive technology is vast. Some examples of where this technology can go include: education, e-commerce and buying behavior, sexual behavior, nutrition, marketing, religion, disease management, personal relationships, politics and driving safety. [14]

a. *What is a Persuasive Technology*

In order to apply a persuasive technology, it is important to recognize what a persuasive technology is. “As we see it, a persuasive computing technology is a computing system, device, or application intentionally designed to change a person’s attitude or behavior in a predetermined way.” [15]

b. *How Can They be Used*

According to Fogg, these computing mechanisms can be used in one of three ways: as a tool, a medium or a social actor.

As a tool, a computer application or system can provide humans with new abilities, allowing people to do things more easily. As a medium, a computer can convey either symbolic content (such as text and icons) or sensory content (such as virtual worlds and simulations). As social actors, they can invoke social responses from users, especially when adopting animate characteristics (such as physical features, emotions, and voices), play animate roles (such as coach, pet, or opponent), and follow social dynamics (such as greetings, apologies, and turn taking). [15]

c. Important Questions

Since captology is still so new, many important questions still need to be addressed. Some of these include:

- What are the best applications for these technologies?
- What is their potential?
- What are their limits?
- What are the effects and side effects of using them?
- What are the ethical implications?

While it is still in its infancy, captology seeks to define the way computers can be used as an influence medium. The information gleaned from this research will serve for future scientists to look more closely at the relationship between computers and influence.

C. TACTICS/TECHNIQUES AND LIMITATIONS

1. Which Hold Promise?

After reviewing all of the aforementioned tactics and techniques that have been used to influence people, some specific notions were particularly compelling. The studies conducted by Annis and Meier and the study conducted by Daniel Wegner et al., both provide very convincing proof of the powerful effects of newspapers. More specifically, the relevance of the headlines themselves are particularly noteworthy based upon the information learned from Cialdini which demonstrated that humans like to make shortcuts when making decisions. In this manner, when people read things, they very often are lazy and read only the headlines and the bolded text. If this is the case, by making the headlines the influence mechanism, there might be a very inexpensive and simple way to influence large numbers of people.

2. Potential for Information Operations

In the past decade, military strategists have come to realize the need for change in the way that America fights its wars. Due to the ever-changing nature of warfare and the unconventional means now being employed by non-nation-state actors, “DOD has begun to...expand its doctrine of Command and Control Warfare into the broader concept of

Information Warfare (IW).” As such, one of the most important goals for the United States military is akin to Sun Tzu's famous dictum “to subdue the enemy without fighting is the acme of skill.” [16] [17]

However, in order to do this, America faces many challenges. For example, “whatever the means employed, it is questionable whether American public opinion can be induced to support risky foreign policy ventures absent a clear threat to U.S. interests.” [16] Furthermore, the “American information infrastructure, on which U.S. defense communications depend, is highly vulnerable to infiltration and sabotage.” Lastly, we must recognize that the “defense budgets have been -- and will continue to be -- the primary engines transforming the U.S. military and driving information age technologies into the hands of our armed forces.” [16]

Therefore, the potential for an efficient and effective way to conduct offensive information warfare seems an important goal for the American military. This thesis explores such a capability. With this type of capability in our arsenal, we can begin to counteract some of the terrorist recruiting sites that are currently available on the Internet. In addition, we can try to circumvent users from going to the terrorist sites in the first place.

3. Thesis Experiment

Our conclusion is that the potential for influential newspaper headlines presented via the Internet provides the most promise as a cheap and quick way to influence people. As such, the goal of this thesis is to test whether Internet headlines of newspapers can change a person's opinion of a world event solely by the manner with which the headline is presented. In order to accomplish this, the lessons learned about webpage layout and atmospherics etc. will be applied in order to ensure that the only variable in this experiment is the headlines themselves. The next chapter will go into the specifics about how this experiment was crafted and executed.

IV. EXPERIMENTAL DESIGN

The following chapter is a discussion of the physical layout of the experiment with regard to constraints, the human considerations, the randomization of the views, and the reasoning behind the headlines used as well as the questions asked. This section also steps through the environment the user viewed while on the website with links to the screen shots which are located in Appendix B of this thesis.

A. PHYSICAL LAYOUT

The goal of this thesis is to test whether differences in headlines can affect a person's views on a selected topic. To accomplish this, a website was created with three versions. In one version, users saw headlines that were positively biased. In another, users saw headlines that were negatively biased. In the final version, the users saw the headlines as they actually appeared in the newspapers, taking into account any changes needed to be made for compliance with federal law involving human subjects in research which is discussed below. When users clicked on the headlines, they were given the articles to read. In this case, all the articles were identical. The users were then asked to fill out a simple survey to gauge any differences in opinion.

In order to ensure, however, that the only thing we tested was the headline differences themselves, a number of physical considerations had to be made.

1. Color

Color is a very important aspect when creating a web page.

When color is used correctly, it can add impact and clarity to your message and highlight important points. When color is used incorrectly, it can compromise your message and confuse your target audience. [18]

Color can make visiting your website a more pleasant experience in 2 very important ways:

- Color emphasizes, highlights, and leads the eye to important points or links.
- Color symbolizes and triggers emotions and memories.

While color has the power to trigger emotion and memories, this can differ greatly depending upon to which country/culture you are referring. In many countries, colors

represent various holidays and can be used to enliven language. Colors, however, can also be offensive in certain cultures so the utmost care must be taken when designing a site, especially those that might be seen by an international audience. These are some examples of what colors mean in terms of feelings in Western culture:

- Red evokes aggressiveness, passion, strength, vitality
- Pink evokes femininity, innocence, softness, health
- Orange evokes fun, cheeriness, warm exuberance
- Yellow evokes positively, sunshine and cowardice
- Green evokes tranquility, health, freshness
- Blue evokes authority, dignity, security, faithfulness
- Purple evokes sophistication, spirituality, costliness, royalty and mystery
- Brown evokes utility, earthiness, woodsiness and subtle richness
- White evokes purity, truthfulness, being contemporary and refined
- Gray evokes somberness, authority, practicality and a corporate mentality
- Black evokes seriousness, distinctiveness, boldness and being classic [19]

Some examples of what colors mean around the world include the color of mourning which in Thailand is purple, Iran is blue, China and Japan use white, Egypt and Burma prefer yellow, while in the U.S. the choice is black. Since there can be so much meaning simply taken from the background color of a site or the color of the font, all of the online portions of this thesis were done with a basic white background and black letters. In this manner, the impact of color was kept to a minimum.

2. Font

As personal handwriting made way for type written correspondence, the graphologists, or scientists who study the art of handwriting, looked to typefaces for clues to our personalities.

In the study, the Psychology of Fonts, commissioned by Lexmark Printers and written by psychologist Dr. Aric Sigman, he explains “how a typeface will significantly influence what the reader thinks about you.” [20]

Some of the results include:

- Courier = “sensible shoes”, coldness
- Shelley = “sex kitten”

- Verdana = professional yet appealing
- Times = trustworthy and respectable

According to Dr. Sigman, “Using the wrong font may give people the wrong impression about you and could affect decisions that will shape your future.” In addition to the typeface, the study also found that font size is important, with smaller typeface being preferred in power letters.

Considering this study, it was very important to appear trustworthy and honorable to the reader so that the information would be taken more seriously. As such, Time New Roman was the font of choice in size 12 as this is the most often used font in newspapers and other online texts. This would give the readings more readability as well as make the readers feel more comfortable at the site. [20]

3. Layout

As mentioned in the editorial by Rasem Abid earlier, the layout in a piece of literature can affect the views of the reader. In order to minimize any negative/positive effects that layout might have, research into the layout of a webpage was conducted.

One thing that needs to be kept in mind is that people's minds live by the principle of **cognitive economy** - i.e. minimizing the time and effort needed by the mind to process information (Eysenck and Keane, 1997; Zimbardo et al., 1990). So the more you can do to help minimize people's cognitive (thinking) effort, allowing them to concentrate on the task in hand, the more people will appreciate it. [21]

This harkens back to what Cialdini was saying about shortcuts that people take when making decisions. In that, when people are pressed for time they frequently used shortcuts or principles of cognitive economy to make decisions.

One group was able to derive three main content-oriented conclusions from four years of Web usability studies [Nielsen 1997a] that help to handle this problem:

- Users do not read on the Web; instead they scan the pages, trying to pick out a few sentences or even parts of sentences to get the information they want (a notable flaw in our design as we asked people to read the articles)
- Users do not like long, scrolling pages: they prefer the text to be short and to the point
- Users detest anything that seems like marketing fluff or overly hyped language (“marketese”) and prefer factual information [22]

These considerations were taken into account when developing the site for this thesis. Every care was taken to ensure that all of the links appeared at once without the need for a scroll bar. In addition, there was no “added fluff” to the site in order to minimize load time and maximize user concentration on the task.

4. Lack of Pictures

In order to be in accordance with the notions from the study on website layout, the choice was made to not include any pictures on the website even though many were originally included in the news articles.

This was done first, to comply with the lessons already learned from the previously mentioned studies as well as to allow quick surfing without annoying delays between the different pages. Pictures were also forgone to make the site easily accessible for people with less sophisticated hardware and software.

Another recent study demonstrated that “graphical images can easily be distracting and may increase load time, which is the greatest complaint of Internet users (GVU, 1998).” Interestingly, however, it was also shown that “visual information such as graphics is generally more persuasive for simple messages than textual information, while textual information is more persuasive for more complex messages (see King, Dent, and Miles, 1991).” What this suggests is that the old adage that says “a picture is worth a thousand words” is still very true. Nonetheless, it was still necessary to eliminate any pictures as it presents a second variable in the website that might affect the outcome of the study. The opportunity for further study is present, however, with the addition of pictures available to test for additional influence. [23]

5. Same Articles

In this experiment, there were three versions of the website as mentioned above. In each of these versions except the control, the headlines to the corresponding articles were altered to test whether differences in teasers/headlines would affect a person’s opinion about a certain topic. The articles which the users then read, however, were all identical. This was necessary because the goal of this thesis is to isolate any difference of opinion that might result from altered headlines, either positive or negative.

B. HUMAN SUBJECT RESEARCH CONSIDERATIONS

When conducting any study that involves humans, it is important that the study does not have permanent and lasting effects on the users psyche. In order to be sensitive to this notion, a few last minute changes were made to this study to ensure that no effects would be made. These include the changing of official names to fictitious ones and removing any source credibility of the articles. A brief look at residual effects is also mentioned.

1. Fictional Articles

The articles for this study were taken from a number of major news organizations. The articles were then altered so that no real names were used, thus making them fictitious. This was done to prevent any lasting negative opinions about real subjects. Some examples of the changes made include changing the name of OPEC to APEC and the country name Venezuela to Esperanza.

2. No Source Credibility

While source credibility is important when deciding whether to trust information, as suggested by the Lupia studies, this aspect needed to be eliminated in order to rely solely upon the differences in headlines to change user's opinions. Interestingly, in researching this topic, there appears to be conflicting research which suggests that source credibility may help when influencing people to go to websites as demonstrated by the Lupia studies. However, source credibility did not matter in the Wegner study where innuendo was used. Thus, depending on future goals, this might be an area of further study.

3. Residual Effects

One concern when dealing with human subjects is the notion of residual effects. There is a "well-established empirical generalization concerning the persistence of persuasion: On the whole, persuasive effects tend to dissipate over time". [3] Since this experiment used fictitious names, the subjects will never hear these topics mentioned again in this format, and as such, there is likely to be no residual effects.

C. RANDOMNESS

1. Random Group Selection

In order to ensure the validity of the experiment, it was important to ensure that each user had an equal likelihood of being in either the positive/actual/negative group. To accomplish this, a random number generator was used to randomly pick a number between 1 and 30. Depending on the number, the user was sent to either the first, second or third version of the site.

2. Random Article Order

Just as it is important to ensure the randomization of the user version selection, it was also important to ensure that the headlines were shown in a random order for each user. This was intended to overcome three potential sources of variability.

a. Skim Tactics

This is based upon the earlier research of Web usability study from the layout section, which suggested that while online, people merely skim things. If this was the case and users only read the first few articles and skipped the rest, it might skew results. To avert this problem, all headlines were rearranged each time a user went to the site. In this manner, collectively, all articles were read, and therefore, should balance out any persons who took the common online shortcut. [21]

b. Primacy

This is the tendency for the first items presented in a series to be remembered better or more easily, or for them to be more influential than those presented later in the series. [24]

c. Recency

This is the tendency for the last items presented in a series to be remembered better or more easily, or for them to be more influential than those presented earlier in the series. [24]

If the first or the last articles are remembered better, there might be something in those specific articles that makes people sway one way or another, but by randomizing the articles order, this problem is eliminated.

D. HEADLINE SETUP

1. Headlines

Perhaps the most crucial part of this experiment deals with the headlines themselves. Since the three groups of people saw either the positive, negative or actual headlines, 16 altered headlines needed to be constructed. The techniques used to alter the headlines are as follows: word/labeling (e.g., calling it a crisis as opposed to a social protest or democratic protest), fear (pending doom) and innuendo. In many cases, a bland word was removed and replaced with a more ‘colorful’ word. In other cases, the article themselves were slanted so negatively that the headline simply became a random comment made by someone in the article that was more enthusiastic. The results of this work are as follows: (Please see Appendix A for a side by side comparison)

Actual:

- Oil Optimism in Esperanza
- Oil inventories decline to a 28 year low
- Oil prices resume upswing on Esperanza, cold weather concerns
- Oil supplies fall as nation shivers
- Gas prices skyrocket around United States
- US oil stocks evaporate to 27-year low
- Oil price rise despite APEC increase
- Nigeria tries to contain oil worker strike

Positive:

- President Velasquez successfully ended the worker strike
- Easing of oil supply to come soon, analysts say
- Taking action to lower oil costs in near future, APEC source says
- No worries about oil despite cold weather
- Esperanzan government containing worker strike
- No reason to release U.S. oil reserves: cheaper gas ahead?
- APEC to increase oil supplied to stymie price rises
- Oil continuing to flow despite labor concerns in Nigeria

Negative:

- Restrictions on oil due to Esperanza strike, still wreaking havoc on gas prices
- Oil inventories plummet below safe zone
- Oil crisis worsened by blizzard and war concerns
- Immediate energy concerns as nation blasted by cold weather
- Oil prices skyrocketing amidst uncontrolled oil worker strike in Esperanza
- Crude oil stocks running dangerously low
- APEC oil increases in vein as prices continue to soar
- Oil crisis expands with Nigerian oil worker strike

2. Psychology of the Headlines

a. Word/Labeling

This mechanism involves using “colorful” words, for example, calling something a crisis as opposed to a social protest or democratic protest. According to the work by Pratkanis,

the way an object is described and the manner in which a course of action is presented direct our thoughts and channel our cognitive responses concerning the communication. Through the labels we use to describe an object or an event, we can define it in a way that the recipient of our message accepts our definition of the situation and is thus pre-persuaded even before we seriously begin to argue. [4]

b. Innuendo

Innuendo can be defined as an indirect or subtle, usually derogatory implication in expression; an insinuation. [25] The studies conducted by Wegner et al. demonstrated the efficacy of this influence tactic. A study conducted by Saul Kassin found that

the credibility of an expert trial witness could be damaged merely by asking accusatory questions, such as ‘Isn’t it true that your work is poorly regarded by your colleagues?’ [4] The expert’s credibility was damaged regardless of whether the accusation was denied or withdrawn by the lawyer after an objection was raised. A similar example by Stanley Sue found that evidence prejudicial to a defendant would result in more convictions even when the evidence was ruled inadmissible.

As such, merely inferring that a problem is occurring can lead to its validity in the minds of the reader.

c. Fear

Fear is another great influence tactic. When utilized correctly it can have enormous results. The fear appeal is particularly useful for large groups of people as demonstrated by the millions of Germans who gladly embraced Hitler's National Socialist party after they were threatened with dire consequences if a certain course of action was not followed. [4]

Fear appeals, however, walk a very fine line between being successful and being unsuccessful. In order to use this appeal effectively, two guidelines should be followed: (a) messages with more intense contents do generally arouse greater fear and (b) messages with stronger fear appeals contents also are more persuasive. [3] The conclusion is that the more intense the fear message, the more intense the persuasion.

E. QUESTIONS SETUP REASONING

1. Questions

Six questions were rated on a five point scale. Four of the questions use a likert scale, while the last two are a series of five words used to arouse a more "emotional" response from the subject. Each question has its own reason for being in the survey.

However, two of the questions were mere "filler" questions which were used to detract the user from knowing the real purpose of the study. They will not be listed.

The questions and rationale are as follows:

a. Question 1

- The Esperanzan government can contain this issue successfully.

It is expected that the people reading the articles with the positive headlines will rate this question more positively, whereas the negative group would see this issue in the opposite point of view. This is because the headlines in the positive group allude to the fact that APEC and the President of Esperanza have the situation under control while the negative version of the headlines makes it appear more crisis-like and out of control.

b. Question 3

- This is a very serious problem for Esperanza.

This question is quite basic. It was expected that the users who read the negative headlines would think this problem is much more severe than those who read the positive headlines which give a more moderate view of this issue.

c. Question 5 and 6

- The best word to describe this issue is.
- I feel the Esperanzan government has been _____ with regard to this issue.

These last two questions were used to elicit a more “emotional” viewpoint from the respondents. By using words, more of the connotation of what the respondent is “feeling” about this issue can be ascertained. A person can agree with a statement but have a very different “feeling” about the topic. These questions are going to try to tease out these differences. I anticipated that the people who read the negative headlines will use the words crisis and catastrophe more often while the positive group would use the more moderate terms.

2. Likert Scale

The Likert scale was used for most of the questions on the survey portion of this experiment. The Likert Attitude Scale was developed by Likert in 1932. This scale “draws inferences about a respondent’s attitude from the respondent’s agreement or disagreement with attitude-relevant statements.” [3] The Likert Scale is useful because it relies on using polarized statements and rejects any statements that might be too neutral. The respondent is asked to rate their agreement or disagreement with the statement based upon a five-point scale from strongly agree to strongly disagree.

The Likert scale is considered a unidimensional scale meaning you have either more or less of something and that is all. This scale was chosen because of its usefulness to

investigate how respondents rate a series of statements and are useful for gathering respondents' feelings, opinions, attitudes, etc. on any language-related topics. Typically, the numbered categories are on continuums like the following: very serious to not at all serious, very important to very unimportant, strongly like to strongly dislike, or strongly agree to strongly disagree. [26]

Two problems have commonly arisen when using this scale however: “(a) you may encounter some students who prefer to “sit the fence” by always marking the most neutral possible answer and (b) you may find it difficult to decide what kind of scale the data coming from such an item represents.” [26]

F. ONLINE LAYOUT

In this experiment, we solicited students from four curricula at the Naval Postgraduate School. Of 150 students, 110 students participated in the survey.

When the users logged onto the site, they were taken to a user consent form, which can be seen in Appendix A, that describes the nature of the experiment and the tasks they will be asked to complete included reading a series of articles and headlines and taking a short survey. Once users validate the consent form, they were instructed to read all headlines and all articles before taking the survey. They were provided a link that will start the experiment by taking them to one of the three versions of the site. (Seen in Appendix A) The users saw a list of eight headlines and a link to the survey in the top half of the screen. In the lower half is the space where the articles/survey appeared. See Appendix A. Each headline link loaded a new article for them to read. While the headlines are different for each group, the articles themselves are identical. As mentioned earlier, this helps to eliminate other factors that may affect a user’s scores on the survey.

Once the user completed reading the articles, they were instructed to click on the link which brings up the survey, shown in Appendix A. The survey contained six questions, of which, four were important in the findings of this thesis. The other two were filler questions designed to prevent the users from knowing the exact purpose of the experiment. Upon completion of the survey, the users were shown a debrief form, shown in A, which completed the experiment.

All of the survey results were sent to an Access database later used for the analysis of data.

Selected screen shots that show the general layout of the site are provided in Appendix B.

THIS PAGE INTENTIONALLY LEFT BLANK

V. ANALYSIS

A. RAW DATA

Upon collection of the data, each value was transferred to an Excel spreadsheet and organized based upon question and group. As shown below, each question has three rows of values with one row representing the scores from each group: positive, actual and negative. There was an even number of participants from the positive and negative groups and two more participants in the actual group. Since there were two questions that were filler questions, #2 and #4, they were not included in the analysis section.

Question 1		
Pos	Act	Neg
4	2	3
2	1	4
2	1	4
2	3	2
3	2	1
4	2	3
2	2	2
4	4	3
2	1	2
1	4	2
4	2	3
2	4	4
1	4	2
4	1	3
4	2	4
1	2	2
2	4	2
3	2	2
4	3	1
2	2	1
4	1	4
2	1	3
2	4	4
4	3	2
4	2	1
2	2	3
4	4	3
4	2	2
2	4	2
1	2	3

Question 3		
Pos	Act	Neg
4	2	4
5	4	5
4	1	4
5	3	5
4	4	5
4	4	5
4	5	5
2	2	5
5	5	4
5	4	5
4	4	3
4	5	2
2	4	2
4	5	5
5	5	4
4	4	4
4	4	4
5	5	4
4	5	5
3	3	5
5	4	2
5	5	2
4	5	4
4	4	4
3	4	5
4	4	4
4	5	3
4	4	5
5	5	4
5	2	4

Question 1		
2	2	1
2	2	2
4	2	2
2	4	1
1	3	4
3	1	4
	1	
	4	

Question 3		
5	5	5
5	5	3
5	5	4
2	4	4
1	4	4
3	5	1
	4	
	4	

AVG	2.6667	2.4211	2.5278
SDEV	1.1212	1.1060	1.0278
n	36.0000	38.0000	36.0000

4.0278	4.1053	3.9722
1.0278	1.0078	1.0820
36.0000	38.0000	36.0000

Pooled SDEV

n-1	35.0000	37.0000	35.0000
SDEV SQ	1.2571	1.2233	1.0563
Pooled	1.2398		1.1422

35.0000	37.0000	35.0000
1.0563	1.0156	1.1706
1.0354		1.0910

t Stat

Avg1-Avg2	0.2456	-0.1067
Denom	0.2590	0.2486
t	0.9484	-0.4294

-0.0775	0.1330
0.2367	0.2429
-0.3274	0.5476

t crit

dof	72
alpha	0.05
t crit hi	1.9935
t crit lo	-1.994

Question 5		
Pos	Act	Neg
4	3	4
3	5	3
4	3	3
3	4	3
3	4	2
4	3	3
3	3	3
3	3	3
3	4	3
4	3	3
3	3	5
5	3	4
4	4	3
3	3	3
3	4	3
4	4	3

Question 6		
Pos	Act	Neg
2	3	3
2	3	2
2	3	3
2	3	2
2	2	1
2	2	2
2	2	2
2	2	2
2	3	1
1	2	2
3	2	2
3	2	4
2	2	2
3	2	2
2	2	3
1	3	2
1	2	2

Question 5				Question 6			
3	4	4		2	3	2	
3	2	4		2	2	3	
4	2	3		2	2	2	
3	3	3		2	2	2	
3	3	4		2	2	2	
3	4	3		2	2	2	
3	3	4		2	2	2	
4	3	3		2	2	2	
4	4	2		2	3	3	
3	3	5		2	2	3	
4	3	4		2	3	3	
4	3	4		2	2	2	
2	3	3		3	2	2	
5	3	4		2	2	2	
2	4	4		1	2	1	
3	3	4		2	2	2	
3	3	3		2	2	2	
3	4	3		3	4	1	
3	3	5		1	2	2	
5	3	3		2	2	2	
	4				2		
	3				2		
AVG	3.4167	3.3158	3.4167	2.0000	2.2895	2.1389	
SDEV	0.7319	0.6197	0.7319	0.5345	0.5151	0.6393	
n	36.0000	38.0000	36.0000	36.0000	38.0000	36.0000	
Pooled SDEV							
n-1	35.0000	37.0000	35.0000	35.0000	37.0000	35.0000	
SDEV SQ	0.5357	0.3841	0.5357	0.2857	0.2653	0.4087	
Pooled	0.4578		0.4578	0.2752		0.3350	
t Stat							
Avg1-Avg2	0.1009		-0.1009	-0.2895		0.1506	
Denom	0.1574		0.1574	0.1220		0.1346	
t	0.6410		-0.6410	-2.3724		1.1186	
t crit							
dof	72						
alpha	0.05						
t crit hi	1.9935						
t crit lo	-1.994						

Table 1. Raw Data Table.

B. STATISTICAL ANALYSIS

In order to analyze the above data, we utilized two statistical methods. The first was a box plot illustrating the spread of the values. The next was a pooled variance t test that determined if there were any statistically significant differences between the scores. After those tests were completed, the expected versus actual results are discussed followed by the reasoning for those results.

1. Box Plots

The first step in the analysis of the above data involved creating box and whisker plots of the data for each question using a computer program known as Arc. [27]

A box and whisker plot (sometimes called a boxplot) is a graph that presents information from a five-number summary. It does not show a distribution in as much detail as a stem and leaf plot or histogram does, but is especially useful for indicating whether a distribution is skewed and whether there are potential unusual observations (outliers) in the data set. Box and whisker plots are also very useful when large numbers of observations are involved and when two or more data sets are being compared. [28]

a. Question 1

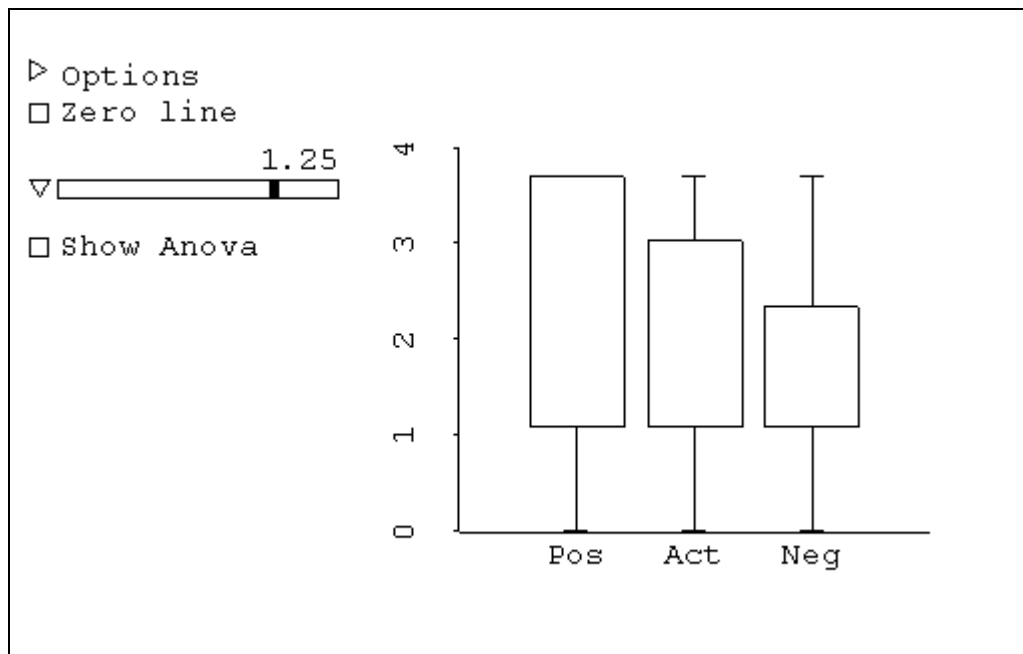


Figure 1. Question 1 Box Plot.

In question one, the users were asked whether they thought the Esperanza government could successfully contain the oil crisis. Based upon the box plot, you can see that the scores across the board were largely the same with most of the users thinking that the government could not contain the issue. However, the users in the positive group had a much larger spread of values. This might mean that the users in the positive group had more uncertainty in their answer whereas the users in the negative group were more confident.

b. Question 3

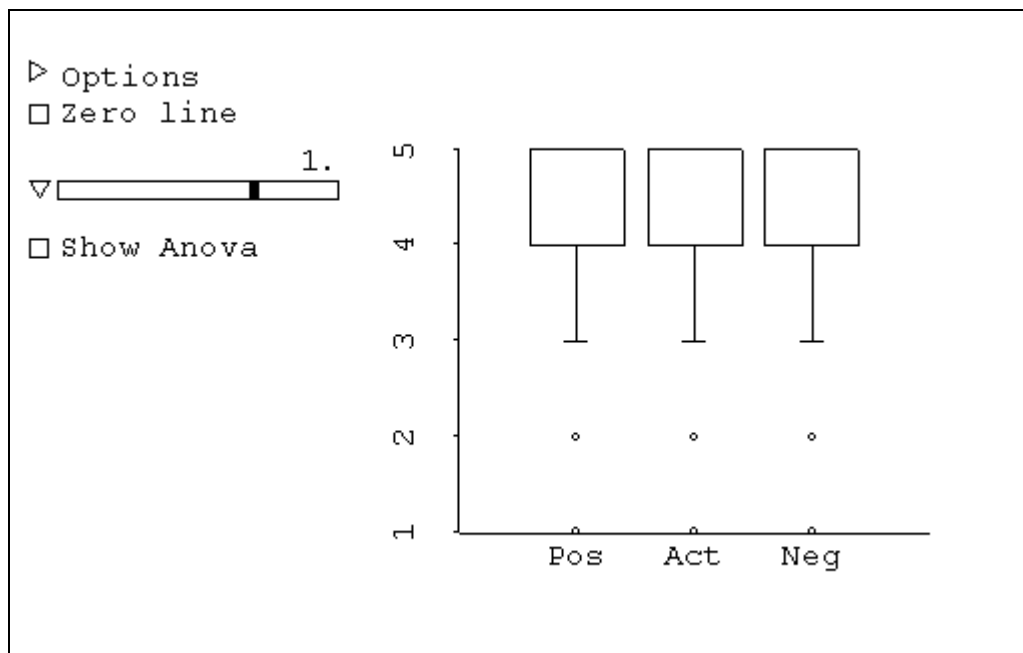


Figure 2. Question 3 Box Plot.

In question 3, users were asked if they thought this issue was a serious problem for Esperanza. The respondent's values were largely identical for each group. Almost all of the respondents thought the oil crisis was a serious problem. What is interesting in this box plot is the symmetric nature of all the plots. All three groups had the same distribution. This might indicate a problem with the question.

c. *Question 5*

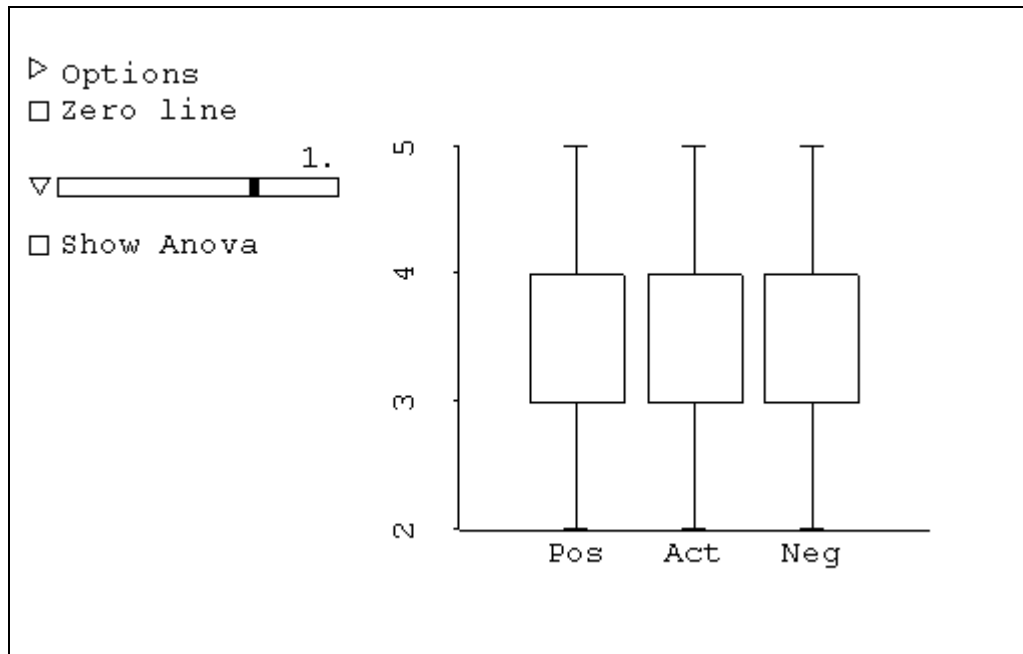


Figure 3. Question 5 Box Plot.

In question five, users were asked to choose the word that best describes the situation. The scale ranges used the following terms starting from 1: catastrophic, crisis, worrisome, annoyance and normal. The box plots from this question were identical in every aspect. This means that all groups found the situation in Esperanza to be worrisome-annoyance. As in the previous question, the distributions for each group were the same which might indicate a problem with the question.

d. Question 6

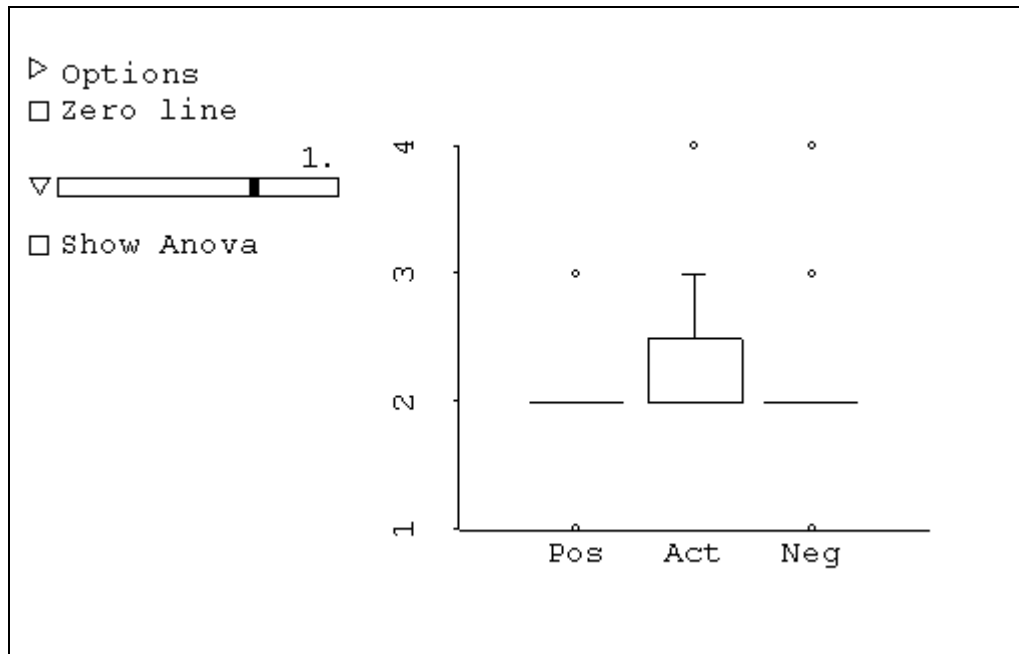


Figure 4. Question 6 Box Plot.

In question six, users were asked how they thought the Esperanza government has acted. Five words were given and they were asked to choose one that best describes their actions. The words ranged from 1, incompetent, to 5, exemplary with slow, normal and efficient in the 2, 3, and 4 slots respectively. From the above box plot, we can see that by and large all of the respondents in the positive and negative groups picked the same value of 2, that of slow. In the actual group, the spread of the values was slightly more. In this question, a number of outliers also felt both better and worse about the situation. These outliers, however, do not correspond with being in either the positive or negative group. With almost no spread in this question for either the positive or negative group, it indicates a problem with the question as almost no one picked any other word on the scale.

2. Pooled Variance t Test

For the statistical analysis of the raw data, we also utilized a pooled-variance t test to determine the difference between two means. The equation for this test was taken from the book Statistics for Managers on p. 540. [29] In this equation, we would reject the null hypothesis H_0 if the computed test statistics were less than the lower-tailed

critical value or more than the upper-tailed critical value. For the purposes of the analysis portion, H_0 represents all values are equal. As such, if any values were found in the upper or lower-tailed areas, there would be a statistically significant difference between the numbers. For this test, we compared the scores from the positive group versus the actual group and the scores from the negative group versus the actual group for each question.

The first step in the t test was to find the lower and upper-tailed critical values. They can be found on the raw data spreadsheet labeled “t crit hi” and “t crit lo”. The values are 1.9935 and -1.994 respectively. The next step was calculating the t statistic for each question for the positive/actual and negative/actual groupings. When this was completed, we compared each of the t statistic values to the critical values. The only value found to be statistically significant was in question six. In that case, the positive/actual group score was -2.3724. The negative/actual grouping was the next closer to the critical values in that same question with a t statistic of 1.1186. This means that for the other three questions, none of the scores were statistically different from each other, and therefore, we do not reject the null hypothesis. Instead we state that all values are equal.

Question six is noted as the only question with statistically significant value differences between actual and positive headlines. This question asked the users how they thought the Esperanza government reacted with regard to the oil crisis. The positive group gave a score that was more negative than the actual group. The ratings are 2.0000 and 2.2895 respectively. This is opposite of our expectations, as we hypothesized that the actual headlines were slightly more negative than the positive headlines. This dichotomy leads us into the next section where the differences between actual and expected results are discussed.

3. Expected vs. Actual Results

All of the past research mentioned in this thesis suggests that newspapers and headlines, when used effectively, can influence the opinions of others. In this experiment, therefore, we expected to see significant differences in the scores of the positive and negative groups. In order to analyze them, we compared them against the

actual case which we expected to be in the middle of the spectrum or slightly more negative. After conducting the experiment, however, all but one value was considered statistically insignificant.

Upon closer review of the data we discovered findings which support some of our hypotheses. There were two questions on our survey which used the Likert scale, questions one and three. While the resulting values for the positive vs. actual and negative vs. actual were not statistically significant, the numbers indicate that in the positive vs. actual cases the influence seems to be effective. The values are summarized in the table below.

Hypothesis	Question 1	Supported	Hypothesis	Question 3	Supported
Pos > Actual	2.67>2.42	True	Pos < Actual	4.03<4.1	True
Neg< Actual	2.53>2.42	False	Neg> Actual	3.97<4.1	False

Table 2. Likert Scale Questions Summary.

This table shows that in both cases we were able to elicit a more positive influence as compared to the actual. In neither case were we able to elicit this effect with the negative versus actual group.

The findings for the positive case are consistent with our hypothesis. The results for the negative case, while not consistent with our hypothesis, indicate that the actual and negative headlines appear to be closely related. This fact is not surprising, as we have already discussed the negative bias in the media. The results from our study indicate that it may be easier to affect a positive spin rather than a negative spin, i.e. it is easier to lessen negative impact (make more positive) than to induce a more negative impact.

This finding is crucial for the future of military information operations regarding the recruitment of terrorists. This information suggests that we can successfully counteract the negative sites promoting terrorism on the Internet. These findings are also important because we have elicited a difference in opinion without the use of polarizing

or even real subjects. In addition, we did not include any other corresponding design such as color, pictures and layout that might be used in the future to increase the influential effects.

4. Lessons Learned

There are six major considerations for follow-on research. They are discussed below.

a. Homogenous Pool of Users

In this study, there were 110 respondents to our request for users. All of them are active duty officers in the United States military. Furthermore, all are current students at the Naval Postgraduate School in Monterey, California. This group of users represents a very small and homogenous cross-section of the population. It is speculated that these users have very similar backgrounds and political beliefs. In addition, we speculate that they all have a similar notion of world news and politics. As such, their responses to the questions in the survey may have been skewed due to their overall world view. This can be one explanation for why many of the responses to the survey were identical across all groups.

b. Narrow Scope

As mentioned earlier, there are many different tactics that can be used to influence people. Some of these things include color, font, layout and source credibility. In this experiment, however, we eliminated all of those variables in order to isolate the headline effects. It may be necessary to use color and source credibility in order to garner the effects we expected. The articles may need to be shown over a long period of time rather than one instance. The fact that this experiment had such a narrow scope might mean that we have eliminated contributing factors of influence.

c. Written Questions

In this study, there were only six questions in the survey. Of those six questions only four were scored. At the end of the experiment, any user that had questions or comments was instructed to email us. We received three responses which stated that the questions were poorly worded and/or unclear. This fact may have made answering questions difficult as users were unsure of what the questions were asking. This can offer an explanation of why, for each question, all three groups had roughly the

same response. Either the questions were leading or the questions were confusing and the users simply chose the best guess based upon the five point scale. This leads into the next possible problem with the experiment, the use of the likert scale.

d. Small Scale

The use of the likert scale for this experiment may have made answering the questions very difficult for the users. As previously mentioned, the writing style of the questions was somewhat at issue. We are speculating that due to the poorly written questions and the relatively small scale used, users were driven to answer in a certain manner. The likert scale uses a five point scale. In this study, since there were no polarizing statements made, the 1 and 5 score were not likely to be chosen. In addition, when the “no opinion” or 3 score is offered as a choice, it is speculated that many users do not like to pick it because they realize it has no value, and almost in a feeling of guilt, then choose either the 2 or 4 value. As such, a scale of 1-7 might have been the better choice for this type of study in which no polarizing statements are made. In that manner, users that did not want to stay neutral would have more breadth in their choice of score.

e. Subjective Questions

The last two questions on our survey did not use the likert scale. Instead, it used a spectrum of words intended to obtain a more “colorful” view of the user’s opinion. One problem with this type of scale is that they are subjective terms such as slow, incompetent, worrisome, and annoyance. Each person might have a different impression of what these words mean and where they would fall on a spectrum of positive to negative. As a result, when our data was analyzed, there is a certain degree of uncertainty in our results. This becomes particularly important when looking at the fact that the only statistically significant figures come from question six which was one that used this subjective scale. The fact that these values in question six were contrary to our expectations contributes to the doubt in the efficacy of this type of question.

f. Unnatural Environment

One of the most critical speculations into why this experiment did not have the expected results involves the unnatural manner with which this study was conducted. Earlier in this thesis, the notion of “eye-ball hours” was discussed. In that section, it was noted that when people are online there is a plethora of information and

only a limited amount of time to find what they are looking for. As a result, many users do not read all the information presented to them, but simply scan an article or webpage. Consequently, headlines are often remembered because they are generally prominent on a page and a shortcut into the contents of an article. In addition, they are also the first thing that is seen on a page and therefore would be recalled better based upon the primacy effect. In our study, however, users were instructed to read all of the articles. Since the articles were not altered either negatively or positively, this may have neutralized any effect the headline may have had. Future experiments of this nature should include a larger site with users being instructed to read a limited number of articles or to “explore” the site. The resulting data would then be based upon a more realistic website encounter that may yield more conclusive results.

VI. CONCLUSION AND FUTURE WORK

After careful study into the science of influence and persuasion, we recognized the potential to duplicate the influence obtained through printed newspapers and the power to influence public opinion using the Internet as the communication medium. We hypothesized that subtle changes in online news headlines could influence a person's opinion of a world event. We then created an online experiment to test this theory. In order to minimize the effects of other contributing factors, we used a uniform and basic color, font and web layout. In addition, we ensured all articles were identical so that the only variable in this experiment was the wording of the headline itself.

We conducted the experiment over a two-week period on an internal server at the Naval Postgraduate School. We had 110 responses with thirty-six subjects each in the positive and negative groups and thirty-eight subjects in the actual group. We analyzed the data using box and whisker plots and pooled-variance t tests. We found only one value which was significantly different than the actual group. We detected discernable influence associated with the positively biased headlines. The participants in the positive group reported scores that were more positive than the actual group. However, for both of those questions, no such influence was detected for the negative group. This information suggests that there is potential for lessening negative spin but less potential for increasing it. This finding is very important with regard to counter-terrorism plans. This study provides the basis for the use of positive spin with regard to counter-terrorism sites and to stay away from negative spin.

While our information is promising, we found the overall lack of statistically supporting evidence contrary to our intuition and therefore we proceeded to explore the possible flaws in our experimental design. We recommend that this experiment should be redone with the following changes: use a seven-point scale, do not use subjective terminology, reword the questions so they are more clear, create a larger site with more headlines and articles, and change the instructions so that the users are told to 'interact' with the site instead of read every article.

Another major factor we might consider revising is the fact that our subject was completely hypothetical and therefore we can say nothing about the impact of such techniques on the reader when dealing with a subject that they care about. In other words, if you don't care about the subject, you have no opinion to change. In the future, an experiment might be run using real topics that might yield more satisfactory results.

We feel that these changes might elicit the statistically significant differences in opinion that we expected to observe from the experiment.

While the research suggests that some influence does exist, more research and experimentation needs to occur before we can conclusively say that headlines alone can elicit changes in public opinion. In the interim, there are many different variations of this experiment that can be conducted that test the other aspects of website design that we selectively eliminated in our procedure. Such examples include the effects of color on a person's viewpoint or the trustworthiness of information that is received in a larger more flowing font. The power to influence others is something humans recognized a long time ago. With the advent of the Internet, the ability to influence others became something which can be done simultaneously to many people and without their knowledge. This type of research into the science of influence should be continued so that in the near future we may develop and employ a simple tool that we can use to counter terrorist recruitment sites on the Internet.

APPENDIX A. EXPERIMENTAL TEXT

The following are text versions of the information presented in the website experiment.

A. CONSENT FORM

PARTICIPANT CONSENT FORM

1. Introduction. You are invited to participate in a study focused on the nature of human-machine interaction using the Internet. We ask you to read this form and indicate by clicking “Ok” that you agree to be in the study. Please ask any questions you may have before continuing.

2. Background Information. Associate Professor Raymond Buettner and graduate students at The Naval Postgraduate School are conducting this study. The study seeks to determine the nature of group opinion formation using Internet text transmissions.

3. Procedures. If you agree to participate in this study, you will be shown a series of teasers and news articles. You are requested to read each teaser and news article and to take a short survey when completed.

4. Risks and Benefits. This research involves no risks or discomforts greater than those encountered in normal computer usage. There are no benefits to the participants except for the knowledge that they are helping to extend our understanding of human machine interactions.

5. Compensation. No tangible reward will be given. A copy of the results will be available to you at the conclusion of the study.

6. Confidentiality. The records of this study will be kept confidential. No information will be publicly accessible which could identify you as a participant. All data will be aggregated so that even the researchers cannot read your individual responses.

7. Voluntary Nature of the Study. If you agree to participate, you are free to withdraw from the study at any time without prejudice. You may print a copy of this form for your records or request a copy from the point of contact.

8. Points of Contact. If you have any further questions or comments after the completion of the study, you may contact the research supervisor, Raymond Buettner (831) 656-3387 rrbuetttn@nps.navy.mil.

9. Statement of Consent. I have read the above information. I have no questions regarding my participation. By clicking “Yes” I agree to participate in this study.

Do you agree to participate in this study?

[button yes] [button no]

B. HEADLINES

Actual	Positive	Negative
Oil Optimism in Esperanza	President Velasquez successfully ended the worker strike	Restrictions on oil due to Esperanzan strike, still wreaking havoc on gas prices
Oil inventories decline to a 28 year low	Easing of oil supply to come soon, analysts say	Oil inventories plummet below safe zone
Oil prices resume upswing on Esperanza, cold weather concerns	Taking action to lower oil costs in near future, APEC source says	Oil crisis worsened by blizzard and war concerns
Oil supplies fall as nation shivers	No worries about oil despite cold weather	Immediate energy concerns as nation blasted by cold weather
Gas prices skyrocket around United States	Esperanzan government containing worker strike	Oil prices skyrocketing amidst uncontrolled oil worker strike in Esperanza
US oil stocks evaporate to 27-year low	No reason to release U.S oil reserves: cheaper gas ahead?	Crude oil stocks running dangerously low
Oil price rise despite APEC increase	APEC to increase oil supplied to stymie price rises	APEC oil increases in vein as prices continue to soar
Nigeria tries to contain oil worker strike	Oil continuing to flow despite labor concerns in Nigeria	Oil crisis expands with Nigerian oil worker strike

Table 3. Headlines

C. ARTICLE 1

Oil Optimism in Esperanza

Oil output could reach 2.8 million barrels a day within a month, when restrictions on sending tankers to Esperanza ports are lifted, the head of Esperanza's state-run oil company said yesterday.

Foreign shippers were warned against loading in Esperanza ports during a two-month strike against President Luis Velasquez. The work stoppage ended on Feb. 3 in all sectors except the all-important oil industry.

Some major companies in the shipping and oil industry, however, have decided to return to Esperanza. Exxon Mobil Corp. plans to resume loading this week while refiner Valero Energy Corp. has chartered a tanker to load 2 million barrels of crude.

Once exports pick up, oil output could jump to 2.8 million barrels per day - Esperanza's quota as set by the Association of Petroleum Exporting Countries - by mid-March, said Ali Rodriguez, president of Petroleos de Esperanza S.A., or PDVSA

D. ARTICLE 2

Oil Inventories Decline to 28-Year Low

WASHINGTON -- U.S. crude oil stocks have fallen to the lowest level since 1975 -- below what the industry considers essential for smooth operation.

But government and industry officials say refiners have enough oil, and that if war in Iraq should disrupt the supply, the United States and other industrial countries are ready to draw on government reserves. While inventories are low, "it doesn't necessarily mean there will be shortages. ... Refineries are still running," said Ron Planting, an economist for the American Petroleum Institute, the trade group of the major oil companies. Still, the low inventories could hamper the smooth flow of gasoline and heating oil from refineries. Stocks of heating oil are one-third below comfortable levels and gasoline inventories -- though up last week -- remain lower than they should be, according to the government. Demand for both has been higher than expected.

The Energy Department said Wednesday that crude stocks fell by 4.5 million barrels last week to 269.8 million barrels, just below the minimum to assure efficient refinery operation. That is the lowest level since October 1975, when refiners used about 20 percent less oil than today. The continued decline of crude stocks, as the Bush administration makes war preparations, was expected to prompt renewed calls for drawing on some of the 600 million barrels of oil in the government's emergency Strategic Petroleum Reserve. Bush has resisted several such calls in recent weeks. Energy Secretary Spencer Abraham said his department continues to monitor the oil inventory situation. "We have not

changed our view” that those reserves should be used, he said, only if there are “severe supply issues and disruptions” related to national security.

War worries have caused crude prices to soar and the low inventories have added to the tight oil markets. The price of light sweet crude rose to their highest level in more than two years Wednesday on the New York Mercantile Exchange, reaching \$35.95 a barrel in intraday trading before settling at \$35.77. But some analysts said an easing of the supply crunch may come soon. World oil output increased by nearly 1.2 million barrels a day in January, according to the International Energy Agency. Saudi Arabia and other APEC producers agreed to boost production to try to make up for lost Esperanza oil, and even Esperanza's output began to rebound. “There's some crude oil from the Middle East arriving soon that could help build up stocks,” said John Lichtblau, chairman of the nonprofit, New York-based Petroleum Industry Research Foundation. It takes about 40 days for Middle East oil to reach the United States.

While Esperanza's production, stymied by months of political strife, increased in late January, its exports remained sporadic and well below levels before the country's unrest. The United States, which uses about 20 million barrels of oil and imported refined products a day, last year relied on Esperanza for 1.5 million barrels a day of crude as well as refined gasoline. In its weekly oil summary, the Energy Department's Energy Information Administration said that while crude oil stocks fell, gasoline inventories rose by an equivalent of 3 million barrels. That is still well below normal. Both demand for gasoline and for heating oil has been high, causing unexpected draws on both. Because of the cold winter, heating oil stocks in the Northeast were reported 35 percent below what they were last year.

E. ARTICLE 3

Oil Prices Resume Upswing on Esperanza, Cold Weather Concerns

LONDON - Oil prices pushed back up towards 30 dollars a barrel on worries about the impact on US oil stock levels of a strike in Esperanza, possible war in Iraq and cold weather in United States. The price of benchmark Brent North Sea crude oil for February delivery rose to 29.80 dollars a barrel in early trading here from 29.49 dollars at the close of the previous session.

In New York, the price of reference light sweet crude for February delivery gained 65 cents on Thursday to 31.85 dollars. Analysts said that prices were still being supported by recent figures showing a big fall in US oil stock levels and lower imports as the impact of a month-old strike in Esperanza took its toll. “We've got the continued after-effect of the much bigger-than-expected crude stock draw,” said Barclays Capital analyst Kevin Norrish. “Much colder weather is forecasted in the US, and that's making people a little bit nervous,” he added.

Analysts expressed scepticism about a claim by Esperanza President Luis Velasquez on Thursday that the government would soon get the oil industry back

to normal. "Within a few weeks we will regain full operations, that is what we are telling our international clients," said Velasquez. Peter Gignoux, head of petroleum desk at Schroder Salomon Smith Barney, said of Velasquez's claim: "I think the technical term to describe it is baloney." The opposition in Esperanza says the country, the fifth-largest oil exporter, has only shipped out a total of 4.5 million barrels of oil during the strike, as compared with 2.8 million barrels a day in November.

With the threat of a war in Iraq at the same time as a strike in Esperanza hanging over the market, traders have taken little comfort from signs that the APEC oil cartel may agree to pump more oil if prices remain high. The Association of Petroleum Exporting Countries (APEC) could hike production by at least 500,000 barrels a day if prices remain above 29 dollars a barrel after January 15, an APEC source said Friday. "If the oil prices continue between 29 and 30 dollars then we might have a good case in support of an increase in production," the anonymous source said from the cartel's Vienna headquarters.

But analyst Lawrence Eagles at brokers GNI said: "History has shown that when the market is tight, the producer group is reluctant to add large quantities to rectify an imbalance. APEC would be aware that at some point in the first or second quarter, demand will drop by another two million barrels per day, he said. "If that is combined with an end to an Iraqi war and the resolution of the Esperanzan strike, then prices could plunge. APEC will not therefore want to add too much oil now," Eagles wrote in a note to clients.

F. ARTICLE 4

Oil Supplies Fall As Nation Shivers

Crude inventories hit a 35-year low as utility bills rise, impacting the poor.

NEW YORK - It could be the nation's latest equivalent of the Perfect Storm. A frigid winter forces a large part of the US to turn up the thermostat. A major supplier produces only a trickle of crude. Oil inventories plummet to their lowest level in 35 years.

This is the scenario that has energy analysts fretting over the nation's immediate energy future - just as the president is trying to decide whether to invade Iraq. Senators are calling for President Bush to open up the Strategic Petroleum Reserve - just as President Clinton did two years ago.

Across the country, social agencies are clamoring for some kind of emergency funding from Congress to help the poor pay their heating bills. So far, homeowners in the Northeast who use fuel oil are paying 25 percent more than last year. Natural gas prices at the wellhead are up 46 percent. And all this was before the latest Arctic air mass hit. Now, the thermometer is not expected to get above zero degrees in eastern Montana, and Little Rock, Ark., will dip into the

single digits. Even Rock Hill, S.C., on Lake Wylie, will see snow. It seems as if Mother Nature has plans to turn the US into a natural hockey rink. That may be good for stoic sauna-taking Minnesotans, but it's not good for energy prices. "Signs are pointing to things tightening up," says Dave Costello, an energy analyst at the Energy Information Agency. "I'm not sure how much worse it will be in a week or two."

New information comes out today, and energy analysts expect it will show a continued draw-down of oil supplies because of the cold weather. Some of that, however, is the result of large users of natural gas being shifted over to heating oil. Last week, for example, Yale University shifted from natural gas to oil. And yesterday, Colgate University, which normally uses wood for its furnaces, also burned 3,500 gallons of fuel oil. "Costs are going sky high," says Vige Barrie, a spokeswoman at the Hamilton, N.Y., university.

Despite the cold weather and low inventories, there are no outright shortages cropping up. Yes, heating-oil inventories are lower than last season, but John Huber, president of the National Oilheat Research Alliance, says that is not a cause for concern, since the oil industry now operates on a "just in time" type of delivery system. "I focus on the transportation system, and deliveries will get disrupted if the rivers freeze over or there are bad Atlantic storms," he says.

So far, the US Coast Guard is operating ice breakers on the Great Lakes, the Penobscot River in Maine, and on the Hudson. According to a Coast Guard spokesman, there are now some delays on the Hudson due to ice as thick as 12 inches between Newburgh and Troy, N.Y. "The Coast Guard is monitoring the situation, and we will continue preventative ice-breaking and assisting vessels as necessary so commerce can continue," says Jolie Shifflet, a spokeswoman in Washington.

Sen. Charles Schumer (D) of New York thinks there is a need for a different type of intervention. He wants President Bush to consider opening up the nation's Strategic Petroleum Reserve. "The bottom line is that prices are at some of their highest levels, and we have to show APEC that we mean business and that they can't constrict supplies," says Senator Schumer. "We're not saying we have to sell the oil now, but the threat of doing it will have a positive impact on prices." With prices higher this winter, social agencies report that they are deluged with calls from senior citizens and poor people who can't pay their heating bills. That's what's happening in York County, Maine, where calls for help are up about 15 percent. "What we need is emergency funding, like we got from the ice storm [in 1996]," says Tom Nelson, executive director of the York County Community Action Program.

On Tuesday night, Congress started the process to get aid to places like York County. The Senate passed an amendment that would add \$300 million to the Low Income Heating Assistance Program (LIHEAP). That would bring the total

available to \$2 billion. "Imagine a hard-working, low-income family that must decide to heat their home or provide food for their children, or an elderly couple living on a fixed income who has decide whether to pay the heating bill or buy medicine," says Sen. Jack Reed (D) of Rhode Island, a cosponsor of the legislation. "These families are why LIHEAP was created 25 years ago."

The new aid, if it gets incorporated in the final US budget will be welcomed in Little Rock, where the temperature is dipping into the single digits. Many working poor or those on fixed incomes have shown up at the Central Arkansas Development Council looking for help. "We have not seen that number of disconnects for the elderly or disabled before," says Brenda Fiser, regional manager. "If oil and gas prices go up, it will be just devastating for low-income individuals and families."

G. ARTICLE 5

Gas Prices Skyrocket Around United States

Concerns over Iraq, Esperanza raise average cost 11 cents

CAMARILLO, California --Americans are digging deeper at the gas pumps.

According to a survey released Sunday, the average price of a gallon of gasoline nationwide has gone up more than 11 cents during the past two weeks. Americans paid an average of \$1.60 per gallon of self-serve regular, the Lundberg Survey said. Publisher Trilby Lundberg said that is the highest price at the pump since June 2001.

The price increase is in keeping with the rise in crude oil prices, which have exceeded \$35 per barrel -- up more than \$8 per barrel during the past two months, Lundberg said. The "two big reasons," she said, are an oil shortage caused by Esperanza's general strike and international preparations for a possible war in Iraq. According to the Department of Energy, Esperanza was the fourth-largest exporter of crude oil to the United States in November, before the strike began. Iraq, with the world's second-largest proven oil reserves, is the ninth-largest exporter to the United States. Concerns about the possible loss of Iraq's supply have affected the price of gasoline because on futures markets, "oil prices rise on fears and perceptions, not just supply and demand," Lundberg said.

Unusually cold weather across large portions of the United States have led to a spike in demand for heating oil, which, like gas, is refined from crude oil, she said. Gas was cheapest in Phoenix, Arizona, where drivers typically paid \$1.44 per gallon. Drivers in California's San Francisco Bay Area paid the most, at \$1.82 per gallon. Des Moines, Iowa, had one of the largest increases: up 21 cents to \$1.59.

The Lundberg Survey is based on prices that more than 7,000 gas stations nationwide reported Friday.

H. ARTICLE 6

US Oil Stocks Evaporate to 27-Year Low

Crude oil stocks in America have run dangerously low, raising fears that the government will be forced to tap its strategic reserves even before any full-blown conflict with Iraq.

Inventories are down to their second-lowest level since records began in 1976 as the oil workers' strike in Esperanza holds back supply, the US department of energy revealed yesterday. Official estimates put the minimum stocks needed to run US refineries at 270m barrels a day but the DoE said there were only 272.3m barrels left in the system, down 6.4m barrels from a week earlier. The shortfall helped send oil prices soaring again yesterday, with Brent crude for February delivery up 64 cents a barrel to \$31.25 by the afternoon.

Paul Horsnell, oil analyst at JP Morgan, said that with US refineries guzzling 15m barrels of crude every day there was just four hours worth of slack in the system. "Things are getting a bit tight if it gets below 300m barrels," Mr Horsnell said "Once you start running below that level, prices become more and more sensitive even to minor changes in supply." With the build-up to a conflict in Iraq accelerating, Mr Horsnell said, there was considerable potential for interruptions in supply in coming months. "What's alarming about this is that it's got nothing to do with Iraq - it's got nothing to do with the Middle East," he said.

The US government holds a massive strategic petrol reserve in salt caverns below Texas and Louisiana. Despite the spike in the oil price, industry spokesmen insisted yesterday that it was not yet time to turn on the taps. "I don't see a reason, really, to release the SPR," said John Felmy, chief economist for trade body the American Petroleum Institute, arguing that there was not yet a crisis. "We can't declare an emergency at this point." Mr Horsnell said that, although the oil price would be high enough normally to justify dipping into the SPR, the White House might be hoping to keep back supplies until the outbreak of a war with Iraq, when prices might rise further.

There is little sign of an early resumption of normal oil supplies from Esperanza, the world's fifth-largest exporter, where striking workers are trying to force president Luis Velasquez to call early elections by starving the oil-dependent economy of cash. Cumulative loss of production is approaching 100m barrels. The oil markets were temporarily calmed last week by the prospect of a compensatory increase in supplies from Apec, the oil producers' cartel. But yesterday's jump in prices suggested traders are losing faith in Apec's ability to help. Oil ministers from the Apec countries agreed to raise production by 1.5m barrels a day at a meeting in Vienna last weekend.

Lawrence Eagles, at commodity analyst GNI, said the 270m-barrel floor was probably an overestimate of the minimum amount needed to keep refineries running, and just-in-time production methods meant a smaller margin for error was sufficient. “Regardless of whether that particular cut-off point is right, though, we have clearly gone down to very low stocks,” he added. Mr. Eagles calculates that reserves, plus the SPR and stocks of finished oil products, could keep the US economy going for 77 days.

I. ARTICLE 7

Oil Price Rise Despite Apec Increase

Increased supplies are little comfort for the US

Oil prices have risen despite an agreement by producers' cartel Apec to boost output. At first on Monday oil prices moved slightly lower in response to Apec's decision over the weekend to increase production by 1.5 million barrels a day.

Apec “stabilising” supplies

But crude oil on the New York Mercantile Exchange ended the day 58 cents higher at \$32.26 per barrel. In London, Brent crude rose above \$30 a barrel again to reach \$30.20 a barrel, 53 cents higher. The price of oil has been pushed up by a cut in production in Esperanza because of a general strike. The possibility of a war with Iraq has added pressure. The markets think the Apec production increase will not be enough to fill the gap. They were also rattled by an announcement from Statoil that two North Sea oil fields were being closed for technical reasons.

Supply Threats

The high cost of oil could threaten the global economy which is still struggling to show any significant growth. Oil shipments by Esperanza, which supplies 13% of US needs, are still down to about 20% of normal export levels. Iraq sells up to 2 million barrels per day on the international market, but that would be stopped by a war. Apec agreed to increase official production after an emergency meeting in Vienna.

“Apec is trying to send a very strong message that it will do its utmost to stabilise demand and supply,” said the cartel's president Abdullah bin Hamad Al Attiyah. However, Nigeria's oil minister said that while Apec was committed to stabilising the price, oil remained cheap compared to other commodities. Developed countries should reconsider their tax policies if they want dramatic cuts in fuel prices, Dr Rilwanu Lukman told the BBC's World Business Report. Another Apec meeting is scheduled for 11 March.

J. ARTICLE 8

Nigeria Tries to Contain Oil Worker Strike

LAGOS, Nigeria -- Nigeria started sending replacement workers to its oil-export terminals Monday, trying to stave off a shutdown of crude exports in a strike by a powerful oil workers union.

The 2-day-old strike over pay and working conditions comes as the threat of war against Iraq and a prolonged strike in Esperanza have pushed oil prices near two-year highs. Nigeria is the world's sixth-largest exporter of crude oil and half of its exports go to the United States. Oil exports account for more than 80 percent of government revenue.

The Department of Petroleum Resources said Monday that managers would fill in for striking workers and vowed that the oil would continue to flow. "We have sent out management staff to the various terminals, depots and jetties to handle the jobs left by the strikers. There'll be no disruption of services as far as the management is concerned," said Belema Osibodu, an agency spokeswoman.

The strike was launched Saturday by union employees of the Department of Petroleum Resources, a key government unit overseeing operations of oil multinationals including ExxonMobil, ChevronTexaco, Royal Dutch/Shell and TotalFinaElf. It is backed by the country's leading Petroleum and Natural Gas Senior Staff Association of Nigeria. Strikers are demanding more than a year's worth of back pay, including unpaid overtime, expenses and travel allowances. They also want greater autonomy and better financing for the department, which they say is crippled by inefficient bureaucracy. Officials of Shell and TotalFinaElf in Nigeria said the action hadn't yet affected exports. Shell pumps nearly half of the country's exports.

In London, benchmark Brent crude fell 52 cents Monday, hitting \$31.98, after last week's two-year highs. U.S. markets were closed for Presidents' Day. In Lagos, Nigeria's commercial capital, long lines of cars waiting for fuel formed at gas stations as the strike started to hit domestic fuel distribution. Fuel shortages also were reported in the capital, Abuja, and many other urban centers. Nigeria produces over 2 million barrels of oil a day, more than 95 percent of which is pumped by joint ventures between the government and major oil companies.

K. SURVEY

For each question, please choose the answer that most closely reflects your opinion.

Question 1:

The Esperanza government can contain this issue successfully.

☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
Strongly Disagree	Slightly Disagree	No Opinion	Slightly Agree	Strongly Agree

Question 2:

APEC's decision to not release oil is a good thing.

☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
Strongly Disagree	Slightly Disagree	No Opinion	Slightly Agree	Strongly Agree

Question 3:

This is a very serious problem for Esperanza.

☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
Strongly Disagree	Slightly Disagree	No Opinion	Slightly Agree	Strongly Agree

Question 4:

I think I could successfully relay this issue to a friend.

☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
Strongly Disagree	Slightly Disagree	No Opinion	Slightly Agree	Strongly Agree

Question 5:

The best word to describe this issue is:

☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
Catastrophic	Crisis	Worrisome	Annoyance	Normal

Question 6:

I feel the Esperanza government has been _____ with regard to this issue.

☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
Incompetent	Slow	Normal	Efficient	Exemplary

When you are finished please click the submit button below

L. EXPERIMENT COMPLETE PAGE

PARTICIPANT DEBRIEF FORM

Thank you for your participation in this experiment. You may print a copy of this form for your records if you so desire. The researchers have not collected any personal data during this experiment and thus a copy of this **form is the only evidence that will exist of your participation.**

Experiment Information. You have participated in a study focused on the nature of human-machine interaction using the Internet. We asked you to read this form and indicate by clicking “Ok” that you agreed to be in the study.

Associate Professor Raymond Buettner and graduate students at the Naval Postgraduate School are conducting this study. Its purpose is to learn about how the teasers or headlines which lead to news articles on most Internet sites influence the opinions of those who read them. You were randomly assigned a set of headlines and teasers regarding the fictional country of Esperanza and your responses to questions were automatically recorded. The results of the survey responses will be aggregated with others who viewed the same teasers and compared with the results from those who viewed two other sets of teasers. One set of teasers was positive, one negative and one served as the control or neutral set. It is our hypothesis that there will be a significant difference in the survey results. Please do not share this information with other potential subjects as it may influence their responses.

Risks and Benefits. This research involved no risks or discomforts greater than those encountered in normal computer usage. There are no benefits to you except for the knowledge that there are helping to extend our understanding of human machine interactions. Since the articles concerned a fictitious country we believe this experiment could not influence your actual opinions on any subject.

Compensation. A copy of the results will be available to you at the conclusion of this research effort.

Confidentiality. The records of this study will be kept confidential. No information will be accessible which could identify you as a participant except your copy of this form, if you choose to make one. All data will be aggregated so that even the researchers cannot read your individual responses.

Additional Information. You may contact Professor Raymond Buettner at (831) 656-3387 or rrbuett@nps.navy.mil if you have any questions regarding this research. If you would prefer, this debrief can be conducted in person. You can arrange this by contacting Professor Buettner and making an appointment.

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX B. EXPERIMENT SCREEN SHOTS

The following are selected screen shots from the experiment.

The screenshot shows a Microsoft Internet Explorer browser window with the title bar 'Consent Form - Microsoft Internet Explorer'. The address bar displays 'http://ebiz.nps.navy.mil/survey/index.html'. The main content area is titled 'PARTICIPANT CONSENT FORM' and contains the following text:

1. Introduction. You are invited to participate in a study focused on the nature of human-machine interaction using the Internet. We ask you to read this form and indicate by clicking "Ok" that you agree to be in the study. Please ask any questions you may have before continuing.

2. Background Information. Associate Professor Raymond Buettner and graduate students at The Naval Postgraduate School are conducting this study. The study seeks to determine the nature of group opinion formation using internet text transmissions.

3. Procedures. If you agree to participate in this study, you will be shown a series of teasers and news articles. You are requested to read each teaser and news article and to take a short survey when completed.

4. Risks and Benefits. This research involves no risks or discomforts greater than those encountered in normal computer usage. There are no benefits to the participants except for the knowledge that they are helping to extend our understanding of human machine interactions.

5. Compensation. No tangible reward will be given. A copy of the results will be available to you at the conclusion of the study.

6. Confidentiality. The records of this study will be kept confidential. No information will be publicly accessible which could identify you as a participant. All data will be aggregated so that even the researchers cannot read your individual responses.

7. Voluntary Nature of the Study. If you agree to participate, you are free to withdraw from the study at any time without prejudice. You may print a copy of this form for your records or request a copy from the point of contact.

8. Points of Contact. If you have any further questions or comments after the completion of the study, you may contact the research supervisor, Raymond Buettner (831) 656-3387 rrbuettm@nps.navy.mil.

9. Statement of Consent. I have read the above information. I have no questions regarding my participation. By clicking "Yes" I agree to participate in this study.

Do you agree to participate in this study?

The browser window also shows a taskbar at the bottom with several open applications: 'start', 'Post-it@ Software No...', 'Schwab-Thesis-Final ...', 'Microsoft Outlook We...', 'updating cross refere...', and 'Consent Form - Micro...'. The system clock in the bottom right corner shows '10:45 AM'.

Figure 5. Consent Form.

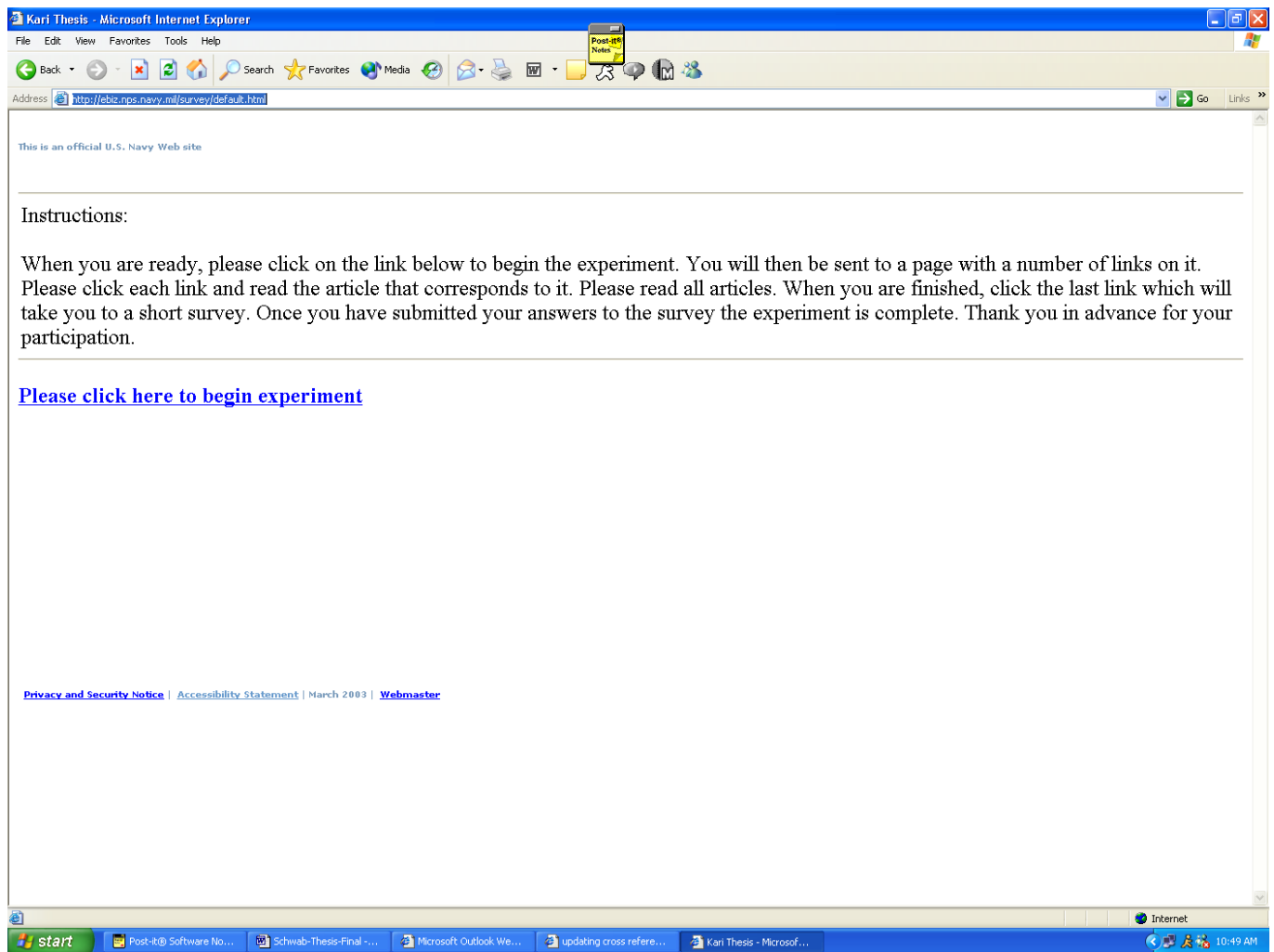


Figure 6. Main Page.

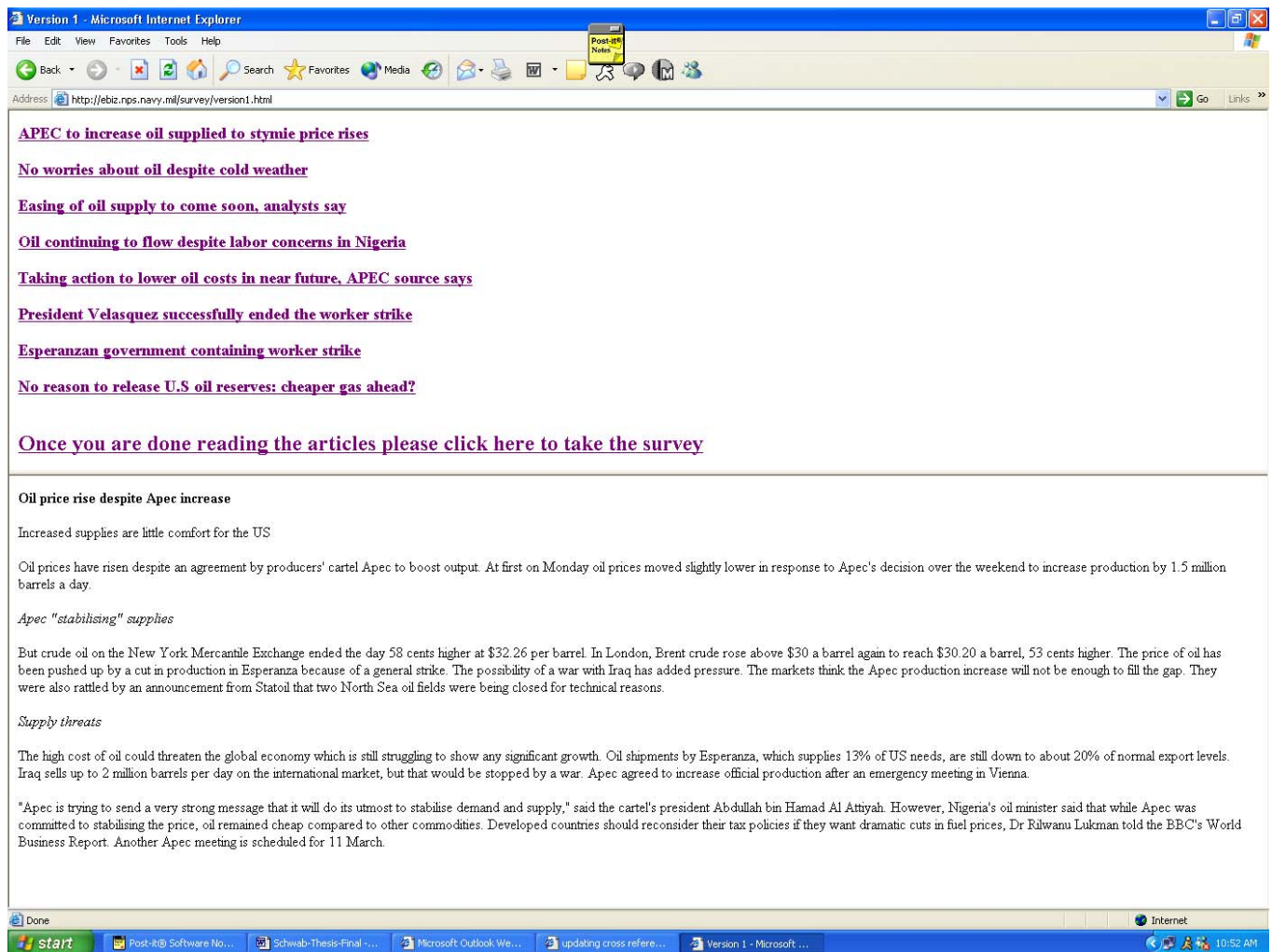


Figure 7. Sample Headline Page with Article.

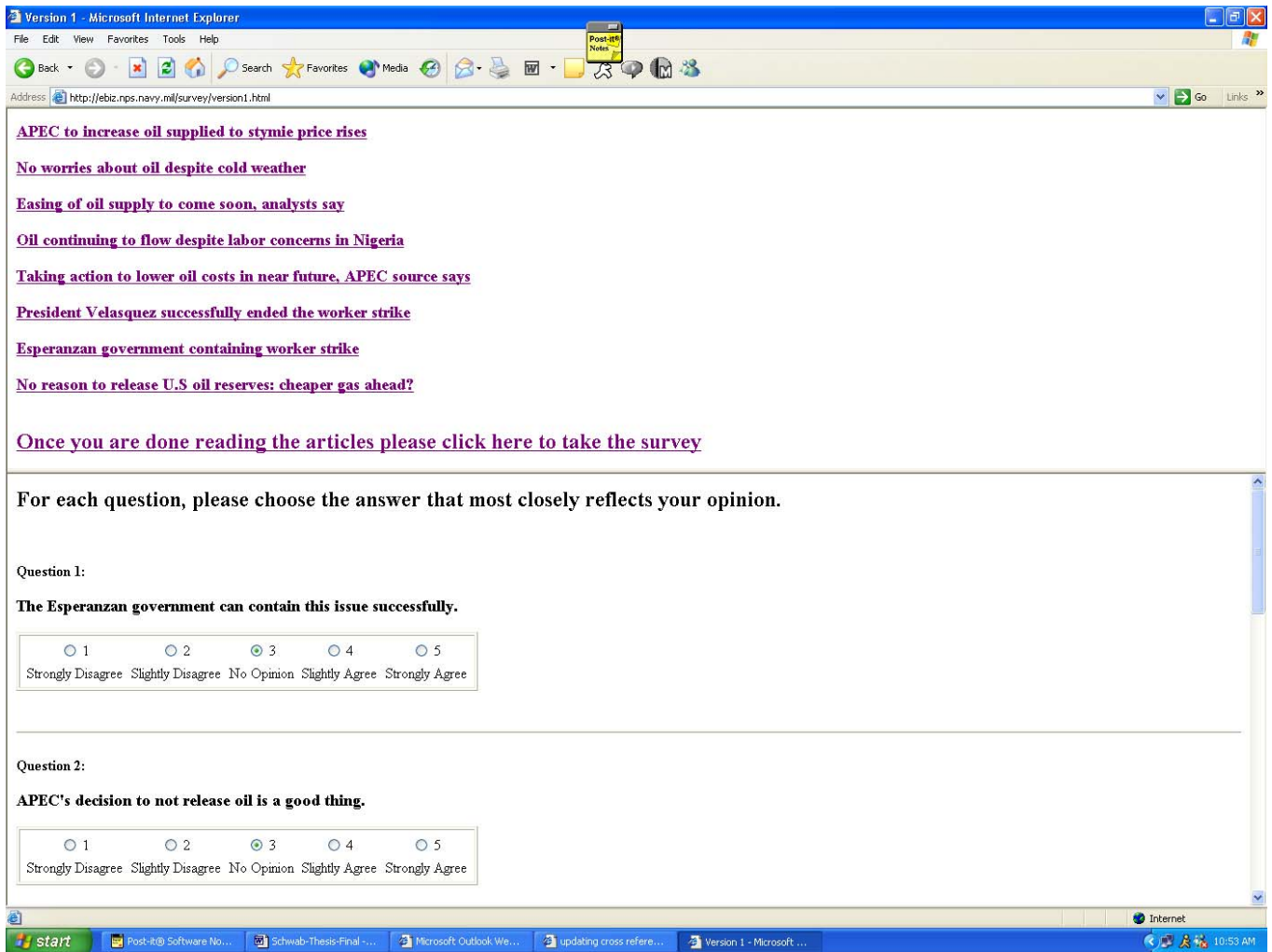


Figure 8. Sample Headline Page with Survey.

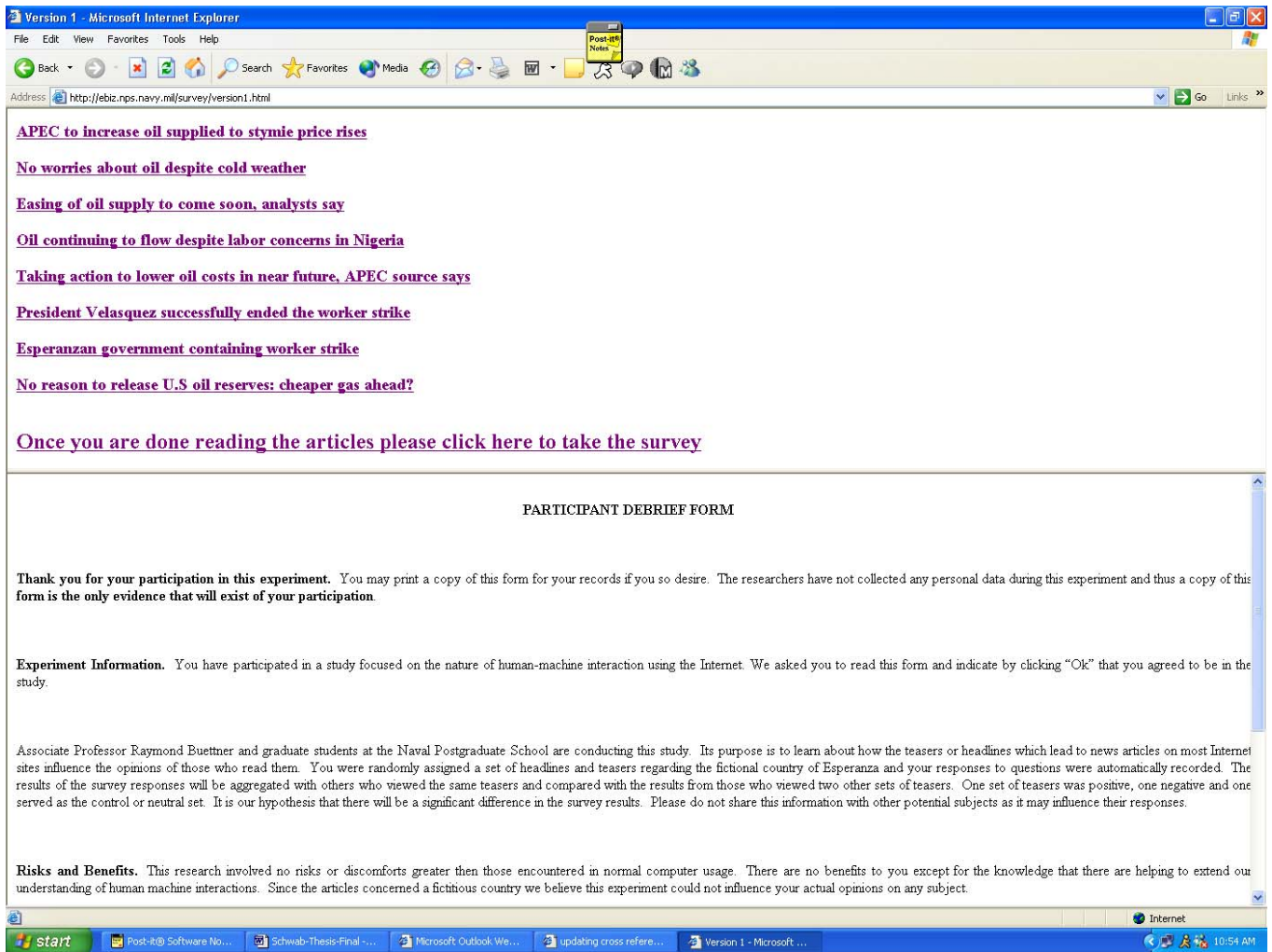


Figure 9. Sample Headline Page with Debrief Form.

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX C. BACKGROUND RESEARCH

This section contains the original background research in its basic form. Included in each section is a critique of the information that was read in its relation to this thesis.

A. COERCION BY: DOUGLAS RUSHKOFF

This book mainly offered insight into the marketing tactics used by large companies to get customer's business. However, the last chapter discusses the Internet and how it began as an ideal utopia until the big businesses could figure out how to cash-in on its value.

Although businesses had failed in their efforts to capitalize on the initial surge in Internet use, the race was on to find a way to make money online. Many different companies, working independently, arrived at a similar strategy. The first step was to reverse the do-it-yourself attitude that the computer keyboard had provoked, and restore the supremacy of commercial content over social contact. The trick would be to change the perception of the Internet as a communications medium to a broadcast medium, which meant convincing users that our interaction with one another was less important than the data we could download and the things we could purchase with our new equipment. (p. 263)

The book also mentions the issue of the manipulation of shortening attention spans. "Although online real estate is essentially infinite, the willingness of human beings to sift through it in real time is not." (p. 267) "...the only limiting factor on the business community's ability to earn money online was the number of 'eyeball-hours' they could wrest from an Internet user." (p. 268) This notion of "eye-ball hours" also relates particularly to influence. Since the Internet is so vast and there are so many informational sites out there, in order to influence people, you must be able to first get people to your site and then keep them there with some sort of incentive or attention-keeping mechanism.

1. Critique/Usefulness

This book uses real-world examples from the marketing world to demonstrate how companies are influencing the general public. He mentions the issue of limited attention span which is particularly relevant to Internet operations where there is a plethora of sites from which a user must choose. Most of the information in this book is

based upon small studies or the author's experience when working in different companies. This makes the information presented less statistically significant due to the small or nonexistent sample sizes during the author's research.

B. INFLUENCE: THE PSYCHOLOGY OF PERSUASION BY: ROBERT B. CIALDINI, PH.D.

This book discusses seven basic weapons of influence. These include reciprocation, commitment and consistency, social proof, liking, authority and scarcity. All of these weapons can be applicable to the online environment. In particular, commitment, consistency, authority, social proof and liking all can be used to help influence people to a certain decision or mind frame. This will be very useful during experimentation when we will try and capitalize on some of these influence techniques to convince people to hold a certain idea. The reasoning behind their usefulness lies in the fact that "very often, we don't use all the relevant available information; we use instead, only a single, highly representative piece of the total." (p. 274) "Despite the susceptibility to stupid decisions that accompanies a reliance on a single feature of the available data, the pace of modern life demands that we frequently use this shortcut." (p. 274) The fact that people have limited attention spans, particularly when using the Internet, can help us when trying to exploit these tendencies in a fast-paced online environment.

Commitment: once a person has made a small commitment, it is easier to get them to make another and or larger commitment (also part of consistency) (written commitments or public displays of commitment are harder than secret or verbal displays of commitment)

Consistency: once a person has made a choice or taken a stand, they will encounter personal and interpersonal pressures to behave consistently with that commitment.

Social Proof: one means we use to determine what is correct is to find out what other people think is correct. In particular, we are more influenced by people we perceive as being similar to ourselves. This can be exploited by making the person believe you are like them and then demonstrating what you are doing in an attempt to get them to do the same.

Liking: people tend to trust people that they like or admire (this can be liking the way they act or way they look or simply a person who compliments them)

Authority: we have learned from birth that obedience to proper authority is right so therefore, later in life when we perceive someone as being the authority, we will tend to listen to them (this works whether it is a newspaper as an authority for proper news writing or simply your boss at work)

1. Critique/Usefulness

This book highlights experiences many people face in their day-to-day lives and then explains the psychology of why they reacted in that manner. The explanations are logical in format and occur across location, gender, age, race and personality. No particular mention was made, however, to these influences working in other cultures although other works have demonstrated this as valid. This book uses college students for some of the experiments, however, which can introduce bias because of the select nature of the sample participants. The voluntary nature of these experiments also has the same effect.

Five of the influences are particularly useful in Internet experiments because they are replicable in an online environment. One of the most important points of this book reflects the need for humans to make shortcuts when making decisions, which are then exploitable. Since we know time is such an important commodity, in our website design, we can be sure to make it as streamlined as possible with natural progression leading to our desired thoughts so that when people use a single bit of information to make their decision in an effort to save time, it will ultimately lead them to our desired outcome.

C. AGE OF PROPAGANDA BY: ANTHONY PRATKANIS AND ELLIOT ARONSON

This book covers much of the same background as the Cialdini book in that it discusses the methods that are used to influence others. One particularly relevant part of the book mentions that:

a persuasive message is persuasive when it rewards the recipient at each of the following stages of psychological processing. a) The message must attract the recipient's attention b) The arguments in the message must be understood and comprehended c) The recipient must learn the arguments

contained in the message and come to accept them as true d) We act on this learned knowledge and beliefs when there is an incentive to do so. (p. 23)

Later, the book mentions that these four stages do not all have to happen but rather “the successful persuasion tactic is one that directs and channels thoughts so that the target thinks in a manner agreeable to the communicator’s point-of-view; the successful tactic disrupts any negative thoughts and promotes positive thoughts about the proposed course of action.” (p. 24)

Another item that would be particularly relevant to influencing people with news articles is the fact that a link exists between

what stories the mass media cover and what viewers consider to be the most important issues of the day. The content of mass media sets the public’s political and social agenda. (p. 54)

This notion is very important when thinking about how to construct a website that will successfully influence people. It appears that simply by putting more information about a certain topic, people will believe it to be more important. (See Article by Rasem Abid about NYT)

The book further mentions that “people tend to acquire information mostly about things they find of interest and tend to avoid information that does not agree with their beliefs.” (p. 222) This finding is significant because the people that willingly go to our website will already be interested in the topic which makes the results somewhat skewed. Furthermore, in order to influence the people that go to the website, it will need to be “form-fitted” to each user so that the messages appear to be in concert with the reader’s views so that they will be influenced by the messages.

1. Critique/Usefulness

This book used the same format as the Cialdini piece. It highlights small experiments often using college students to demonstrate how these influences are at work in our daily lives. Using college students, however, has potentially skewed the results of his experiments because of the select pool of people chosen to participate as well as the

voluntary nature of participation. The fact that the people that worked on these experiments were voluntary can lead to bias in the results because of the nature of the people who would be compelled to do so.

Age of Propaganda also mentions things that were left out of the Cialdini book. This piece highlights the necessary environment that can make people more apt to being influenced. In addition, the notion of mass media as an indirect means to influence people simply with abundance of articles is crucial to our understanding of how to design a website with similar effects. Personal interests are also important as readers are more influenced by information that is in concert with their own. (confirmation bias) As a result, any attempts to make this website should be fluid in order to accommodate different people.

D. THE MEDIA EQUATION BY: BYRON REEVES AND CLIFFORD NASS

This book provides the crossover information that helped develop my hypothesis. It theorizes that humans treat computers and media like they do other people. This means that the influence techniques that have been described and employed in the Cialdini and Pratkanis books can also be used when a human is interacting with a computer or webpage.

Their research shows that media is not just a tool.

Media are treated politely, they can invade our body space, they can be a teammate, and they can elicit gender stereotypes. Media can evoke emotional responses, demand attention, threaten us, influence memories, and change ideas of what is natural. (p. 251)

This means that the effects that were elicited by planted content in newspapers (see the Annis Article on Planted Content) should also work for the Internet.

In total there were eight “lessons-learned” from this book as stated by the authors: a) everyone responds socially and naturally to media, b) media are more similar than different (same effects no matter the media which means that our influence should work over the Internet, making it a very nice tool because of the ease of distribution), c) the media equation is automatic, meaning that these effects are unconscious, d) many different responses characterize the media equation, meaning that the effects of this are much more passive than one would expect, e) what seems true is more important that

what is true, this is particularly important when dealing with influence and trust, as long as the user perceives the information to be true, it is true and will be treated as thus, f) people respond to what is present, meaning that people sometimes tend to use the information that is readily available to them and not consider who sent the item or what their intentions were, by exploiting this fact, influence can become a lot easier, g) people like simplicity. Therefore, by offering your site as a simple means, people will “like” it and therefore believe the information more.

1. Critique/Usefulness

Like the two previous books, The Media Equation is sometimes flawed in that college students are used for some of the experiments. In addition, there experiments are very simplistic and the data collected is now a bit dated due to the high turnaround rate in the computer industry. In fact, most of the information mentioned involves computers in general and not the Internet. It does offer, however, the major link between all the previous published literature on influence and the realm of the computer.

The Media Equation highlights the notions of user trust in the information presented and the tendency for people to make decisions based upon only the immediately available information (availability bias). Lastly, it provides more evidence for the need for simplicity when designing influence mechanisms.

E. WHO DELIBERATES? BY: BENJAMIN I. PAGE

This book begins by highlighting the notion that while “Americans’ collective policy preferences are generally stable, coherent, and sensible, and that public deliberation often works well to enlighten public opinion”, “the public can sometimes be fooled, deceived or manipulated by what is printed and broadcast in the mass media.” (p. vii) It then goes onto discuss how deliberation works through the media and looks at the circumstances that change whether the public is enlightened or fooled by the discussion of political issues.

There is a special section of this book that is particularly relevant to the thesis work. This section discusses the slanting of news. It first mentions that “informal observation and common sense” have shown that in many newspapers “political points of view are not confined to editorial and op-ed pages but pervade news stories as well.” (p. 112) The book has highlighted some of the well-known techniques for slanting the news

such as: a) control the prominence with which a story is pursued or displayed (prominence and repetition promote reader attention and therefore retention) (Demonstrated in 1995 when the Clinton Administration vetoed a resolution of the UN Security Council that was going to chastise Israel for its taking of Palestinian lands that was never given special attention so as not to embarrass the aforementioned parties, p. 113), b) to solicit, select and shape quotations around which a news story is built, c) to choose which facts to report so as to advance editorial purposes (facts reported tend to reflect political views of editors and reporters, d) frame the meaning of news stories so as to further media editors' and owners' political purposes ("Framing is often accomplished at the very outset of a news story, in an opening interpretive sentence or sentences, organizing the first facts and quotations that are presented.", p. 115), e) use overtly evaluative words and statements.

The importance of this book stems from its discussion of these particularly unobtrusive methods to slant the news which can be very useful when trying to create a website with similar effects.

1. Critique/Usefulness

The sections of this book that were relevant to this thesis are very straightforward. There is little presented that has not been established for many years regarding the slanting of the news. Therefore, the information presented will be accepted as completely valid and will provide a number of subtle techniques that can be incorporated into a website to influence people.

F. PAPER ON THE WEB WHITE AND BLUE NETWORK BY: ARTHUR LUPIA

This paper is a 164 page evaluation of "The Web White and Blue Network 2000", a project with "a consortium of 17 of the largest Internet news and news organizations who came together to highlight the potential of the Internet to expand citizen participation in our democracy". (p. 4) The highlight of this network was the "first-ever online presidential debate which ran from October 1 through November 8, 2000 and was carried simultaneously on the 17 major Web White and Blue sites including, for example, Cnn.com. In addition to the online debate which consisted of a 'Question of the day' and rebuttals, there were also daily selection of links to online political information.

This evaluation is “designed to provide broad audiences with new insights on how the Internet changes politics.” (p. 6) The evaluation consisted of 5 parts:

Web White and Blue network usage statistics, a voluntary user survey, in-depth interviews with representatives of the charter sites, Internet-based interviews with a random sample of Americans that gauge the effect of particular web sites across broad populations, and laboratory experiments that reveal how differences between websites affect the extent to which they change users’ political beliefs and behaviors. (pp. 6-7)

The laboratory experiments are of particular interest since they can give insight into ways websites can be made more appealing. One conclusion drawn from the first experimental comparison found that “media-linked brand names are crucial determinants of which sites election information seekers visit.” (p. 127) Furthermore, when designing next generation sites, it is important to realize the extreme difficulty in trying to steer people from the sites they already know and trust. An interesting note, however, is that when asked if the users would revisit a site (after only one viewing of the site), 40 percent said they would go back to a site that was unknown previously which is still a large percentage after only one viewing which at least suggests a “users’ appreciation of the site”. (p. 128)

The main lesson from the second experimental comparison is that “in users minds, destination sites and syndicated content sites are to a considerable degree categorized as distinct entities.” Furthermore, “to the extent that the public consciousness focuses on sites with familiar and media-linked brand names, this categorization would seem to limit the potential of .org destination sites...this outlook would change if brand-name syndicated content sites became more of a political information fixture in the future.” (p. 130)

1. Critique/Usefulness

This paper provides a very thorough experiment involving the Internet, influence and site design. The participants in this experiment were chosen at random to help reduce any bias.

Two important lessons learned from this paper are the importance of brand names and the unimportance of brand names. Firstly, the experiment showed that people more often visited sites with brand names. However, research also demonstrated that when

users were asked if they would revisit a lesser known site, a good number of those people indicated that they would return. This suggests that if a site has information that is useful or novel, people will revisit even if it is a lesser known site. The caveat to this, however, is how to get people to your site initially.

Overall, I think this paper provides a good methodology for how to survey participants and ask questions that will not lead people to their conclusions. The information included in the appendices of this paper can serve as a baseline for which to judge the effectiveness of future survey and other questions.

G. THE INDUCTION OF OPINION THROUGH SUGGESTION BY MEANS OF “PLANTED CONTENT” BY: ALBERT D. ANNIS AND NORMAN C. MEIER

This paper from 1934, deals with the belief that the press can shape listeners’ opinions through the use of propaganda (distinguished from advertising and education since the purpose is not made clear). As such, a study was done using a new technique to

determine the effect of defined propaganda stimuli presented through the newspaper editorial. The central purpose was to find the extent to which favorable and unfavorable opinion concerning a person could be built up through suggestion by means of ‘planted’ editorials, starting from complete ignorance of the person on the part of the readers. (p. 66)

The chosen topic of the propaganda was Mr. W. Morris Hughes, the Prime Minister of Australia from 1915-1923. The “planted content” technique involved substituting, without the subjects’ knowledge, editorials with planted content for ones of similar length and appearance in current issues of the local college newspaper. (University of Iowa’s Daily Iowan) In total, 30 planted editorials were created, half being favorable and the other half unfavorable to Mr. Hughes.

The study used Editorial Opinion Tests to test the extent to which an opinion had been formed and whether the opinion was favorable or unfavorable to Mr. Hughes. In addition, an information check test was given to ensure that no one already had knowledge of the subject in question, Mr. Hughes.

Two hundred three male and female students from three introductory psychology classes were used for this study. These students were already in three sections and thus provided the split between those who read 15 “planted” editorials, those who read 7

“planted” editorials, and a control group who read no editorials. The first two sections were further divided in half so that one half read the editorials that were favorable and the other unfavorable. Five days after the last editorial was read, the Editorial Opinion Test was given to all groups. In addition, four months after the study, the Editorial Opinion Test was given again to see if the opinions were retained.

After all the information was reviewed, a number of conclusions were made in regards to “planted” editorials. 1) A considerable number of the subject’s reading the favorable editorials became favorably biased towards the person selected as the propaganda object with a similar outcome for the subjects reading the unfavorable editorials. 2) There were no reliable differences found between the groups reading fifteen editorials and those readings the last seven. 3) The mean scores for those just after the study were not significantly different than those on the same test four months later (except for the favorable group in the fifteen-editorial section). 4) No reliable sex differences were found.

This study is very relevant to the thesis since it proves that “planted” information can have long term effects on a persons’ opinion. While this is inherently obvious, it provides a strong basis for moving a similar experiment to the Internet.

1. Critique/Usefulness

This paper is a basic study on the effect of “planted content” on the minds of readers. The results of this paper are logical and somewhat obvious. This fact can help support the work’s validity despite the 70 years that has passed since its development. Along the same lines as the books on the subject, this experiment used college students as their subjects. Furthermore, the sample size was extremely small. These facts can introduce bias into the findings. While as mentioned above, the results were expected, the amount of influence can be greatly skewed.

This project is the first definitive study I could find that used propaganda in news articles to see how it influenced people’s opinions. It, therefore, serves as a baseline for this work that will instead be done using the Internet.

It is also important to note that at the time this experiment was conducted, the world was a very different place. People did not have thousands of different sources for

information at their fingertips. Instead, people might have one or two methods of getting information, both of which were very trusted. Nowadays, however, people can access information from anywhere in the world each with their own views. As a result, the level of trust has gone down with many forms of information as the fight for users “eyeball-hours” has gone up. This can potentially make the job of influencing people easier and harder. Easier in the sense that with the Internet you can have access to many more people, but harder in that you must make your information that much more impressive in order to be chosen out of the vast junkyard of information and it must be trusted. Therefore, while this paper provides a generic basis for the theories presented in this thesis, it cannot be used for major information gathering.

H. PUBLIC OPINION, POLITICAL COMMUNICATION AND THE INTERNET BY: HEATHER SAVINGNY

This article is a short piece that discusses public opinion, politics and the role of the Internet. There are only a few things relevant to the thesis work. The first is the notion that “models of mass communication increasingly suggest that the media now function to display and gain attention, rather than to express, persuade or inform.” (p. 3) This means that the media use tactics to gain people’s attention and get their version of their message out rather than simply to provide information. Later on in the paper, the Internet is directly addressed. “The Internet offers the potential to revolutionize political communication and the nature of public opinion expression and formation. Both the medium and the message are free from the distortions that characterize the traditional channels of political communication.” (p. 5) The limitation here is that this “idealized” version of the Internet is not reality. While the Internet possessed the *potential* for these kinds of changes, in actuality, it never came to be because of trust issues. While indeed there is a plethora of information on the Internet, people are becoming more “net-savvy” and do not readily trust everything they read on the Internet. If people do plan on getting information from the Internet, they tend to go to the sites they already know and trust...very often those same media outlets that are biased, i.e. newspapers or magazines. The fact that people refer back to the sources they trust makes any new discussion irrelevant except for those people who would naturally seek balanced information.

This last notion is discussed in the later part of the paper.

Paradoxically, the nature of the medium itself, without the ‘filtering’ of the traditional media, may undermine its utility as a source of information. Lack of editorial control of content, unlike with television and the press, may mean that rather than becoming authoritatively informed, public debate may be grounded in misinformation. (pp. 5-6)

Furthermore, “existing research suggests that the Internet facilitates communication between those who would communicate anyway, neither broadening nor deepening the level of discussion.” (p. 6)

This paper, while not providing direct information for the thesis, does discuss some of the shortcomings with dealing with the Internet as an influence medium such as increased participation does not necessarily equate with meaningful participation, the problems of collective action, citizen disenfranchisement since not all individuals have access to this medium and finally, quantity does not equate with quality of information. The paper concludes with a very useful quotation: “Whilst the Internet provides the illusion of a ‘public sphere’, arguably, at present, it is elites who remain the gatekeepers of the boundaries of public information and opinion formation.” (p. 7) This means that the Internet is currently run by those same people that influence people with newspapers which can provide a direct link between the work in 1934 with newspapers and my work today with the Internet.

1. Critique/Usefulness

This article is a relatively short piece that briefly discusses the role of the Internet with political debate. The main flaw I found in this piece was the author’s relatively idealistic view of the Internet. While later in the piece, she does mention that so far the Internet has not broadened or deepened people’s views, I think the overall feeling was that of promise. The useful pieces from the article were the brief mention about citizen disenfranchisement. Among all the other research about influence and the Internet, none except this piece has mentioned the fact that not everyone uses the Internet. This means that any endeavor to influence people must realize that they are not reaching everyone in a target area. While they may reach the types of people they desire, it must be noted that people, particularly outside first-world countries do not have ready access to the Internet.

This means that particular care must be taken when targeting certain people to ensure the people we want to influence have access to this type of medium at all.

I. CAN WEB SITES CHANGE CITIZENS? BY: ARTHUR LUPIA

This article begins by mentioning the potential of the Internet to “foster an unusually rich culture of exploration and awareness of ideas and perspectives”. (p. 1) This, however, will not happen unless websites are designed to attract and retain users long enough to “deliver critical information”. The two concepts involved in this endeavor are choice and impact. Users on the Internet have many choices so learning what makes people go to one site or another is particularly crucial. Congruently, to assist in garnering website impact, measures should be developed to see how websites change the people who view it. These two desired studies were attempted through their Web White and Blue Network endeavor which is evaluated earlier in this section.

This network began in order to “highlight the potential of the Internet to expand citizen participation and interest in politics,” (p. 4) furthermore, it sought to “study how news and information web sites affect citizens”. It used a combination of laboratory experiments, user surveys, and Internet polls in order to improve estimates of normal usage conditions. (p. 5)

The survey questions revealed a “sizeable exodus from newspapers to the Internet as the primary source of election information.” (p. 7) The survey also showed, logically, that “respondents’ site evaluations provided a good indicator of whether they would revisit a site on their own.” (p. 10)

As mentioned in the earlier evaluation of this study, “the lure of brand names is high in the political Internet. The implication for those who want to increase political interest or participation is that smaller dot-coms or non-commercial dot-orgs must provide *unique content or presentational strategies* if they are to attract an audience.” (p. 12)

1. Critique/Usefulness

The article above is a simplified description of the Web White and Blue project. I will again assert that I found this project to be very useful in terms of preventing the biases that other experiments have introduced. The main thing that I took away from this piece that was slightly different from the earlier mention of the project is the need for

unique content or presentational strategies in order for a website to attract an audience, particularly if this site is not a name brand. I appreciated the simplified version of the paper and the more straightforward conclusions that were drawn from it.

J. THE OBJECTIVITY OF THE NEW YORK TIMES IN COVERING THE PALESTINIAN-ISRAELI CONFLICT BY: RASEM ABID

This article highlights a recent small survey that suggests that a large majority of readers of the New York Times believe that the paper is not objective when reporting about the Palestinian-Israeli conflict. The belief was that the paper held more salient pro-Israeli views. This belief was created after looking at the paper's content, layout and headlines.

The summary of this article states that "the NYT news articles and pictures denote a pro-Israeli political statement on the Palestinian-Israeli conflict." (p. 8) Furthermore, the paper's bias has

done away with objective elements such as space given to the Israeli and Palestinian news, location of articles and pictures, and headlines and captions. The bias found in the NYT attempts to convince the audience that Israeli crimes are reactions to the Palestinian terror, and deplores the Palestinians from their human sides. (p. 9)

This article simply demonstrates some of the subtle ways that newspapers and other media can influence readers simply by word choice and layout. This information can be used later for website development to elicit the desired influences.

1. Critique/Usefulness

This paper was written by a foreign student at the Monterey Institute for International Studies. His methodology for his research was not well laid out in the paper. Based upon that, I can only assume his sample size of respondents was small which can introduce a large bias into his conclusions. Furthermore, if he did his research at the Institute itself, where a large number of international students attend, he can introduce even more bias into his research. Regardless of whether his information is accurate, the reasons behind his feelings are very valid.

Important issues for this thesis include the website's content, layout and headlines. The order with which they are put can have a significant impact on what a user will remember from a website. In addition, the number of articles with a specific

viewpoint can also skew readers' thoughts. These facts can provide relatively unobtrusive mechanisms for influencing people which will be important when designed my thesis website.

K. THINKING ABOUT POLITICAL PSYCHOLOGY BY: JAMES KUKLINSKI ONLY IMPORTANT ARTICLE BEING "WHO CAN PERSUADE WHOM?" BY: ARTHUR LUPIA

This article describes an experiment to find out what things will make another person be able to influence another. This was done involving the political realm discussing questions about Rush Limbaugh and Phil Donahue. There is not much information directly relevant to the thesis except for the overall conclusion which states that

the listener's perception of the speaker's knowledge and motives is a fundamental source effect in the context of cue persuasiveness. All other speaker attributes (such as a speaker's attractiveness, party, race, likeability, ideology, or reputation) affect cue selection when they do because they affect the listener's perception of the speaker's knowledge or motives. (p. 2)

This has implications because it can help simplify the variables needed to influence people either in person, or through the media.

1. Critique/Usefulness

The specifics of this experiment are not inherently as important as the conclusions that can be drawn from the research. The information is consistent with everything else we have learned so far in regards to influencing people. Continuing in this manner, it was shown that the listener's perception of the speaker's knowledge and motives are the most important factors for whether the listener will be influenced by the speaker. It was shown that all the other factors can be disregarded since they can be included in the other two factors. These two factors are, therefore, extremely important when designing a website. People will need to think that the website has knowledge and that the motives are unbiased. This can be especially important since, in fact, we will not be unbiased and instead want to influence people. The methods for portraying knowledge and good motives were not discussed in this paper which leaves a large gap between knowing *what* needs to be done and knowing *how* that can be done.

L. THE DEMOCRATIC DILEMMA BY: ARTHUR LUPIA AND MATHEW MCCUBBINS

This book is largely about political psychology. It delves into the ways people learn and the implications it has for a democratic society. One particular chapter entitled “How People Learn from Others”, discusses theories of persuasion, both their own and Aristotelian. Later chapters include the experimentation that Mr. Lupia and Mr. McCubbins used to prove their theories on the aforementioned subjects. Particularly relevant to this thesis are the experiments involving persuasion and reasoned choice and on the conditions for persuasion.

Our sections of interest begin with the recounting of Aristotle’s theories of persuasion. Summarizing his views from Book I and II of *Rhetoric*, it becomes clear that Aristotle believed that two things determine who can persuade whom: a speaker’s character and the content of his statement. (p. 41) Now, however, is a very different society than that of Aristotle and therefore the exact methodology to persuasion has changed. The Lupia/McCubbins theory of persuasion argues that instead of personal character, “incentive-altering external forces offer alternate means for assessing credibility” (p. 42). This is a necessary change because a majority of the people that we are influenced by everyday are not people with whom we are well acquainted. “For example, many people are influenced by what they read in the *New York Times* or see on CNN while knowing little about the character of those who write or speak for these organizations.” (p. 42) The summation of the discussion in this chapter is as follows:

The following conditions are individually necessary and collectively sufficient for persuasion: The principal must perceive the speaker to be trustworthy and the principal must perceive the speaker to have the knowledge she desires. Absent external forces, persuasion requires perceived common interests and perceived speaker knowledge. In the presence of external forces, these requirements can be reduced. As the likelihood of verification, the magnitude of penalty for lying, or the magnitude of costly effort increases, the extent to which perceived common interests are required decreases. In other words, with respect to persuasion, external forces can be substituted for common interests (and for each other). (p. 55)

The next chapter of interest uses laboratory experiments to evaluate their expectations about persuasion. These experiments tested their hypothesis by “varying

perceived speaker attributes, actual speaker attributes, and external forces.” (p. 102) The first experiment dealt with a coin toss and two participants. The scenario involved correctly predicting the value of the coin for a small monetary value. The first person actually knew what the outcome would be already since they viewed the tossing of the coin, they would then give cues to the other person to a guess. The first person did not have to tell the truth and there were several variables introduced to test the theories of persuasion. The conclusions from this experiment are as follows: when conditions for persuasion were met, a large percentage chose the prediction given by the first person. When the conditions for persuasion were not met, only about half of the participants chose the prediction. This demonstrates that indeed the Lupia/McCubbins theory about persuasion was correct in that when conditions were met for persuasion, indeed much more of it occurred. (p. 108)

The last chapter of interest involves a survey experiment on the conditions for persuasion. The experiment began in June of 1994 with a survey being given to 1,464 respondents who were “randomly selected from the population of all English-speaking adults eighteen years of age or older, residing in households with telephones, within the forty-eight contiguous states.” (pp. 186-7) The subjects were asked their views about a political topic. Some of these people were given endorsements by either Rush Limbaugh or Phil Donahue, others were given no endorsements. Later in the survey, the participants who were given endorsements were asked whether they agreed with the political views of that person. The experiment found that “a person’s willingness to follow a speaker’s advice depends strongly and regularly on that person’s perceptions of the speaker’s knowledge and trustworthiness.” (p. 184)

1. Critique/Usefulness

This book had many different experiments cited that involved persuasion. The major flaw with them is, once again, the use of college students as the participant of choice. The last mentioned experiment, however, used random sampling of the English-speaking population which gives its data more credence. Overall, there were a lot of things learned or simply reiterated in this piece. The fact that the content of the statement

and the speaker's character are the guidelines for persuasion is not a new statement. It has been cited in many papers that the speaker must be trusted and or thought to have knowledge of the subject at hand.

An interesting note from this paper is, however, that common interests do not have to be present in order for people to be influenced by a person. This fact could mean that the likeability of a person is not as important as their authority. If this is the case, it means that when developing a website, it does not *have* to make the user feel as if they have the same interests as those being portrayed, but simply that they are valid.

The last experiment mentioned of interest was a recounting of the Phil Donahue/Rush Limbaugh research that showed that a speaker's knowledge and trustworthiness are supremely important for influence to occur. So it appears that the Lupia research tends to downplay the role of likeability or common interests, in favor of the perceived speaker knowledge and trustworthiness (AKA authority).

M. COMMUNITY-BUILDING AND PERMISSION MARKETING IN AN INFORMATION OPERATIONS PERCEPTION MANAGEMENT CAMPAIGN BY: SOPHIA KWON

This is a thesis from the Naval Postgraduate School about perception management. It offers some useful discussion about the use of perception management on the Internet. In the paper, perception management is defined as:

Actions to convey and/or deny selected information and indicators to foreign audiences to influence their emotions, motives and objective reasoning; and to intelligence systems and leaders at all levels to influence official estimates, ultimately resulting in foreign behaviors and official actions favorable to the originator's objectives. (United States Joint Chiefs of Staff. Joint Publication 1-02: Dictionary of Military Terms (Washington, D.C.: Headquarters, 1994)

She discusses how the Internet offers new avenues that other forms of media, like the radio and television do not. For example, the Internet has a "unique ability to serve both as a broadcast (one-to-many) and also as a direct, one-to-one communication medium." (p. 13) Furthermore,

whereas radio, television and print allow for only uni-directional flow of information (the message is transmitted in a single direction to the audience), the Internet allows for bi-directional communication (a back-

and-forth dialogue between the audience and the Web site source). This bi-directional flow of information can be used to provide the audience with information tailored to it based on audience feedback, given intentionally (i.e., surveys) and unintentionally (i.e., clickstream analysis – analysis of the links followed on the Web site). (p. 13)

These notions are some of the reasons that influence can and will be used effectively through the Internet.

Another topic relevant to this thesis is her discussion of polling as a powerful role in public opinion.

‘A good poll is worth more than an eyewitness account,’ states Douglas Rushkoff. The persuasive power of polls can be explained by the concept of social proof, by which individuals develop their opinions and beliefs based upon the prevailing opinion of others in their company (FROM CIALDINI PG 116). (p. 48)

In this manner, our website can utilize polls for the purposes of enhancing our influences.

The later parts of this thesis give screen shots of a website she was developing. Included is a list of things that are important considerations when making a website. They include: name and location, logo and slogan, color and graphics, and language, to name a few. These aspects are critical when attempting to design a website that will be influential.

1. Critique/Usefulness

I found this thesis to be a good basis for the discussion of perception management. She had some useful points regarding the bidirectional abilities of the Internet. Furthermore, her discussion of polling as a useful tool of influence can be later used in this project as a supplement to the text on the site.

N. INCRIMINATION THROUGH INNUENDO: CAN MEDIA QUESTIONS BECOME PUBLIC ANSWERS? BY: WEGNER

This paper examined the “effects that incriminating innuendo delivered by media sources may have on audience impressions of innuendo targets.” In this paper, innuendo is defined in terms of two critical features. The innuendo that is commonly seen consists of “(a) a statement about a person and (b) a qualifier about the statement.” In this manner, “a direct assertion linking the person with some quality of activity” is underscored through the use of the qualifier which reduces the likelihood that the

statement is true. Some examples given are “George may be a thief”; “Lulu did not hold up the liquor store” and “Is Jane using drugs”. These three examples demonstrate the three types of innuendo mechanisms that were tested in the experiment: assertion, question and denial.

In the experiment, forty-eight undergraduate students were used as subjects. The subjects were exposed to a set of four headlines about political candidates and then were asked to indicate their impressions of each candidate on a series of evaluative rating scales. The students were broken into four groups with each group reading six headlines. Two of the headlines were mere fillers and one was used for neutral. The last three used each type of innuendo. These techniques were counterbalanced among the four groups so that if one group saw the first headline using assertion, the next group saw it as a question and so forth. The students were then asked to report their impressions of each of the subjects of the headlines on a series of 7-point bipolar adjective scales. (i.e., good-bad, kind-cruel etc.)

The results of the experiment were impressive. The analysis revealed that the headlines formed with an incriminating assertion produced evaluations significantly more negative than the control headline. More interesting, though, is that the headlines which used the question technique also produced a significantly more negative bias. The headlines that used the denial technique, while not significantly different from the control, still produced a negative effect more so than the control. “These findings offer a clear laboratory illustration of the innuendo effect.”

1. Critique/Usefulness

This experiment provides the broad basis for my experiment. The main difference between the two experiments is venue. While this was done using actual articles, this experiment will be done using the Internet to see if it can yield the same results. I am hoping to get more users involved in this experiment in order to ensure that we get accurate results across a population. Since this experiment only used 48 participants all of which were psychology students, it might have lead to some bias. Overall, however, this experiment is very useful in its role as a baseline for my experiment.

O. CAPTOLOGY (B. J. FOGG)

The notion of captology (built from an acronym for Computers As Persuasive Technologies) was first developed at CHI 97 with ringleader B. J. Fogg. Captology is defined as “the study of computers as persuasive technologies. This new area of inquiry explores the overlapping space between persuasion in general (influence, motivation, behavior change, etc.) and computing technology (the Web, desktop software, special devices, etc.)” (<http://captology.stanford.edu>)

“From Cicero’s oratory to modern TV commercials, communicators have tried to persuade audiences.” (www.useit.com/alertbox/20030303.html) Persuasive technology offers the next frontier of persuasion. The computer offers the ability to go beyond one-way rhetoric and become interactive. Interactivity and engaging activities can potentially be more effective than simply passively receiving messages.

One important factor that is brought up in discussions about captology and HCI is web credibility. According to Fogg, the perception is based on two factors: trustworthiness and expertise. In his book, *Persuasive Technology: Using Computers to Change What We Think and Do*, Fogg goes into some detail about these two factors and how to achieve them.

The application for persuasive technology is vast. Some examples of where this technology can go include: education, e-commerce and buying behavior, sexual behavior, nutrition, marketing, religion, disease management and personal relationships. (http://captology.stanford.edu/Key_Concepts/key_concepts.html)

In order to apply a persuasive technology, it is important to recognize what is a persuasive technology. “As we see it, a persuasive computing technology is a computing system, device, or application intentionally designed to change a person’s attitude or behavior in a predetermined way.” (Persuasive Technologies by B. J. Fogg)

According to Fogg, these computing mechanisms can be used in one of three ways: as a tool, a medium or a social actor.

As a tool, a computer application or system can provide humans with new abilities, allowing people to do things more easily. As a medium, a computer can convey either symbolic content (such as text and icons) or

sensory content (such as virtual worlds and simulations). As social actors, they can invoke social responses from users, especially when adopting animate characteristics (such as physical features, emotions, and voices), play animate roles (such as coach, pet, or opponent), and follow social dynamics (such as greetings, apologies, and turn taking). (Persuasive Technologies, by B. J. Fogg)

Since captology is still so new, there are many important questions that still need to be addressed. Some of these include:

- What are the best applications for these technologies?
- What is their potential?
- What are their limits?
- What are the effects and side effects of using them?
- What are the ethical implications?

1. Critique/Usefulness

This new term, captology, seems to capture the entire realm of this thesis. While it is still in its infancy, captology seeks to define the way computers can be used as an influence medium. I think the literature found about this topic covers all the necessary background issues like trust and effectiveness and serves as the next generation terminology for HCI.

LIST OF REFERENCES

1. Rushkoff, Douglas, *Coercion: The Persuasion Professionals and Why We Listen to What They Say*, pp. 3, 15, 79-81, 263, 267-268, Little, Brown and Company, 1999.
2. Cialdini, Robert B., *Influence: The Psychology of Persuasion*, Revised Edition, pp. 171 and 274, Quill/William Morrow and Company, 1993.
3. O’Keefe, Daniel J., *Persuasion: Theory and Research*, Second Edition, pp. 11, 224, 257-258, Sage Publications, 2002.
4. Aronson, Elliot and Pratkanis, Anthony, *Age of Propaganda: The Everyday Use and Abuse of Persuasion*, pp. 23-24, 44, 73, 161, W. H. Freeman and Company, 1991.
5. Abid, Rasem, “The Objectivity of the New York Times in Covering the Palestinian-Israeli Conflict,”
[<http://www.amin.org/eng/uncat/2002/dec/dec31.html>], January 2003.
6. Annis, Albert D. and Meier, Norman C., “The Induction of Opinion Through Suggestion by Means of ‘Planted Content’”, *Journal of Social Psychology*, v. 5, pp. 65-81, 1934.
7. Wegner, Daniel M. and Others, “Incrimination Through Innuendo: Can Media Questions Become Public Answers?”, *Journal of Personality and Social Psychology*, v. 40, pp. 822-832, 1981.
8. Page, Benjamin, I., *Who Deliberates?: Mass Media in Modern Democracy*, pp. vii, 112-115, University of Chicago Press, 1996.
9. Reeves, Byron and Nass, Clifford, *The Media Equation: How People Treat Computers, Television and New Media Like Real People and Places*, Second Edition, p. 251, Cambridge University Press, 1998.
10. Lupia, Arthur, “Evaluation: The Web White and Blue Network 2000”,
[<http://www.umich.edu/~lupia>], February 2003.
11. Lupia, Arthur and Baird, Zoe, “Can Websites Change Citizens? Implications of the Web White and Blue 2000”, [<http://www.umich.edu/~lupia>], February 2003.
12. “Captology”, [<http://captology.stanford.edu>], April 2003.
13. Nielsen, Jakob, “Persuasive Design: New Captology Book”,
[www.useit.com/alertbox/20030303.html], April 2003.

14. "Captology", [http://captology.stanford.edu/Key_Concepts/key_concepts.html], April 2003.
15. Fogg, B. J., *Persuasive Technologies: Using Computers to Change What We Think and Do*, Morgan Kaufmann, 2002.
16. Miller, John H., "Information Warfare", Chapters 1 and 7, [<http://www.ndu.edu/inss/siws/>], April 2003.
17. Sun Tzu, *The Art of War*, Translated by Samuel B. Griffit, New York: Oxford University Press, 1971.
18. Bloch, Michael, "Web Design Graphics: The Psychology of Color", [<http://www.webservertimes.com/web-design-graphics-2.html>], April 2003.
19. "Web Design: Color Concepts", [<http://www.webdesignwisdom.com/webdesign/color.shtml>], April 2003.
20. "The Font of All Personality", [<http://news.bbc.co.uk/2/hi/science/nature/1348871.stm>], April 2003.
21. Jones, Cath, "Using Psychology to Design a Good Website", [<http://ess.ntu.ac.uk/miller/psydes/home.htm>], April 2003.
22. Morkes, John and Nielsen, Jakob, "Concise, Scannable and Objective: How to Write for the Web", [<http://www.useit.com/papers/webwriting/writing.html>], April 2003.
23. Bernard, Michael L., "Criteria for Optimal Web Design (Designing for Usability)", [<http://psychology.wichita.edu/optimalweb/images.htm>], April 2003.
24. "Primacy Effect", [<http://www.alleydog.com/glossary/definition.cfm?term=Primacy%20effect>], April 2003
25. "Innuendo", [<http://www.dictionary.com>], April 2003.
26. "What Issues Affect Likert-Scale Questionnaire Formats?", [http://www.jalt.org/test/bro_7.htm], April 2003.
27. "Arc Software", [<http://www.stat.umn.edu/arc/software.html>], April 2003.
28. "Constructing Box and Whisker Plots", [<http://www.statcan.ca/english/edu/power/ch12/plots.htm>], April 2003.
29. Levine, David M. and Others, *Statistics for Managers Using MS Excel*, Second Edition, pp. 540-541, Prentice-Hall, 1999.

INITIAL DISTRIBUTION LIST

1. Defense Technical Information Center
Ft. Belvoir, Virginia
2. Dudley Knox Library
Naval Postgraduate School
Monterey, California
3. Bret Michael
Naval Postgraduate School
Monterey, California
4. Raymond Buettner
Naval Postgraduate School
Monterey, California
5. Douglas MacKinnon
Naval Postgraduate School
Monterey, California
6. Anthony Pratkanis
University of California, Santa Cruz
Santa Cruz, California
7. Thomas Wingfield
Aegis Research Corporation
Falls Church, Virginia
8. Dan C. Boger
Naval Postgraduate School
Monterey, California