A PILOT STUDY ON MISINFORMATION DISCERNING ABILITY OF SENIOR CITIZENS (60+ AGE)

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1 Introduction

In this era of internet and social networks, it is very important to know what is real and what is misleading in the media. The wave of misinformation has affected many domains including health, entertainment, politics, etc. *Misinformation* has become a tool that can be used to deceive any unaware citizen, irrespective of political orientation, into making wrong decision. Recent studies have shown that separating fake from real can be very tricky. According to census.gov [Census.gov, 2017] citizens with age 65+ had the highest voting rate in the last 6 U.S. presidential elections including the one in 2016 when the rate was 70.9%. This age group plays critical role in decision making for many important issues. So, it is very important that these decisions are not influenced by misleading information. The purpose of the study is to understand how capable senior citizens (60+ age) are in spotting misinformation. Specifically, this study explores the following research questions– **i)** what are the challenges specific to senior citizens in identifying misinformation? **ii)** how capable are they in spotting different categories of misinformation such as fake news, misleading news, satirical news, etc? **iii)** can a misinformation identification training help to improve their media literacy level?

Towards that goal, we conduct a pilot study on 9 senior citizens; each of them are of age 60 or above. Particularly, we planned to execute a Pre/Post Testing. Below, we describe our study design, subject selection, data collection procedure and findings from the pilot study.

2 Study Design

We prepared a set of 11 news articles to conduct the pre-test. These articles were collected from both mainstream media such as BBC, FOX as well as dubious media such as CNNews (not CNN), Empire News, etc. Out of these 11 articles, 6 were real, 3 were fake, and 2 had misleading/incongruent headlines. The topics of the articles include medical science, technology, and politics. We removed graphical objects such as images, videos, ads from the articles for simplification.

The pre-test procedure goes as follows. First the subjects provide some demographic information such as gender, age, education level, etc. After that, for each of the 11 articles, the subjects answer to the following questions. First, only the headline is shown to the subject without the source, byline, and news body.

Q1. Just after reading the headline, without proceeding further, how likely would you be to read the article? [on a scale of 0–3 where 3 means *Definitely read it* and 0 means *won't read it*]

After the subject answers to the first question, we show the source of the news.

Q2. After knowing the source of the article, without proceeding further, how likely would you be to read the article? [on a scale of 0–3 where 3 means *Definitely read it* and 0 means *won't read it*]

After that, the full article is shown to the subject. She is suggested not to rush and not to spend extra time; just read as she would read a regular news article in regular time. After reading the article, the subject answers to the following questions.

Q3. Now that you have read the headline, source and the content, what do you think about the credibility of this article?

1. Fake
2. Not sure
3. Credible

Q4. How important was the reputation of the source when making your decision for Question 3? [on a scale of 0–3 where 3 means *Very Important* and 0 means *Not Important*]

Q5. What do you think about the headline in context of the content?

1. Misleading
2. Somewhat misleading
3. Not misleading

The pre-test took about 45 minutes on average. After the pre-test phase, the subjects go through a lecture that trains about misinformation, various strategies and categories of it, and how to spot misinformation. The lecture is about 40 minutes long. Although initially we planned to conduct a post-test session just after the lecture on the same day but considering the age and stress level of the subjects, it was later decided to conclude the study after the lecture and arrange post-test on a later session. So, we provided a feedback form to the subjects to assess their satisfaction about the overall experience and conclude the study for that day. The feedback form looks as below.

	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
I am satisfied with the overall experience.					
Before this event, I knew how to spot a fake news.					
This event helped me to learn how to spot a fake news.					
I will refer this event to a friend.					
I will participate in future events which covers other aspects of fake news.					

What suggestions do you have to improve the quality of the event?

Figure 1: Dis/Misinformation Identification Session with Senior Citizens

3 Subject Selection

It was challenging to conduct the study with senior citizens. As most of them are not comfortable with technology, we decided to conduct an in-person study rather than online based survey. Coordinating with local churches, senior clubs, and interest groups, we arranged misinformation identification training sessions with senior citizens (age 60 or above) of Oxford, Mississippi. For example, Figure 1 shows moments from such a session. Proper formalities such as getting Internal Review Board (IRB) approvals were done before arranging this session. Each participant was

rewarded with $15.00 gift-card for their time. In total, we had 17 subjects who expressed interest to participate. Out of them 9 subjects (3 male and 6 female) attended the session. Four of them are of age 60-64, 2 from 75-79, and 3 from 80-84. Highest completed education level of one of them was 2 years vocational program/community college, three with Ph.D. and 5 with Masters degree. Five of them spend 1-3 hours on consuming news and four of them spend 3-5 hours. All of them identified news websites as the primary source for consuming news.

4 Analysis

4.1 Reading Interest

We analyzed to what extent the subjects were interested in reading the whole news just after reading the headline for real, fake, and misleading news. The average score of Q1 for fake news was 0.667, 1.39 for real, and 1.34 for misleading. It indicates that the senior citizens are less interested in reading fake news after reading the headline. However, the misleading news headlines raise interest almost as much as the real news. We also analyze how the interest level changes when the source is made available to the subjects in addition to the headlines. Interestingly, the interest level increases for fake news (0.778) but decreases slightly for real (1.259) and dramatically for misleading news (0.833). As the news articles are of different topics, it is not clear whether the interest level change is because of topic or the news credibility. in future, we plan to study further and analyze the causal relations more systematically.

4.2 Assessing Credibility

The answers to the question Q3 can be analyzed to measure to what extent the senior citizens can asses the credibility of a news article. On average, 11.11% of the subjects labeled a fake news as real while 31.47% labeled a real news as fake. 72.22% of the subjects answered the misleading news as not misleading. Q4 asks if the subjects found the source of the news important for assessing the credibility. On a scale of 0–4, on average the subjects give a score of 1.767 to the source as being important for assessing credibility. For real news, the score (1.87) is slightly higher than the average and for misleading the score (1.556) is lower than average. Surprisingly, the subjects who correctly identified the misleading news didn't think the source as being important for assessing the credibility.

4.3 Participants' Feedback

We asked five close-ended questions and one open ended question in the feedback survey to understand how the subjects received the study and also get their suggestion about improving the quality of the study in future. Overall, the subjects expressed satisfaction about the study. The average score on the first question "satisfied with the overall experience" was 4.55 on a scale of 1–5 where 1 indicates "Strongly Disagree" and 5 means "Strongly Agree". Score on "will refer to a friend" and "will participate in future events" was 4.33. The score on "helped me to learn how to spot a fake news" was 3.78. Answers to the open ended question had the following suggestions- **a.** provide option for subjects to provide their explanation behind labeling, **b.** discuss how fake news particularly affects the senior citizens.

5 Limitation and Conclusion

This pilot study provides a glimpse of the discerning ability of senior citizens to identify misinformation. However, the findings should be taken with a grain of salt for the following reasons. First, the study is conducted on a small scale, with 9 subjects only. So the results may not reflect the actual situation. Second, the news articles are of various topics. So, the interest of the subjects towards different topics may affect their assessments of the news. Third, the 88.89% of the subjects are highly educated, with a Masters or higher degree. So, the population is very skewed towards educated pupils which definitely don't mirror the actual distribution of senior citizens. In future, we plan to address these limitations by conducting a large scale study with representative subjects which may address these limitations.

References

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