Who Is Persuasive? The Role of Perceived Personality and Communication Modality in Social Multimedia

Gelareh Mohammadi
Idiap Research Institute
1920-Martigny
Ecole Polytechnique Federal de Lausanne
Switzerland
gmohamma@idiap.ch

Sunghyun Park
Institute for Creative Technologies
University of Southern California
Playa Vista, CA-90094
park@ict.usc.edu

Kenji Sagae
Institute for Creative Technologies
University of Southern California
Playa Vista, CA-90094
sagae@ict.usc.edu

Alessandro Vinciarelli
University of Glasgow
Sir A.Williams Bldg.
G12 8QQ Glasgow, UK
Idiap Research Institute
Martigny, Switzerland
vincia@dcs.gla.ac.uk

Louis-Philippe Morency
Institute for Creative Technologies
University of Southern California
Playa Vista, CA-90094
morency@ict.usc.edu

ABSTRACT

Persuasive communication is part of everyone's daily life. With the emergence of social websites like YouTube, Facebook and Twitter, persuasive communication is now seen online on a daily basis. This paper explores the effect of multimodality and perceived personality on persuasiveness of social multimedia content. The experiments are performed over a large corpus of movie review clips from Youtube which is presented to online annotators in three different modalities: only text, only audio and video. The annotators evaluated the persuasiveness of each review across different modalities and judged the personality of the speaker. Our detailed analysis confirmed several research hypotheses designed to study the relationships between persuasion, perceived personality and communicative channel, namely modality. Three hypotheses are designed: the first hypothesis studies the effect of communication modality on persuasion, the second hypothesis examines the correlation between persuasion and personality perception and finally the third hypothesis, derived from the first two hypotheses explores how communication modality influence the personality perception.

Categories and Subject Descriptors

J.4 [**Computer Applications**]: social and behavioral sciences; H.4.3 [**Information Systems Applications**]: Communications Applications

Permission to make digital or hard copies of all or part of this work for personal or classroom use is granted without fee provided that copies are not made or distributed for prof t or commercial advantage and that copies bear this notice and the full citation on the f rst page. Copyrights for components of this work owned by others than ACM must be honored. Abstracting with credit is permitted. To copy otherwise, or republish, to post on servers or to redistribute to lists, requires prior specif c permission and/or a fee. Request permissions from permissions@acm.org.
ICMI'13, December 9-12, 2013, Sydney, Australia
Copyright 2013 ACM 978-1-4503-2129-7/13/12 ...$15.00.
http://dx.doi.org/10.1145/2522848.2522857.

General Terms

Human Factors, Experimentation

Keywords

persuasion, personality perception, multi-modality, social influence, online content, social multimedia, opinion videos, verbal and nonverbal behavior

1. INTRODUCTION

With more than 100 hours of videos posted online on YouTube for every minute[1], social multimedia content is becoming a significant source of communication and exchange of ideas. People are using the Internet to share their opinion about events, people, products and movies. These subjective videos are shared rapidly on social networks such as Facebook and Twitter. While many of these videos can easily be forgotten (e.g., videos of funny cats), a significant number will directly affect others' opinion. It becomes important to understand the factors related to persuasion in this social multimedia content.

Persuasive communication, defined as *"any message that is intended to shape, reinforce, or change the responses of another, or others"* [18], is an attempt to change a person's (or a group's) behavior, belief or feeling towards something or someone [9], and plays an important role in creating social influences and changing attitudes [29, 25]. Studies on persuasion have identified a number of social and behavioral cues associated with persuasiveness including verbal and nonverbal behavior, physical appearance, psychological attributes, social dynamics and social roles [10, 26].

This paper aims at investigating the importance of different communication modalities, conveying different communication channels, on persuasion and perception of personality. Therefore, first we explore how communication modality (text, audio and video) affects the persuasiveness

[1]http://youtube-global.blogspot.fr/2013/05/heres-to-eight-great-years.html

of the speaker in social media. Then we look at the correlation between perceived personality and persuasiveness of the speaker in different modalities. Finally, we investigate the interaction between communication modality and the perceived personality. The experiments of this study are performed over a dataset of 86 video clips representing individuals expressing their opinion on a movie.

Next section gives a brief overview of the previous works on persuasiveness and compliance and describes our hypotheses based on these findings. Section 3 elaborates on the dataset and annotation scheme, section 4 describes the experimental setup and finally in section 5 we present the analysis and discuss the results.

2. BACKGROUND & HYPOTHESES

Early studies on the effects of communication modality in persuasion showed large inconsistency in their findings. For example while [11] found that videotaped messages are more persuasive than audio-taped messages and writing messages are the least persuasive, other studies suggested no difference or greater persuasiveness in writing messages [27]. This inconsistency was partly explained in terms of message comprehensibility in [6] where it was shown that for complex (difficult to understand) martial, writing messages were more persuasive than video or audio. To further explore the effect of communication modality on persuasion the same authors hypothesized in [7] that *"the persuasive impact of communication modality is contingent on the valence of a communicator's personal characteristics or image"* and to examine this hypothesis, they studied the effect of likable/unlikable communicator on persuasion. Their experiments showed that a likable communicator was more persuasive in audio and video modalities while the unlikable communicator was more persuasive in written modality (likable/unlikable characters were built based on the type of statement they made).

Psychological researches have also recognized some links between social attribution (like gender, personality, social class, status, etc.) and persuasiveness. In one study it was shown that people were more persuaded by a synthesized voice when the personality of the voice was matched with their own [21]; and in another study it was shown that social affiliations like being teammates affects the persuasiveness of computers [20]. Physical appearance is another factor which has been found to be influential in persuasion, for example attractive people are more persuasive [5].

Furthermore, other studies on nonverbal communication have identified the effect of several nonverbal cues on persuasiveness, however, these effects are usually mediated by other factors and are context-dependent. The effect of speech rate on persuasion is studied in [4] and [14] and they found a positive correlation between gaze and compliance when the request is legitimate. Proximity is also shown to be influential on compliance [13].

In this paper the effect of different communication channels on persuasion and personality perception is explored through removing one channel at a time. This is done through examining three different setups: video modality which includes all three channels, audio modality which contains verbal and vocal channels, and finally text modality which carries only verbal information. The next two subsections describe our hypotheses on the interactions between persuasiveness, modality and personality.

2.1 Modality Hypothesis

According to [17] there are three communication channels: verbal, vocal and visual (vocal and visual together constitute the nonverbal communication). Different communication modalities convey different communication channels: text modality includes mostly verbal information, audio modality contains both verbal and vocal information and video modality includes all the three channels. People use different communication modalities when exchanging ideas and opinions. The text modality is increasingly present in our society with emails, text messages and social updates. People also write many reviews online to share their opinions about products or movies. The audio modality is commonly associated with phone interactions and radio broadcasts. The audio modality adds many paralinguistic cues such as voice tempo and prosody. Websites such as YouTube and Vimeo are taking full advantage of the visual modality (usually combined with audio modality) to include many nonverbal aspect of communication such as facial expressions, body posture and gaze behaviors. We include these three types of communicative modalities in our study: text, audio and video.

Drawing on findings from studies on persuasion and compliance, we hypothesize that changing modality should have an impact on persuasion since nonverbal cues are more present in video rather than audio while they are absent in text. To this end, we develop our first hypothesis below.

Hypothesis 1:.

The communication modality (text, audio and video in this study) affects the persuasiveness of speaker.

2.2 Personality Hypotheses

Personality is defined as the latent construct that accounts for *"individuals' characteristic patterns of thought, emotion, and behavior together with the psychological mechanisms-hidden or not- behind those patterns"* [12]. A large number of personality models has been proposed in literature [16] among which the *Big Five* traits have been accepted widely. The *Big Five* model describes the personality in terms of five broad dimensions which have been identified by applying factor analysis to a dictionary of about 18,000 words describing personality in everyday language [16]. Personality descriptors could be clustered into five main groups corresponding to the *Big Five* Traits:

- *Extraversion:* Active, Assertive, Energetic, etc.
- *Agreeableness:* Appreciative, Kind, Generous, etc.
- *Conscientiousness:* Efficient, Organized, planful, etc.
- *Neuroticism:* Anxious, Self-pitying, Tense, etc.
- *Openness:* Artistic, Curious, Imaginative, etc.

In this model, personality is represented by five scores (one per trait) which can be thought of as the position of a point in an ideal personality map. Therefore, the goal of personality assessment is to obtain those score which is performed through standard questionnaires like *Big Five Inventory* (BFI) [2]. From the cognitive point of view, personality can be assessed from two perspectives: self-assessment and other-assessment. The former is correlated with the *real* personality of the subject while the latter is the personality of subject as *perceived* by others. In this study we focus on the

perceived personality which is the one that ultimately affects the observer's perception of different social attributions.

To the best of our knowledge the effect of perceived personality on persuasiveness in social media has not been investigated in the literature before, but many studies have confirmed the relation between perceived personality and verbal/nonverbal behaviors [8, 1, 19]; Personality traits can be considered as a more general attributes perceived through a set of cues including verbal/nonverbal behavior, physical appearance, emotions, social roles, etc.. So perceived personality traits can potentially be effective in recognition of persuasiveness. In this regard, the following two hypotheses are developed:

Hypothesis II:.

Perceived personality traits correlate with the persuasiveness of the speaker.

Hypothesis III:.

The first two hypotheses suggest that communication modality also affects personality perception.

3. APPROACH

This section presents the material used to examine the persuasiveness and also elaborates on how we measured the personality and persuasiveness.

3.1 Material

A set of 86 videos from Youtube, a video-sharing website, with strong positive sentiment is selected from the publicly available MMMO[2] dataset [28]. Each video portrays an individual who gives a review of a movie. The total duration of the dataset (86 videos) is about 3 hours and 40 minutes and the average duration of each video is about 153 seconds (ranged between 24 to 181 seconds). 33 reviews are given by females and 53 by males.

Each video represents an individual staying close to the camera, expressing his/her opinion on a movie. To examine the effect of modality on perception of the observers, text and audio streams of the same videos are generated. The text is generated from manual transcription. Pauses are indicated by means of a few dots to maintain the fluency in reading. Audio stream is generated by simply separating the audio channel from the video. Assessments are performed over three modalities: only text, only audio stream and video including audio stream (the next subsection gives more information about the multimodal assessment procedure).

3.2 Assessment Procedure

The assessment is done through a web interface using crowdsourcing technique(see section 4 for more details). Each assessor is assigned one of the three modalities of the same review (either text, audio or video). The assessment comprises three modules which have to be completed in the given order, and at each module there is no access to the other modules to make any changes; In the first module, before seeing the review, a brief description of the movie under review including movie title, genre, director, writer, stars and story line is provided. After reading the movie description, the assessor has to answer two questions: first, whether (s)he has watched the movie before (the answer is Yes/No), and second, how interested (s)he is in watching the movie (the answer is a 7-item option ranging from not interested with value 1 to very interested with value 7).

[2]see http://multicomp.ict.usc.edu/

	before seeing the review
	Have you watched this movie before
	How interested are you in watching this movie
	after seeing the review
1	How persuasive was the reviewer
2	How interested are you in watching this movie
3	How would you rate the sentiment of the review
4	How confident was the reviewer
5	How passionate was the reviewer
6	How entertaining was the reviewer
7	How pleasant is the reviewer voice
8	How funny was the reviewer
9	How professional looking is the reviewer
10	How physically attractive is the reviewer
	Big Five Inventory 10 (BFI-10)
11	This person is reserved
12	This person is generally trusting
13	This person tends to be lazy
14	This person is relaxed, handles stress well
15	This person has few artistic interests
16	This person is outgoing, sociable
17	This person tends to find fault with others
18	This person does a thorough job
19	This person gets nervous easily
20	This person has an active imagination

Table 1: The questionnaire used in the experiments of this work. The BFI version reported here is the one that has been proposed in [24].

In the second module, the assessor is asked to go through the movie review thoroughly with possibility of pause/replay in audio and video settings. In the case of audio and text, a picture of the reviewer's face is also displayed; the picture is chosen so that the speaker is looking into the camera and the face is emotionally as neutral as possible.

And finally in the third module, the assessor has to answer a survey of 20 questions while there is no access to the review anymore. The first 10 questions are related to persuasiveness, the sentiment of the review and some other behavioral elements including being confident, passionate, entertaining, funny, professional-looking, vocally pleasant and physically attractive. the reviewer is. The answer to each question is a 7-item options, ranging between strong negative with value 1 and strong positive with value 7 (for example, not funny,..., somewhat funny, ..., very funny). The following 10 questions correspond to BFI-10, a Big Five Inventory including 10 questions [24], adopted to measure each personality trait as perceived by assessors. Each question is associated with 5 points Likert scale ranging between strongly disagree and strongly agree. The score of each trait is made up of the answers to 2 items that collectively yield a score in the range of $[-4, 4]$. Table 1 lists all questions in the survey.

4. EXPERIMENTAL SETUP

To perform the assessments of each review, Amazon Mechanical Turk (AMT), an online crowdsourcing platform, is used. AMT is a web interface allowing the *requesters* to design their online tasks and distribute them to a crowd of *workers* worldwide. Each designed task is called HIT (for

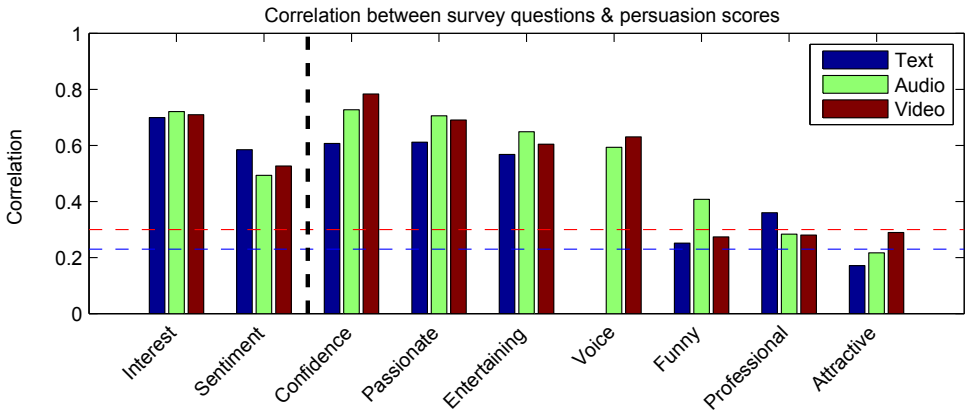

Figure 1: Correlation between persuasion score and survey questions. Blue dotted-line corresponds to significance level of 0.05 and the red dotted-line corresponds to significance level of 0.01 for two-tailed test. Questions about behaviors potentially correlated with persuasion are on the right side of the vertical black dotted line.

Human Intelligence Task) and it can be configured to be accessible to only a specific group of *workers*. There are also additional options to set the number of unique *workers* per each HIT, the duration, the amount of monetary reward and qualification requirements. Upon publishing the HITs online, *workers* can work on them and submit the results. Results can be approved or rejected by the requester. (see [15] for more detail)

Using online crowdsourcing platforms for annotation has already been attempted for many tasks like image labeling [22], behavior annotation [23], and personality impression [3]. In all these studies it has been shown that with taking some precautionary steps, the reliability of results is comparable to those obtained in different settings (see [15]).

4.1 Task Design

First, a dynamic web interface was designed to follow the annotation restrictions as described in section 3.2. The interface was integrated into AMT template to create the HIT. The AMT platform allows to create a batch of similar HITs with different inputs. In designing the HITs, modality and the file address (for video, audio or text) are defined as variables whose values are read from a predefined file uploaded to the AMT along the HIT. N batches of 86 HITs (where N is the number of workers) are created such that each modality of the same review is assigned to one third of the workers. Furthermore the same movie review never appears in more than one modality for each worker. To reduce the effect of fatigue, each batch was distributed in 4 rounds (first 3 batches of 20 HITs and then a batch of 26 HITs) and the order of movie reviews is random. The HIT reward was based on an effective hourly wage of $6. In total, 774 HITs were created from which 750 HITs were submitted. From all submitted HITs, 251 corresponds to text, 252 to audio and 247 to video modality.

To avoid preconception in persuasion analysis, HITs that the worker had previously seen the movie were removed from the data pool. This left us with 70 reviews out of 86 with 156 assessments on text, 142 on audio and 160 on video.

4.2 Worker Recruitment

To recruit workers, a post was sent on AMT forum, an online discussion site for AMT users. 16 workers who responded to the post were invited to complete a 5-minutes qualification HIT for $0.25. The qualification HIT involved some background questions (like ethnicity, first and second languages) and finally they were instructed to find the plot summary of a movie from IMDb, an online database of information related to films. Once the task is completed, workers have to approve by clicking a "continue" button which is followed by displaying a final question asking the worker to read the plot summary and see if (s)he likes to watch the movie. The time between displaying the question and answering to the question is recorded to examine whether the worker has spent reasonable time or not; this is used as a minimal criterion to check the trustworthiness of the worker. Out of 16 workers, 9 were selected to work on the main batch of HITs based on their background and the duration spent on the final question. Selected workers are all based in U.S. to minimize the cross-cultural effect and insure they all understand English which is the language of the review clips. This process was the only qualification measure used in this study.

5. RESULTS & DISCUSSIONS

For a given review and a given modality, the score for each question (see table 1) is averaged over all assessments. Therefore the score of persuasiveness is estimated from the average score of the first question.

Prior to addressing the main hypotheses of this study, a set of preliminary analyses were conducted to examine the reliability of the assessments and study whether the other measured factors can capture persuasiveness. Figure 1 shows the correlation between persuasion scores in different modalities and questions number 2 to 10 (behavioral factors) in the survey after watching the review (all reported correlations are based on Pearson coefficient). As expected, interest in watching the movie (question #2) has a high positive correlation with persuasiveness in all three modalities.

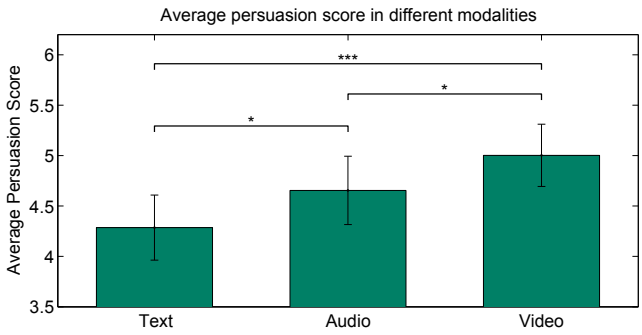

Figure 2: The average persuasion score in three modalities. Persuasiveness is significantly higher in video vs. text (* $p < 0.001$,* $p < 0.1$).**

	Text	Audio	Video
accuracy(%)	77.0 ± 9.8	72.3 ± 10.4	70.6 ± 10.6
chance level(%)	50.0	50.0	52.8

Table 2: Performance of *Logistic Regression* in prediction of persuasion score from perceived personality traits (including 95% confidence interval).

Sentiment is also positively correlated with the persuasion in all three modalities while the effect is slightly higher for text modality and lower for video. This suggests that reviews with higher positive sentiments are also more persuasive. This can be due to the nature of our dataset which includes only positive sentiments, and so reviews including more positive arguments are also perceived as being more persuasive. Being confident, passionate and entertaining, all have significant positive correlation with persuasion in all modalities while the effect is less strong for text compared to audio and video; this might be explained by the difficulty in the task of assessing those three factors (being confident, passionate and entertaining) only from text. The speaker voice quality also has a significant positive correlation with persuasion. Being funny does not have a significant correlation with persuasion except in audio. Surprisingly professional looking and being attractive do not not show a significant correlation with persuasion in any modality which is in contrast to the findings of [5] and probably more studies are needed to explain this difference.

5.1 Modality Effect Analysis

To examine the first hypothesis that whether modality has any effect on persuasiveness, a series of paired t-tests were conducted over each pair of modalities (i.e. audio vs. text, video vs. text and audio vs. video). Results reveal that video modality has been perceived to be more persuasive than text at $p < 0.001$ significance level; while the difference is much less significant between audio versus text (with $p < 0.1$) and video versus audio (with $p < 0.1$). These indications confirm that the modality does affect the persuasion perception and the first hypothesis is valid. Figure 2 shows the average persuasion score for each modality and as can be seen the persuasion score has the highest average in video followed by audio and text.

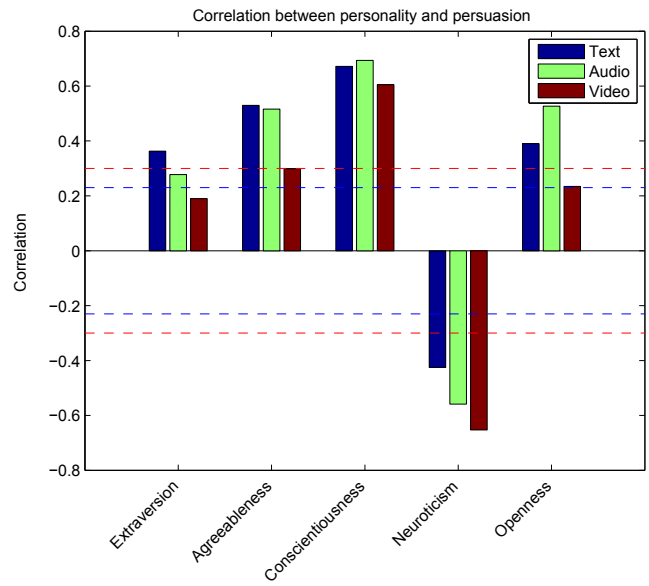

Figure 3: Correlation between personality traits and persuasiveness. Blue dotted-line corresponds to significance level of 0.05 and the red dotted-line corresponds to significance level of 0.01 for two-tailed test.

5.2 Personality Effect Analysis

The second aim of this study is to explore whether there is a correlation between persuasiveness and personality traits. Figure 3 summarizes the correlation between five personality traits (see section 2.2) and persuasiveness. The dotted-lines correspond to two significance levels of $p < 0.05$ and $p < 0.01$. The correlation analysis clearly suggests that Conscientiousness and Neuroticism are the two traits that are highly correlated with persuasion in all modalities which implies that individuals who are perceived to be more conscientious and less neurotic are generally perceived as more persuasive in all modalities. Surprisingly, Extraversion has the least correlation with persuasiveness and being extravert does not lead to being more persuasive. Agreeableness and Openness have higher correlation with persuasiveness in text and audio.

To analyze the predictive power of the personality traits for persuasion, a *Logistic Regression* classifier is adopted to predict the persuasion score as being in the upper or lower part of the scale, in each modality using the perceived traits as the predictor. In order to have balanced classes, the median is used as the threshold to assign the samples to one of the two categories. Table 2 reports the average performance of the *Logistic Regression* for each modality based on k-fold cross validation method with $k = 10$. For all three modalities performances are significantly above the chance level, however it is more significant for text modality. This result suggests that perceived traits are more correlated with persuasiveness in text modality while in audio and video it is likely that people use additional behavioral cues (e.g. affects) to evaluate the persuasiveness. These results verify the predictive power of personality traits for persuasiveness and confirms the second hypothesis.

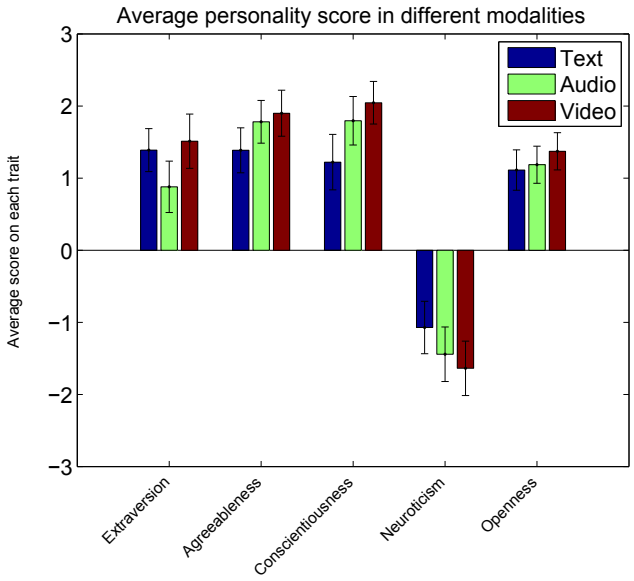

Figure 4: Average of perceived personality traits across different modalities. Error bars corresponds to 95% confidence interval.

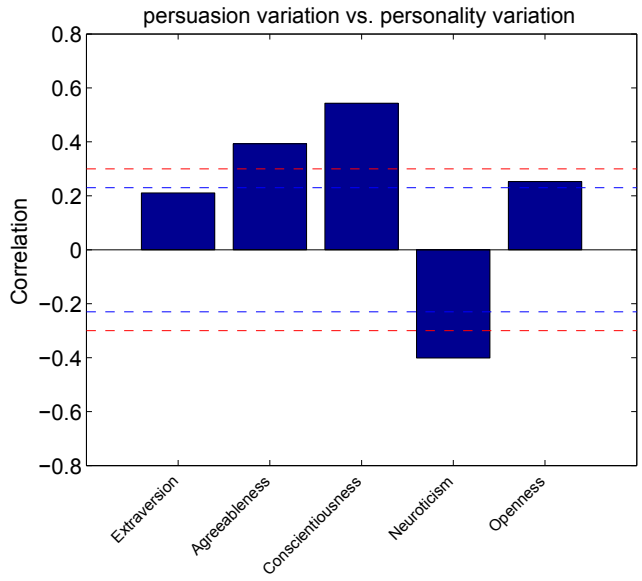

Figure 5: Correlation between the persuasion variations and personality traits variations from text to video. Blue dotted-line corresponds to significance level of 0.05 and the red dotted-line corresponds to significance level of 0.01 for two-tailed test.

5.3 Modality & Personality Perception

To investigate the third hypothesis, we use t-test to examine whether personality traits are perceived differently across different modalities. The results indicate that although the perceived traits are different along different modalities, Conscientiousness is the only trait which has been perceived significantly higher ($p < 0.01$) in video versus text. For significance level of $p < 0.05$, Extraversion is perceived lower in audio versus text and video, Conscientiousness is perceived higher in audio versus text, Agreeableness is perceived lower in text versus video and Neuroticism is perceived higher in text versus video. Figure 4 demonstrates the average perceived traits across different modalities with error bar corresponding to 95% confidence interval which confirms the t-test results visually. These findings validates the third hypothesis that modality affects the perception of personality traits, particularly for Conscientiousness. And finally we examine whether the difference in persuasiveness from text to video is correlated with the difference in perceived traits also from text to video. Figure 5 presents the correlation between persuasion variation and personality traits variations from text to video. As expected, the difference in perception of Conscientiousness in text and video has a significant correlation with the difference in persuasion. Agreeableness and Neuroticism also show correlations higher than chance but the effect is not as significant as Conscientiousness. This result shows that the variation in persuasiveness from one modality to another is indeed correlated with the difference in perception of traits but does not explain which cues cause different personality perception from one modality to another.

6. CONCLUSION

This paper analyzed three hypotheses, drawing from the previous findings on persuasion, to explore the effect of communication modality and perceived personality on persuasiveness. A set of 86 movie reviews from the publicly available MMMO dataset with high positive sentiment was used to perform the evaluation. From each video two other modalities were generated: text and audio. Each movie review in each of the three different modalities was annotated by multiple annotators in terms of persuasiveness of the speaker, perceived personality and some communication skills including: confidence, sense of humor, looking professional, etc.. Analyzing the effect of communication modality on persuasiveness revealed that overall people are perceived as more persuasive in video than audio and less persuasive in text. The statistically significant change in persuasion level from video to text validated our first hypothesis.

In the second hypothesis, we investigated the correlation between persuasiveness and perceived personality. Our results suggested high conscientious and less neurotic people are perceived as more persuasive across different modalities. Agreeableness was also positively correlated with persuasiveness, but the link was stronger in text and audio versus video. Our last hypothesis examined the effect of modality on perceived personality traits. Analysis of the t-test results revealed that personality traits are perceived differently across different modalities but the difference was more significant for Conscientiousness which was perceived significantly higher in video versus text. However, further studies have to be carried to analyze the possible interaction between personality and persuasion in different modalities.

As a future work, we are interested in exploring the behavioral cues causing different perception from one modality to another both in terms of persuasiveness and personality. We are also interested to study whether some of personality traits moderate the persuasive impact of modality.

7. ACKNOWLEDGMENTS

This material is based upon work supported by the National Science Foundation under Grant No. IIS-111801 and the U.S. Army Research, Development, and Engineering Command (RDECOM). The content does not necessarily reflect the position or the policy of the Government, and no official endorsement should be inferred. Gelareh Mohammadi's research is supported in part by the European Community's Seventh Framework Program (GA 231287, SSP-Net), and in part by the Swiss National Science Foundation (IM2).

8. REFERENCES

[1] S. Argamon, S. Dhawle, M. Koppel, and J. Pennebaker, J.W.baker. Lexical predictors of personality type. *In Proceedings of Interface and the Classification Society of North America*, 2005.

[2] V. Benet-Martinez and O. P. John. "los cinco grandes" across cultural and ethnic groups: multitrait-multimodal analyses of the big five in spanish and english. *Journal of Personality and Social Psychology*, 75:729–750, 1998.

[3] J. Biel, M. Teijeiro, and D. Gatica-Perez. Facetube: Predicting personality from facial expressions of emotion in online conversational video. In *Proceedings of International Conference on Multimodal Interaction*, pages 53–56, Santa Monica, 2012.

[4] D. B. Buller, B. LePoire, A. R. K., and S. Eloy. Social perceptions as mediators of the effect of speech rate similarity on compliance. *Human Communication Research*, 19:286–286, 1992.

[5] S. Chaiken. Communicator physical attractiveness and persuasion. *Journal of Personality and Social Psychology*, 37:1387–1397, 1979.

[6] S. Chaiken and A. Eagly. Communication modality as a determinant of message persuasiveness and message comprehensibility. *Journal of Personality and Social Psychology*, 34:606–614, 1976.

[7] S. Chaiken and A. Eagly. Communication modality as a determinant of persuasion: The role of communicator salience. *Journal of personality and social psychology*, 45(2):241–256, 1983.

[8] P. Ekman, W. Friesen, M. O'Sullivan, and K. Scherer. Relative importance of face, body, and speech in judgments of personality and affect. *Journal of Personality and Social Psychology*, 38(2):270–277, 1980.

[9] B. Fogg. Persuasive computers: perspectives and research directions. In *Proceedings of the SIGCHI conference on Human Factors in Computing Systems*, pages 225–232, 1998.

[10] B. Fogg. *Computers as Persuasive Social Actors*, chapter 5, pages 89–120. Morgan Kaufmann Publishers, 2003.

[11] K. D. Frandsen. Effect of threat appeals and media of transmission. *Speech Monographs*, 30:101–104, 1963.

[12] D. Funder. Personality. *Annual Reviews of Psychology*, 52:197–221, 2001.

[13] P. Glick, J. A. Demorest, and C. A. Hotze. Keeping your distance: Group membership, personal space, and requests for small favors. *Journal of Applied Social Psychology*, 18(4):315–330, 1988.

[14] C. L. Kleinke and D. A. Singer. Influence of gaze on compliance with demanding and conciliatory requests in a field setting. *Personality and Social Psychology Bulletin*, 5(3):386–390, 1979.

[15] W. Mason and S. Suri. Conducting behavioral research on amazon's mechanical turk. *Behavioral Research Methods*, 44(1):1–23, 2012.

[16] G. Matthews, I. Deary, and M. Whiteman. *Personality traits*. Cambridge University Press, 2003.

[17] A. Mehrabian. *Silent message*. Belmont, CA: Wadsworth, 1971.

[18] G. Miller. *Persuasion: new directions in theory and research*, chapter On being persuaded: some basic distinctions, pages 11–28. Beverly Hills, CA: Sage, 1980.

[19] G. Mohammadi and A. Vinciarelli. Automatic personality perception: Prediction of trait attribution based on prosodic features. *IEEE Transactions on Affective Computing*, 3(3):273–278, 2012.

[20] C. Nass, B. Fogg, and Y. Moon. Can computers be teammates? affiliation and social identity effects in human-computer interaction. *International Journal of Human-Computer Studies*, 45(6):669–678, 1996.

[21] C. Nass and K. Min Lee. Does computer-synthesized speech manifest personality? experimental tests of recognition, similarity-attraction and consistency-attraction. *Journal of Experimental Psychology: Applied*, 7(3):171–181, 2001.

[22] S. Nowak and S. Ruger. How reliable are annotations via crowdsourcing: a study about inter-annotator agreement for multi-label image annotation. In *Proceedings of International Conference on Multimedia Information Retrieval*, pages 239–248, 2010.

[23] S. Park, G. Mohammadi, R. Artstein, and L. Morency. Crowdsourcing micro-level multimedia annotations: The challenges of evaluation and interface. In *Proceedings of the ACM multimedia workshop on Crowdsourcing for multimedia*, pages 29–34, 2012.

[24] B. Rammstedt and O. P. John. Measuring personality in one minute or less: A 10-item short version of the Big Five Inventory in English and German. *in Journal of Research in Personality*, 41:203–212, 2007.

[25] K. Reardon. *Persuasion in practice*. Sage Publications, Inc,, 1991.

[26] C. Segrin. The effect of nonverbal behavior on outcome of compliance gaining attempts. *Communication Studies*, 44(3):169–187, 1993.

[27] C. Werner. Instrusiveness and persuasive impact of three communication media. *Journal of Applied Social Psychology*, 89:155–181, 1982.

[28] M. Wollmer, F. Weninger, T. Knaup, B. Schuller, C. Sun, K. Sagae, and L. Morency. Youtube movie reviews: In, cross, and open-domain sentiment analysis in an audiovisual context. *IEEE Intelligent Systems, Special Issue on Concept-Level Opinion and Sentiment Analysis*, 2013.

[29] P. Zimbardo and M. Leippe. *The psychology of attitude change and social influence*. McGraw-Hill New York, 1991.