

Effects of Feedback Video in Mediated Communication

Shiwani S Dewal

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Steve R. Harrison, Chair
Deborah G. Tatar
D. Scott McCrickard

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Shiwani S. Dewal

(ABSTRACT)

Video-conferencing has become a widely-used form of mediated personal communication. While other form of real-time communication such as face-to-face conversations or telephonic conversation, do not afford any form of real-time feedback about self-presentation to individuals; video conferencing has the unique ability to provide a continuous feedback video loop. Previous work in this area has shown that this form of feedback can cause issues related to vanity and distraction. However, effects on sensitive aspects of the human psyche, such as self-image, self-consciousness and self-esteem, have not been studied.

This project is a first step towards analyzing such effects from a human-computer interaction perspective, as the human-human communication is heavily mediated through the setup as well as the presence of the feedback video. We investigated psychological effects, specifically focusing on self-consciousness, social desirability and self-esteem, through a laboratory-based user study. We chose the well-established model of pride and shame stories for the user study. The resulting data in the form of audio, video and questionnaires was analyzed based on various parameters including the length of conversation, gender pairings, initial levels of self-esteem, type of story, etc.

The results of this exploratory study lay the foundations for further research, towards informing theory and design for video-conferencing systems.

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(GENERAL AUDIENCE ABSTRACT)

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Dedication

To my late grandfather, Shriram Dewal (10/16/1931 – 11/22/2015).

- von deiner liebsten Enkelin

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Chapter 1

Introduction

Today, the act of placing a video call is as simple as pressing a button. However, the systems we know and use have evolved after about a century of research in the field. The idea of a videophone (as opposed to a telephone) was first conceptualized in 1878, barely two years after Dr Alexander Graham Bell invented the telephone. Almost 50 years later, AT&T created the first electromechanical television-videophone, called ikonophone in 1927. In 1936, Dr Georg Schubert developed the worlds first public video telephone service in Germany which operated between Berlin and Leipzig (about 100 miles apart), and was later extended to Nuremberg and Munich. The service was offered at special post office video booths, but was shut down when Germany became fully engaged in war. Research to address compression problems continued at AT&T, as well as various locations around the world including France and Japan. Wide commercial success for videoconferencing started at the turn of the century, and video calls have since become synonymous with the names of the enabling applications, viz. Skype, Facetime, etc.

In addition to its role as a powerful medium of communication both in the corporate world, and the interpersonal space, videoconferencing has been the subject as well as medium for various studies for over 3 decades. In 1968, Engelbart gave a live demonstration of a system he called the oN-Line System (NLS) [11]. As part of the Mother of all Demos he delivered at the Computer Societys Fall Joint Computer Conference in San Francisco, he interacted with his associates in Menlo Park via live video, which was projected onto a big screen for the audience to see. This was one of the first major demonstrations of how video calls could be used in the work place, and could potentially facilitate better, more effective communication.

48 years later, video calling applications such as Skype, Gtalk and Facetime are used by millions of people every single day. A study by the Pew Internet and American Life Project in 2010 estimated that in America alone, 19

1.1 Motivation

A lot of research has been performed for video-conferencing systems over the past few decades, reflecting its growing popularity as a medium of communication. Some of this research has been done to assess various effects of the feedback image, and broadly, the research focuses on identifying concerns users have while communication through a videoconferencing system. However, we were unable to find evidence of any research exploring deeper, and less obvious aspects such as effects on self-awareness and self-esteem. This is surprising given the volume of research in psychology devoted to analyzing the effects of mirrors and audiences on an individual [5, 4, 21, 24]. Since videoconferencing systems have elements of both mirror presence (self-image feedback loop) and audience presence (remote participant), this research indicates that it is likely that there would be an increased self-awareness experienced by the users. It is uncertain whether the effects observed in videoconferencing systems would be more than those for conditions involving either a mirror or an audience. Although [28] touched only briefly on discrepancy, the particular type of discrepancy which may affect the user can have an emotional and deeper impact. The self-image provided by various videoconferencing systems would enable an individual to visually detect if there is a discrepancy between the self-presentation and the actual self-state. Individuals who experience a high degree of private self-consciousness, by definition of the types of self-consciousness, would be more aware of their own thoughts, feelings and motives. Therefore, they would be more invested in ensuring that their self-presentation conforms to the ideal or ought self-state. A discrepancy between the self-presentation and actual self-state would therefore qualify as a self-discrepancy. I expect the tendency to detect and perceive a discrepancy to be a function of the degree of self-awareness. A second aspect to consider is the individual's desire to conform to the expectations of the remote participant who is part of the videoconference. If there is a perceived discrepancy between the actual self-state as evidenced from the feedback image and the perceived expectations of the other participant, the self-esteem of the individual may be affected. It is important for me to account for this possibility, and to attempt to isolate the effects of the two types of discrepancies. I believe I can anticipate the effects of the discrepancy related to the remote participant by evaluating the individual on the social desirability scale [7]. It would provide an indicator as to whether the individual is vulnerable to this type of discrepancy and to what degree. The key focus of this project is effects on self-esteem. Leary et al described self-esteem as an emotionally charged self-evaluation [20]. This perspective reinforces the role and importance of self-esteem. The work by Filho et al, Carver and Scheier, Higgins et al lays the foundation for factors which could influence self-esteem, such as self-awareness, self-image, self-discrepancy among others. In order to measure the impact on self-esteem, the Rosenberg self-esteem scale (RSE) will be used [25]. I am interested in exploring whether self-esteem is affected and to what degree, and attempting to correlate the role played by these other measures. I expect that the effect on self-esteem is correlated with the type of emotion (e.g., pride, shame, guilt, surprise) experienced by the individual, and that positive self-discrepancy may increase self-esteem while negative self-discrepancy would have the opposite effect. It would also be interesting to

understand the role played by the feedback provided by the remote participant, and how it relates to the perceived self-discrepancy. Indicating support or understanding may increase self-esteem, while indications of shock or surprise may decrease self-esteem.

1.2 Research Questions

The main question explored in this thesis is whether there are any deeper psychological effects caused by the presence of a large feedback video, with special focus on self-esteem. The results and discussion will show the various ways in which I analyzed changes in self-esteem, taking into account the presence and absence of feedback video and other factors. The second major question is whether the presence of a large feedback video impedes or aids various facets of mediated video communication. For this question, I focused on aspects such as efficacy of communication, duration of conversation and point of focus.

The two research questions, alongwith preliminary hypotheses associated with them are in the table 1.1.

Table 1.1: Research Questions and Hypotheses

| Research Question | Hypothesis |
|--|--|
| Are there deeper psychological effects caused by the presence of a large feedback video, specifically with respect to self-esteem? | <p>Positive self-discrepancy will increase self-esteem, while negative self-discrepancy will decrease self-esteem</p> <p>Feedback received from the listener will affect self-esteem, with the direction of feedback directly proportional to the effect on self-esteem</p> |
| Does the presence of a large feedback image impede or aid various facets of mediated video communication? | <p>Duration of conversations will be affected; and it will also be a function of the type of story.</p> <p>Presence of feedback video would result in better delivery of stories, as perceived by both speaker and listener</p> <p>Social desirability would be a predictor of how much participants would focus on their partners versus their own feedback video</p> |

1.3 Approach

In order to study videoconferencing systems from the perspectives of interest to us, a user-study was setup wherein pairs of participants interacted with each other over a videoconferencing system (Skype). One participant was designated as speaker, and the other as listener. During the course of the study, the speaker was asked to share two stories with the listener—one recounting an event where they felt ashamed and the other recounting an event where they felt proud. Since we were particularly interested in the role of the feedback image, during one story, the feedback image was present and it was removed for the other. Additionally, we decided to increase the size of the feedback image to be as large as the stream from the other participant. While this primarily ensured that the feedback image is clearly visible, it also puts both video streams at par, without emphasizing one over the other. The ordering of story-types as well as association of condition with story-type were suitably randomized. In addition to asking the participants to fill out some surveys, the researcher also conducted semi-structured interviews with them at the end to gain a more complete understanding of their experience.

Chapter 2

Literature Review

2.1 Video conferencing systems

2.1.1 Privacy

Significant research has been devoted to privacy concerns stemming from streaming of live video, as well as video conferencing system, including [3], [2] and [15]. Boyle and Greenberg identified three modalities of privacy, viz. autonomy, confidentiality and solitude by [3] in their work on video media space analysis. They described solitude as control over ones interpersonal interactions, specifically ones attention for interaction; confidentiality as control over others access to information about oneself specifically the fidelity of such accesses; and autonomy as control over the observable manifestations of the self, such as action, appearance, impression and identity. Their results indicated that balancing all three factors is key for any video conferencing system. In 1992, Fish et al studied whether video calls could facilitate informal communication in the work place across geographically distributed organizations [14]. While the system developed by them, CRUISER, showed some promise due to its ease of access through the desktop, it had several limitations. The system was primarily used for updates and scheduling, and the call durations were kept short by participants. It was found that participants perceived the system as more intrusive than traditional means of communication as there were no means for the typical signals of being available for communication. On the other hand, there were no significant concerns around the spatial privacy intrusion and most participants seemed comfortable with other having the ability to look into their office.

2.1.2 Gender

Similarly, research has been devoted to understanding the role of gender when it comes to communicating via video conferencing systems. In their study on emergency medical care, Maurin et al found that male paramedics benefitted more from the use of 3D telepresence to interact with a physician, than the female paramedics [22]. This was attributed, in part, towards the favorable attitude towards the technology shown by the male paramedics. Wheeler found that the female participants expressed less anxiety and self-consciousness and reported more favorable attitude towards the functionality and usefulness of the video conferencing equipment [31]. The result was attributed to women perceiving technology as social interaction and having greater verbal ability. On the other hand, it was concluded that men were potentially impeded from good communication due to technological sophistication leading them to concentrate more on the effects of technology and raising arousal levels.

In a study conducted to explore gender difference in virtual communication, Stuhlmacher et al found that women were significantly more hostile in virtual negotiations than face to face negotiations, while there was no significant difference for men [27]. This suggests that the kind of task performed in a video conferencing setting also causes men and women to react differently. Some researchers focused on the special ability of videoconferencing systems to provide a self-image feedback loop. Unlike any other form of communication, these systems allow users to see themselves while they are speaking. Most systems provide a small inset image, while some like Google Talk allow the user to toggle between their video stream and that of their partner(s), while maintaining the other(s) as insets. This feature is often linked to concerns about appearance, especially in a professional setting.

2.1.3 Body Language Availability

Nguyen and Canny conducted a study to examine the effects of different types of framing of the video feed [23]. They found that empathy development was significantly different when the participant's head and whole upper body was visible, as opposed to just the participant's head. A different study by Toeh et al found that participants trusted their conversation partner more when body language was not available than when it was available during negotiation type tasks [30].

2.1.4 Feedback video/Self-image

Filho et al talk about the effects of communicating via a videoconferencing system on aspects such as self-image, appearance, and self-presentation [8]. They studied the effects of perceived self-image concerns on communication via videoconferencing systems, and the role of image distortions in mitigating the effects. Their first study revealed that although users seemed to want feedback about their appearance, which was achieved through the feedback image,

there was an element of distraction and discomfort due to self-consciousness about their image. The authors conclude that it would be appropriate to provide users more control over the visibility of their feedback image. The results of the second study showed that users did not prefer an image distortion technique which altered their image too much. Instead they preferred filters that would subtly enhance or improve their image, while maintaining a high fidelity to their actual image. The paper provides initial insight into users' comfort level while using image sharing communication media, and highlights some aspects of concern for designers of videoconferencing systems which are related to the self.

Takayama and Harris created a feedback image by introducing mirrors in the experimental setting [28]. They found that there were both positive and negative effects of providing visual feedback to remote operators of mobile remote presence (MPR) systems. Visual feedback was provided by placing big mirrors in the local space thereby allowing the operators to view their reflections and gain insight into how they were representing themselves. The results from participants in the mirror-present condition was contrasted with results from a control condition where no mirror was present. The authors found that participants took more advantage of the practice sessions when a mirror was present, and made attempts to improve their self-representation. This indicates that participants did not prefer having a significant discrepancy in their self-image. On the other hand, the participants in the mirror-present condition felt more frustration and had less fun. The MPR study also highlighted the negative effects of visual feedback, such as distraction and increased self-consciousness. Although the idea of using large mirrors to provide visual feedback may not have been the most effective, this paper nonetheless, provides a good overview of the double-edge of providing a feedback image.

2.2 Psychology Theory

2.2.1 Mirror and Audience Presence

A significant volume of research in psychology has been devoted to analyzing the effects of mirrors and audiences on an individual [5, 4, 21, 24]. The most relevant one to this project is perhaps the work by Carver and Scheier, wherein they showed that both mirror presence and audience presence increase self-awareness [4]. Additionally, the authors validated the ability of the self-consciousness scale to measure inclinations towards self-attentiveness. The studies conducted by the authors looked at both the private and public subscales of the self-consciousness scale, and concluded that only private self-consciousness influences an individual's disposition to be self-aware. Although the paper does not explicitly show that mirror presence, audience presence and private self-consciousness do not have other effects, the authors argue in favor of this possibility, by looking at drive and demand, which are two common alternative interpretations of the effects of self-awareness.

2.2.2 Self-Consciousness

The consistent tendency of persons to direct attention inward or outward is the trait of self-consciousness [13]. The term is closely related to self-awareness but different in the sense that self-awareness is a state of self-directed attention. Individual differences in self-consciousness may have various implications including aspects of the individual's social interaction and perception of themselves.

Measure

The self-consciousness scale (SCS) developed by Fenig et al measures the chronic predispositions to be self-attentive [13]. Self-consciousness has been revealed to have two aspects, viz. private self-consciousness and public self-consciousness. The SCS has sub-scales which capture both of these aspects. The private subscale measures awareness of the more covert aspects of the self, such that individuals who are very aware of their own thoughts, feelings and motives would score more highly on this scale. On the other hand, the public subscale measures awareness from the social aspects of the self, such that individuals who are very aware of how they are viewed by others would score more highly on this scale. The third sub-scale measures social anxiety which can be defined as a discomfort in the presence of others.

2.2.3 Self-Discrepancy Theory

The self-discrepancy theory proposed by Higgins postulates the type of emotions experienced by an individual when there is a deviation of the actual self-state from what is expected. It delves into the different types of discrepancies in representing self-state, and their relationship with various emotional vulnerabilities [18]. Higgins describes three types of self-states, viz. actual, ideal and ought. The discrepancies relevant to the work described are between the actual and the ideal self-state, and between the actual and the ought self-state. The authors conduct various experiments to show that while the first type of self-discrepancy leads to dejection-related emotions, the second type leads to agitation-related emotions. The magnitude and possibility of being impacted by a self-discrepancy depends on the discomfort experienced by the individual.

2.2.4 Social Desirability

The underlying construct for social desirability is an individual's need for approval from others. In social interaction, it may take the form of individuals interacting in a manner that will be viewed favorably by others. It is associated with over-reporting "good behavior" and under-reporting "bad behavior".

Measure

In 1960, Crowne and Marlowe developed a new scale of social desirability, which was based on a different psychometric model as opposed to other scales prevalent at the time [7]. The underlying construct for the scale was an individual's need for approval. The psychometric model generated a sample of items (behaviors) which were culturally sanctioned and approved, but relatively improbable. 50 items satisfying the criteria of the model were submitted to 10 judges and the items which had at least 90% agreement were included in the preliminary form of the scale. A second study was conducted to validate the scores, by administering three scales, viz. the Edwards scale of social desirability, the Minnesota Multiphasic Personality Inventory (MMPI) and the new scale, to participants. Higher correlations were found between the MMPI and the Edwards scale, as compared to the MMPI and the new scale. The authors concluded that these results proved the validity of the new scale and its distinct function. The Marlowe-Crowne scale is now more than fifty years old, and although some of its sample behaviors have lost relevance, it remains the most used scale for evaluating social desirability.

2.2.5 Self-Presentation

Goffman viewed all the world as a stage and the people as actors, and based his theories of self-presentation around this perspective [16]. He noted that when an individual appears before others, he or she would have motives for trying to control the impression they receive of the situation.

2.2.6 Self-Esteem

Self-esteem, broadly, is a person's appraisal of their own value. It is, essentially, a sociometer, and refers to a person's appraisal of their own value. The importance of self-esteem has been recognized in many works over the past century [1, 6, 12, 26]. It has the ability to influence all aspects of an individual's personality and attitude.

Measure

The Rosenberg self-esteem scale (RSE) was introduced in 1965 and originally intended to be used for high school students [25]. However, studies were performed to validate the use of the scale for youngsters as well as adults and the studies yielded positive results. The scale is relatively simple and consists of 10-items. The complexity lies in the scoring as it is a Guttman scale. The RSE correlates significantly with other measures of self-esteem, including the Coopersmith Self-Esteem Inventory, and its results are considered reliable.

2.3 Other Measures

2.3.1 Micro-expressions and Facial Action Coding System (FACS)

A micro-expression is a brief, involuntary human facial expression. What makes micro-expressions special is that they are involuntary, which means that they cannot be controlled or hidden. Secondly, they are universal and correspond to six emotions, viz. disgust, anger, fear, sadness, happiness and surprise. They were first mentioned by Haggard and Isaacs [17], and subsequently Ekman and Friesen demonstrated their universality [9] and used the Facial Action Coding System (FACS) developed by Carl-German Hjortsjo [19, 10]. The taxonomy defined in FACS has been used to design software such as Nodulus, which automate the process for video data. These softwares process the video frame by frame and assign scores for each of the six emotions, marking their presence or absence. Since every frame is analyzed, for a video which captures 32 frames per second, it is possible to detect micro-expressions.

Chapter 3

User Study

3.1 Design

3.1.1 Setup

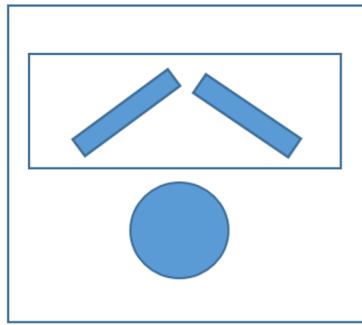
The study was conducted as single 90-minute sessions, in two adjacent rooms on the VT campus. The setup was be as depicted in Figure 1 (a) for the feedback image present condition and as depicted in Figure 1 (b) for the feedback image absent condition. For a given condition, the setup for both participants was be identical.

3.1.2 Participant Recruitment

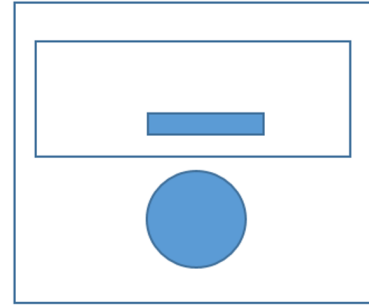
The participants were recruited using listservs. After recruitment, participants were asked to sign up for a time-slot, such that there were two participants for each slot. The sign-up was anonymous for everyone except the researcher. A crucial aspect of the study was that the participants be strangers so as to ensure that there are no biases, whether positive or negative, stemming from past interaction. Participants were not told any information about their co-participants until they arrived for the study.

3.1.3 Equipment and Technology

Skype was used to facilitate the basic video-call. In-built recording softwares on the laptops such as QuickPlayer or YouCam captured and projected the feedback image, in the feedback present condition. Additionally, as depicted in Figure 3.2, video cameras mounted on tripods were be placed behind the users and captured the complete setting in each room.



(a) Condition with feedback image



(b) Condition with no feedback image

Figure 3.1: This figure shows the top-view of the setup for the two conditions. The blue boxes represent computer monitors, while the blue circle represents the participant. The larger box is the table.



Figure 3.2: Setup for participants for the feedback video condition

3.1.4 Pride and Shame Stories

The structure of the proposed user study is inspired by the work published as part of Tatars dissertation [29]. We were interested in designing a study where the natural setting would elicit concerns around social desirability and self-presentation, in a way that would be sufficiently personal to possibly affect self-esteem. Tatar studied the effects of listener preoccupation on the speaker, from both a social and personal perspective. The speakers narrated a pride story and a shame story, while their counterparts (the listeners) were either given a pre-occupation task which made them seem distracted or acted as they normally would. The participants did not know each other. Both pride and shame stories are sensitive and not often shared in social settings, and narrating such a story, especially to a stranger is bound to entail some amounts of trepidation from a social desirability perspective. Additionally, while there is a concern for self-presentation through the narrative, that is, how one is presenting themselves within the story, there is also the visual aspect (e.g., how poised or affected one is) of self-presentation. Discrepancies in either type of self-presentations, as compared to the ideal state could affect self-esteem.

3.2 Procedure

3.2.1 Pre-study

Once both participants had arrived, the researcher went over the process with them and obtained informed consent. The participants were asked to sign a form that stated that they had not had a meaningful, previous interaction with each other. A second consent form was presented to the participants requesting their permission to use stills from their session in any publications or presentations. This form was not mandatory and participants were informed that they could decline to sign the form and still continue with the study. At this point, both participants were asked to fill out four questionnaires: a basic demographic survey, the Marlowe Crowne Social Desirability Test, Self Consciousness Scale and the Rosenberg Self Esteem Scale. These served to capture the independent variables. After the questionnaires were completed, the participants each chose a piece of paper from a box (order determined by coin toss, winner draws first). One piece of paper had the word "listener" and the other "speaker", which denoted the roles the participants would assume. At this point, they were led to the two separate rooms.

3.2.2 Story 1

The speaker received their instructions first, and were given a few minutes to think of a story. He/she was asked to come back into the common space to let the researcher know that they

were ready. The choice of story was either a pride story or a shame story, depending on the study condition which was assigned in serial order. Similarly, the feedback image could be present or absent based on the study condition. While the speaker was thinking, the researcher provided instructions to the listener. The listener was asked to sit in a way they felt comfortable and once the researcher had adjusted the camera, the listener was asked to confirm that they were comfortable with the setup. The listener was informed that the video call would be started from the speaker's room, but that they should wait for the researcher to reappear. Once the speaker indicated that they were ready, the researcher handed them a pre-story questionnaire to capture the sentiments they felt at the time of the occurrence of the events. After the speaker returned the completed form, the researcher adjusted their camera setup in the same way as they had done with the listener. The speaker was additionally requested to clap before they started their story to help synchronize the videos. The video call was then started from the speaker's room, and the researcher went to the listener's room to accept the call. Both participants were asked to confirm that they could hear and see the other participant. The listener was informed that the speaker had been asked to clap before they started speaking, and both participants were requested to come into the common area once they were done. Choosing when to end the video call was completely upto the discretion of the participants, within reasonable time frames.

3.2.3 Post-story 1 and Pre-Story 2

At the end of the video call, that is, once the first story had been completed, both participants were invited back to the common area and were asked to fill out a post-story questionnaire. While most of the questions asked them to gauge aspects of their experience on a 5-point Likert scale, there were also free-form questions to get more feedback and information. Some of the questions assessed how the participants, particularly the speaker, felt about the role played by the other participant. Additionally, both participants completed the Rosenberg Self Esteem Scale a second time. While the participants filled out the questionnaires, the researcher toggled the feedback video setup for the second story based on the condition. If the first story had a feedback video, then for the second one, the monitor was turned away, and vice versa to ensure that the feedback video was present only for one of the two stories. The door to both rooms was closed during this time to ensure that participants were not distracted by changes in the while filling out the questionnaires.

3.2.4 Story 2

After the questionnaire and assessment had been completed, both participants were asked to return to their respective rooms. The speaker was asked to think of a second story to tell the listener. The story was either a pride story or a shame story, complementing what they had done during the first part. If they had told a pride story, it would be a shame story

and vice versa. The rest of the procedure was the same as before, starting with the speaker filling out a form marking their sentiments and ending with the participants coming to the common area to inform the researcher that their conversation had ended.

3.2.5 Post-story 2

Once the participants had indicated that they had completed their video call, they were asked to stay in their rooms, and given questionnaires similar to the ones after the first story. The key difference between these questionnaires was that the one given to the participants after the story with feedback video had some initial questions concerning the feedback video. Otherwise, these questionnaires were identical. Both participants were also asked to fill out the Rosenberg Self Esteem Scale for a third and final time, and the Self Consciousness Scale for the second time. Additionally, the researcher conducted brief semi-structured interviews to get a more complete view of the participants experience. The interviews were conducted in the rooms in which the participants were seated, and audio-recorded. The order of interviews was decided based on the order in which participants completed their questionnaires, unless one of the participants had indicated that they were on a tighter schedule.

3.2.6 Wrap-up

At the end of the interviews, participants were encouraged to reminisce about a time when they had felt 'happy'. They were told that the event could be from as recent as that morning, or as old as when they had been children. They were also told that they would not be required to write or speak about the event. The researcher then left them to themselves for about 5 minutes. Before they left, the researcher handed them two informational fliers, for Cook Counselling and the Women's Center, in case they felt overwhelmed by the experience of the study or needed to speak to someone for other reasons. The participants were also given an opportunity to ask the researcher any questions they might have, and told that they could contact the researcher via e-mail if they had questions later on.

3.3 Types of Data Gathered

During the course of each session, various data was recorded, in the form of questionnaires, video as well as interviews.

Measures

Participants were asked to complete a basic demographic survey once they arrived. Additionally, they were also be asked to complete the Marlowe-Crowne Social Desirability Test, the Self Consciousness Scale and the Rosenberg Self Esteem Scale. The Self Consciousness Scale was repeated once both stories had been completed. On the other hand, the Rosenberg Self Esteem Scale was administered after each story again, resulting in three self-esteem measurements. In order to ensure that participants answered the questions for each scale with careful consideration, the order of questions was changed each time the scales were presented to the participants. Final formats of the scales can be viewed in the Appendix A.

Self-reported Data

The participants were filled out post-story questionnaires, which mainly contained questions like 'how attentive was your partner to you', 'how attentive were you to your partner', 'how did you handle yourself', etc which were answered on a Likert scale of 1 to 7. The questionnaires also contained either two or three free-form questions, depending on the condition, to get a sense for how the overall experience was and how participants felt about the feedback video. Additionally, speakers were asked to rate how they felt across 10 sentiments, for three occasions, viz., when the events of the story originally occurred, while they were narrating the story and after the story has been narrated. Similarly, listeners rated how they thought the speaker felt while he or she was telling them the story.

Video

Each room had a setup containing three cameras. Two of these cameras were used for the video call; one was used by the Skype software to transmit the participant's video to the other participant, and the other was used to generate the feedback video on the second screen. The third camera was a tripod-mounted HD video camera and was used to record a larger view of the room. Video data from both the tripod-mounted video camera, as well as the camera used to create the feedback video was recorded

Semi-structured interview

At the end of the entire session, I conducted semi-structured interviews with both participants individually. All interviews asked participants how their overall experience had been and how they felt about the feedback image. Other questions were based on things that stood out, such as someone's ratings of their own attentiveness or how they had handled themselves. Overall, the interviews gave the researcher a chance to seek clarification or additional information based on some of the answers participants had given in the questionnaires.

Chapter 4

Data Analysis and Results

4.1 Overview

A large amount of data was collected over the course of the study, including audio and video data. The first step was to digitize all the paper questionnaires and transcribe the interviews.

The analysis has been limited to data for the first story, as we believed that the data collected for the second story could not be treated independently of the first story. Factors from the conversation from the first story, as well as the change of setup were likely to affect the subsequent story. Additionally, our research required both participants to be strangers, and we felt that this could no longer be considered true for the second story.

4.2 Changes in Self-Esteem

The main research question centered on self-esteem and how it may be affected. Accordingly, the next few sub-sections show the results of analyzing changes on self-esteem from various perspectives:

4.2.1 Number of participant, grouped by direction of change and condition

Table 4.1 shows the number of participants, grouped by condition and direction of change of self-esteem. It is interesting to note that 10 out of the 13 participants who experienced no change were speakers, whereas 13 of the 19 participants who experienced an increase in self-esteem were listeners.

Table 4.1: Number of participant, grouped by condition and direction of change of self-esteem

| Condition | Decrease | No Change | Increase |
|------------------------|----------|------------------|-------------------|
| With feedback video | 10 | 5 | 10 |
| Without feedback video | 7 | 8 | 9 |
| Total | 17 | 13 (10 speakers) | 19 (13 listeners) |

Table 4.2 looks at the actual numerical values of the changes in self-esteem, grouped by condition and type of change of feedback image. The overall average change in self-esteem was 0.286 +/- 2.81 units. While the average changes are between 2.3 and 3.33 units, the standard deviations are between 1.34 and 2.19 units.

Table 4.2: Average change in self-esteem, grouped by condition and direction of change of self-esteem

| Condition | Decrease | Increase |
|------------------------|----------------|---------------|
| With feedback video | -2.3 +/- 1.42 | 2.7 +/- 1.34 |
| Without feedback video | -2.86 +/- 2.19 | 3.33 +/- 2.18 |
| Overall | -2.53 +/- 1.74 | 3.00 +/- 1.77 |

Factoring in initial self-esteem, alongwith the condition and direction of change of self-esteem, leads to the distribution shown in table 4.3. High self-esteem was marked as any self-esteem above 25, while low self-esteem was below 18 and other captured the intermediate spectrum. This trichotomy was based on the available sample. There was exactly one person with high self-esteem who experienced an increase in self-esteem. 8 of the other 10 high self-esteem participants fell into the condition without feedback video, and were equally divided between the cases which had a decrease and those which had no change. All the 6 participants who were part of the condition with feedback video experienced a change in self-esteem.

4.2.2 Social Desirability and Changes in Self-Esteem

It seemed likely that social desirability could be a predictor for direction of change of self-esteem. Participants were grouped by their value of social desirability and the direction of change of self-esteem. The results are in table 4.4. The * indicates the number of cases

Table 4.3: Number of participants, grouped by direction of change, initial self-esteem and condition

| Condition | Decrease | No Change | Increase |
|------------------------|---------------------------|---------------------------|---------------------------|
| With feedback video | High: 1, Low: 3, Other: 5 | High: 1, Low: 0, Other: 4 | High: 1, Low: 3, Other: 2 |
| Without feedback video | High: 4, Low: 2, Other: 2 | High: 4, Low: 1, Other: 4 | High: 0, Low: 5, Other: 4 |
| Total | High: 5, Low: 5, Other: 7 | High: 5, Low: 1, Other: 8 | High: 1, Low: 8, Other: 6 |

where feedback video was present. There were three participants with low social desirability scores. One of them experienced an increase, one experienced a decrease and one did not experience any change in self-esteem. On the other hand, amongst the 10 participants with high social desirability, two each experienced an increase, a decrease and no change. The correlation between social desirability and change in self-esteem was found to be 0.0145.

Table 4.4: Number of participants, grouped by MCSD score and direction of change of SE

| Social Desirability Score | Decrease | No Change | Increase |
|---------------------------|----------|-----------|----------|
| Low (< 9) | *1 | *1 | *1 |
| Medium | 10(*6) | 8(*1) | 14(*5) |
| High (> 19) | 3(*2) | 3(*2) | 4(*2) |

4.3 Durations of stories

As part of the second research question of this thesis, I explored whether the durations of the stories were affected by the presence or absence of a feedback video. The comparisons were made inter-session, as the analysis focused on the first story only.

Table 4.5 contains the average durations of the first stories, grouped by the type of story and the condition. Overall, the average duration of shame stories was shorter than that of pride stories, irrespective of the condition.

The average duration for the first story when feedback video was not present, was about 65 seconds longer than that for the first story when feedback image was present. Table 4.6

Table 4.5: Average duration of stories, grouped by story type and condition

| Type | With feedback video | Without feedback video |
|-------|---------------------|------------------------|
| Shame | 276s +/- 168.67s | 288s +/- 216s |
| Pride | 191s +/- 118.9s | 265s +/- 126.16s |

includegraphics[scale=1]averagedurationbytype

Figure 4.1: Caption

shows the average durations of the first stories, grouped by condition, while Figure 4.2 shows the histogram of actual durations, grouped by condition.

Table 4.6: Average duration of stories, grouped by condition

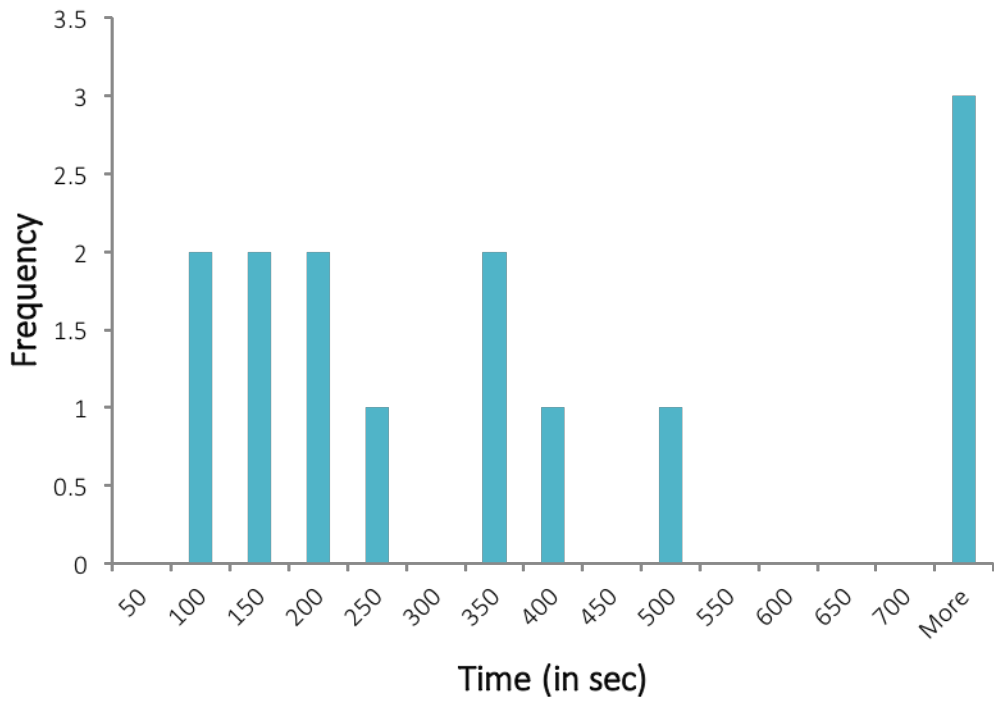
| Condition | Average Duration |
|------------------------|------------------|
| With feedback video | 278s +/- 174.35s |
| Without feedback video | 342s +/- 210.71s |

For every session, the second story was longer than the first story- irrespective of the condition. On an average, the second stories were longer than the first stories by 60 seconds, as shown in Table 4.7 and Figure 4.3.

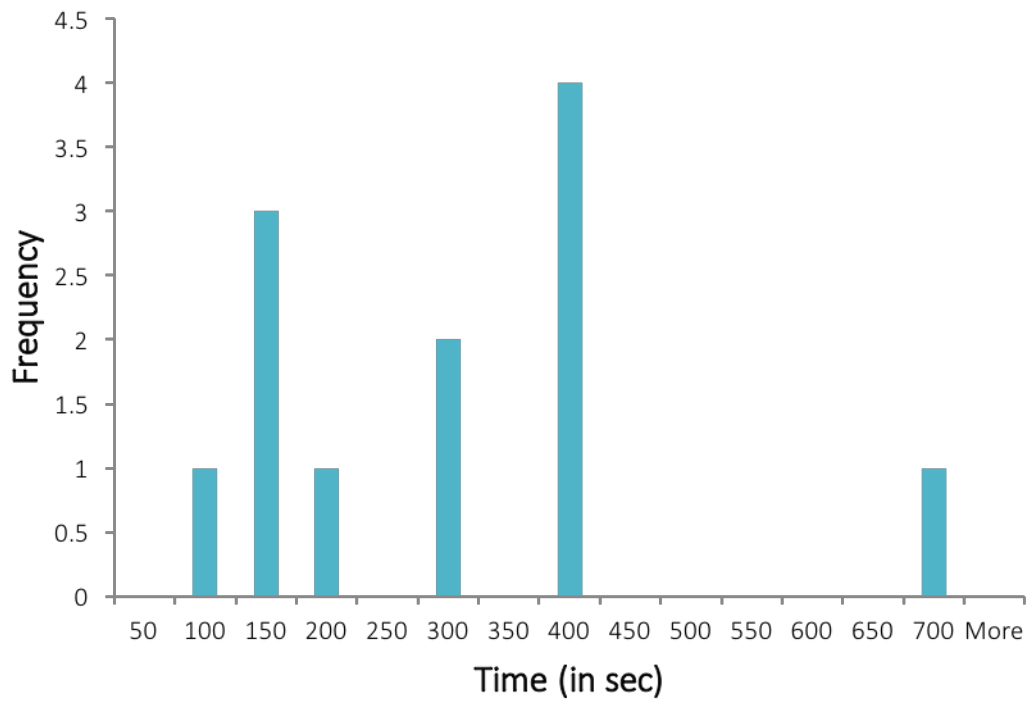
Table 4.7: Average duration of stories, grouped by condition and order

| Condition | Story 1 | Story 2 |
|------------------------|---------|---------|
| With feedback video | 238.9s | 360.0s |
| Without feedback video | 295.91s | 439.27s |

There were 6 stories which lasted more than 1000 seconds. These stories were across three participant pairs, which means they included both stories for those sessions. All three sessions had their first story as a shame story with a feedback video. Two of these participant pairs had both female participants, and the other one had both male participants.



(a) Story 1 durations: With feedback video



(b) Story 1 durations: Without feedback video

Figure 4.2: This figure contains histograms depicting the durations of all first stories by condition

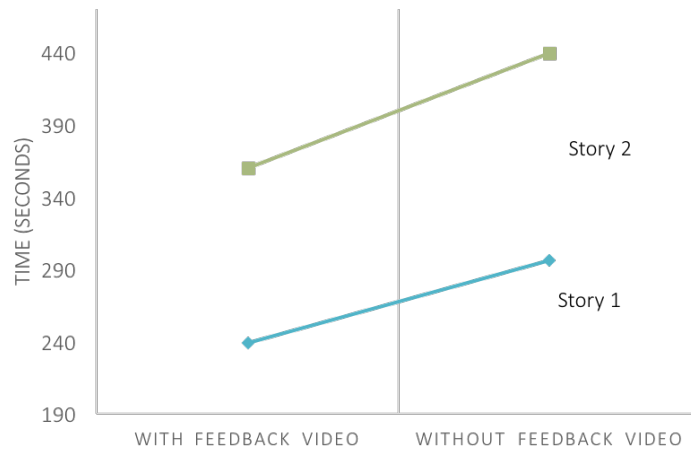


Figure 4.3: Average durations by order of stories

4.4 Efficacy of story-telling and listening

For every pair of participants, the efficacy of story-telling and listening was calculated as a combination of answers to the following three questions:

1. How well do you think you handled yourself?
2. How well was the story told?
3. How interesting was the story?

The first question was intentionally open-ended and participants were asked during the interview how they had gauged themselves. The three recurring these were fluency of delivery, conciseness, and body language and composure.

For all of these three questions, the data was available in raw format with a Likert scale rating from 1 to 7 as shown in Figure 4.4. In order to analyze the numbers, the raw data was processed into two categories, viz. "high" and "low" as per the following formula:

Low = Scores 1 to 5
 High = Scores 6, 7

A wider range for the "low" category was used because it was deemed unlikely for participants to rate themselves lower than a 4. This was confirmed by looking at the data, and seeing only 4 cases where participants had marked themselves lower than a 4.

Figure 4.5 shows the plots of the processed number for the self-ratings of listeners and speakers. For Pride stories without feedback video, all listener thought they handled themselves very well. For stories with feedback video, more speakers rated themselves high.

| Listener | | Speaker | |
|----------------------|-----------|----------------------|-----------|
| Handled Yourself (L) | | Handled Yourself (S) | |
| Bin | Frequency | Bin | Frequency |
| 1 | 0 | 1 | 0 |
| 2 | 0 | 2 | 0 |
| 3 | 0 | 3 | 0 |
| 4 | 0 | 4 | 1 |
| 5 | 1 | 5 | 2 |
| 6 | 3 | 6 | 4 |
| 7 | 3 | 7 | 0 |
| More | 0 | More | 0 |
| Low | 4 | Low | 3 |
| High | 3 | High | 4 |

Figure 4.4: Raw data from self-reported questionnaire

When it came to the question about how well the story was told, listeners ratings were higher for 18 of the 26 sessions as can be seen in Figure 4.6.

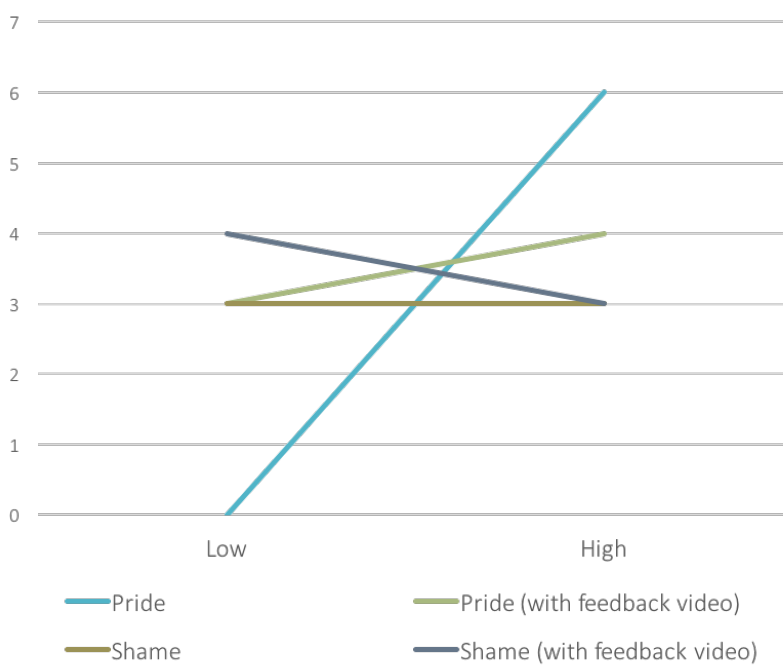
Figure 4.7 shows the plots of the processed number for the self-ratings of listeners and speakers, about how interesting they thought the story was. More listeners thought the story was interesting than listeners who thought it was not interesting. Conversely, more speakers thought the story was less interesting than speakers who thought it was interesting.

4.5 Sentiment dissonance/resonance

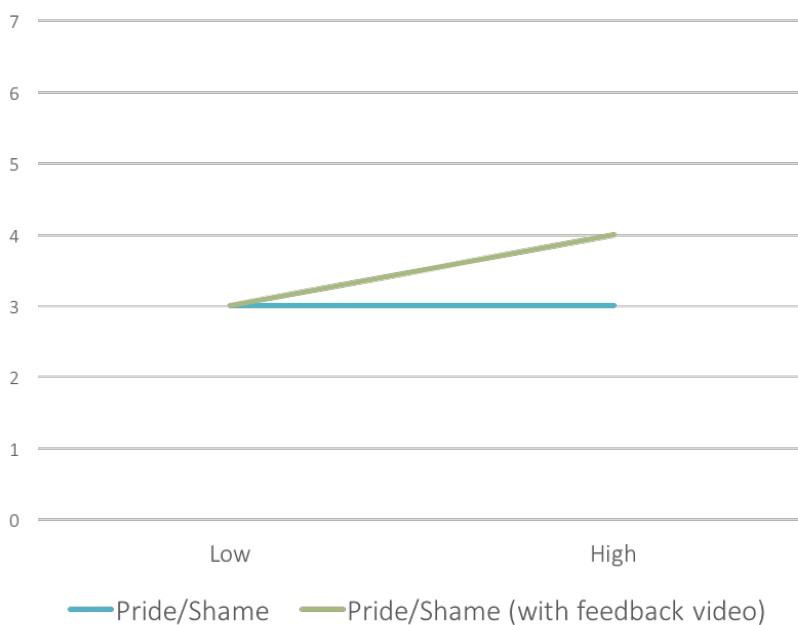
Speakers were asked to rate how they felt about the events of the story, at three different times, viz. originally when the events occurred, while telling the story and after telling the story. The ratings were in the form of a Likert scale (1 to 5) for 10 different sentiments. Similarly, listeners were asked to rate how they thought the speaker felt while narrating the story. A snippet for the values for one story is in Figure 4.8. Additionally, the figure also shows the calculations performed to gather a sense for the dissonance and resonance.

It seemed likely that the amount of dissonance/resonance between the speakers rating of themselves between how they felt while narrating the story and how they felt afterwards would be linked to their self-presentation and their satisfaction with it, when a feedback video was present.

On the other hand, it seemed that the dissonance/resonance between the speakers' and listeners' ratings of how the speaker felt while narrating the story could be tied to the presence or absence of the feedback video. Speakers with feedback video would be able



(a) How well do you think you handled yourself? (Listener)



(b) How well do you think you handled yourself? (Speaker)

Figure 4.5: This figure contains plots of the number of participants based on their self-rating of how they handled themselves. The two plots are for the two roles, viz. listener and speaker

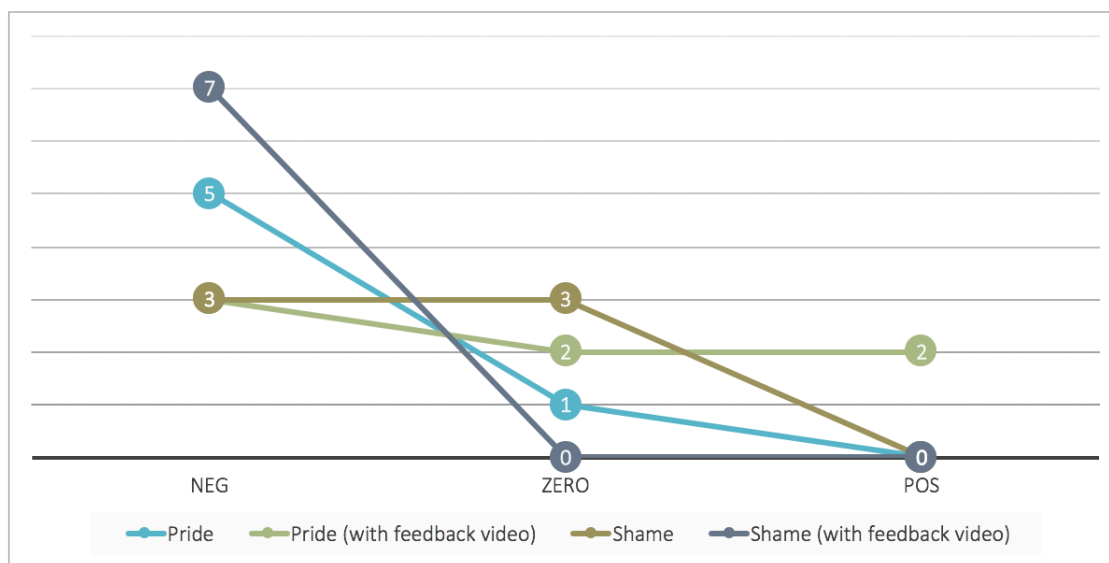


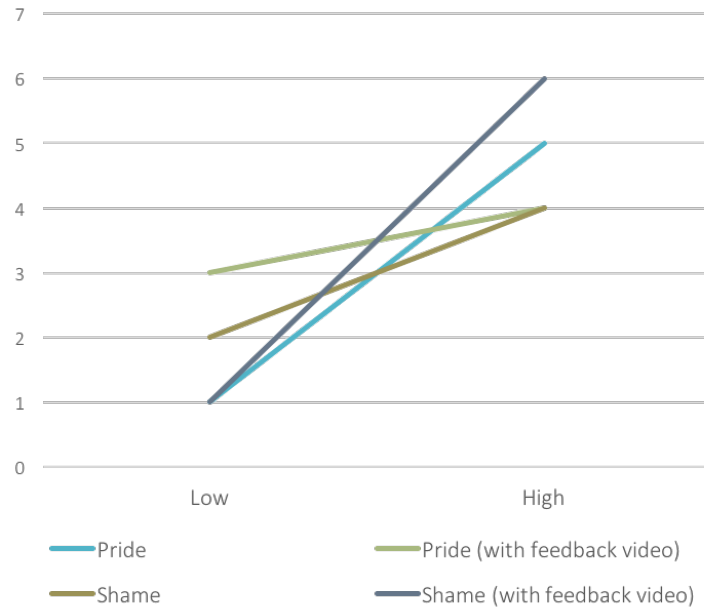
Figure 4.6: Difference in rating of how well the story was told (Speaker - Listener)

to improve their self-presentation and ensure their sentiments are conveyed appropriately through non-verbal means as well.

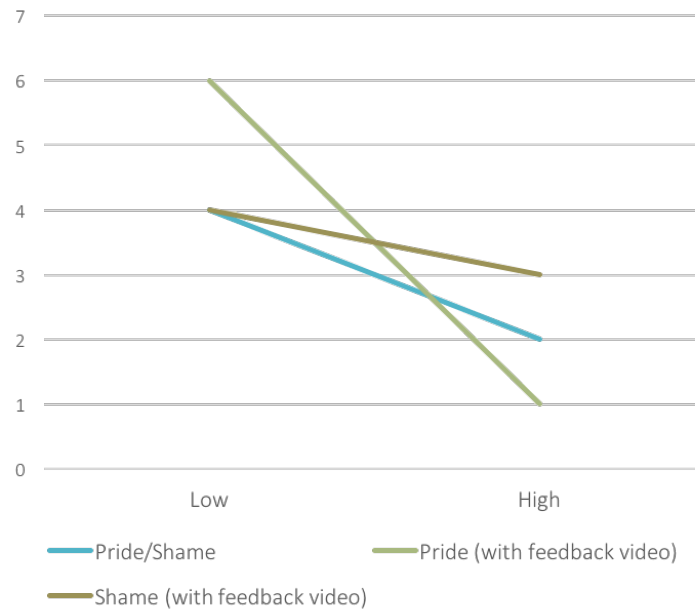
Table 4.8: Comparing speaker ratings of how they felt while narrating the story and how they felt afterwards

| Condition | Dissonance = 4 | Dissonance = 3 | Dissonance = 2 | Resonance (in at least 7 sentiments) |
|------------------------|-------------------|-------------------|--------------------|--------------------------------------|
| With feedback video | 4 | 5 | 10 | 4 |
| Without feedback video | 2 | 3 | 7 | 0 |
| Total | 6 (14 sentiments) | 8 (12 sentiments) | 17 (27 sentiments) | 4 |

For 7 speakers (across 16 sentiments), ratings changed by more than 1 point. In 4 of these cases, a feedback image was present. For all speakers, ratings for at least two sentiments did not change. In 5 cases, ratings for at least 9 sentiments did not change; 2 of these cases had a feedback image present.



(a) How interesting was the story you were just told? (Listener)



(b) How interesting was the story you just told? (Speaker)

Figure 4.7: This figure contains plots of the number of participants based on their rating of how the story was told. The two plots are for the two roles, viz. listener and speaker

| Story type | Emotion | Perceived by Listener | Originally | While narrating | Afterwards | Speaker - Listener | While narrating - Originally | Afterwards - Originally | Afterwards - While Narrating |
|------------|------------|-----------------------|------------|-----------------|------------|--------------------|------------------------------|-------------------------|------------------------------|
| Pride | Distressed | 5 | 1 | 1 | 1 | -4 | 0 | 0 | 0 |
| Pride | Excited | 3 | 4 | 4 | 3 | 1 | 0 | -1 | -1 |
| Pride | Upset | 5 | 1 | 1 | 1 | -4 | 0 | 0 | 0 |
| Pride | Guilty | 1 | 1 | 2 | 1 | 1 | 1 | 0 | -1 |
| Pride | Proud | 5 | 5 | 4 | 2 | -1 | -1 | -3 | -2 |
| Pride | Irritable | 3 | 1 | 1 | 1 | -2 | 0 | 0 | 0 |
| Pride | Alert | 3 | 3 | 3 | 4 | 0 | 0 | 1 | 1 |
| Pride | Ashamed | 4 | 1 | 2 | 2 | -2 | 1 | 1 | 0 |
| Pride | Inspired | 4 | 5 | 4 | 1 | 0 | -1 | -4 | -3 |
| Pride | Determined | 4 | 5 | 5 | 2 | 1 | 0 | -3 | -3 |

Figure 4.8: Raw data for ratings from speaker and listener about the speakers' sentiments at various times

Table 4.9: Comparing listeners perception and speaker ratings of how the speakers felt while narrating the story

| Condition | Dissonance = 4 | Dissonance = 3 | Dissonance = 2 | Resonance (in at least 7 sentiments) |
|------------------------|------------------|-------------------|--------------------|--------------------------------------|
| With feedback video | 3 | 5 | 11 | 2 |
| Without feedback video | 1 | 3 | 9 | 2 |
| Total | 4 (5 sentiments) | 8 (13 sentiments) | 20 (37 sentiments) | 4 |

4.6 Social Anxiety and Duration

The correlations between duration of story and social anxiety of individual participants was found to be fairly high. For listeners, the correlation was negative ($p=-0.294$) indicating that listeners with high social anxiety, had shorter conversations. On the other hand, for speakers, the correlation was positive ($p = 0.2438$) indicating that speakers with high social anxiety had longer conversations.

The social anxiety of participants was calculated as the sub-scale of the Self-Consciousness Scale. The values ranged from -1.45 to 9.82. In order to analyze the data in a better way, social anxiety values were classified as low, medium and high based on the mean and the standard deviation of the population. Medium encompassed the mean and two standard deviations on either side, with low and high being the tail ends. Figure 4.9 shows the processed data for the feedback video present condition grouped by the three ranges of

| | Feedback Video | | Feedback Video | | No Feedback Video | | No Feedback Video | |
|--------------|----------------|------------------|----------------|------------------|-------------------|------------------|-------------------|------------------|
| | Listener | | Speaker | | Listener | | Speaker | |
| | <i>Bin</i> | <i>Frequency</i> | <i>Bin</i> | <i>Frequency</i> | <i>Bin</i> | <i>Frequency</i> | <i>Bin</i> | <i>Frequency</i> |
| Time < 250 s | Low | 0 | Low | 1 | Low | 1 | Low | 0 |
| | Medium | 0 | Medium | 0 | Medium | 1 | Medium | 3 |
| | High | 6 | High | 5 | High | 1 | High | 0 |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | Feedback Video | | Feedback Video | | No Feedback Video | | No Feedback Video | |
| | Listener | | Speaker | | Listener | | Speaker | |
| | <i>Bin</i> | <i>Frequency</i> | <i>Bin</i> | <i>Frequency</i> | <i>Bin</i> | <i>Frequency</i> | <i>Bin</i> | <i>Frequency</i> |
| Time < 501 s | Low | 0 | Low | 0 | Low | 3 | Low | 2 |
| | Medium | 0 | Medium | 0 | Medium | 5 | Medium | 6 |
| | High | 3 | High | 3 | High | 0 | High | 0 |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | Feedback Video | | Feedback Video | | No Feedback Video | | No Feedback Video | |
| | Listener | | Speaker | | Listener | | Speaker | |
| | <i>Bin</i> | <i>Frequency</i> | <i>Bin</i> | <i>Frequency</i> | <i>Bin</i> | <i>Frequency</i> | <i>Bin</i> | <i>Frequency</i> |
| Time > 500 s | Low | 1 | Low | 0 | Low | 0 | Low | 0 |
| | Medium | 0 | Medium | 0 | Medium | 0 | Medium | 1 |
| | High | 4 | High | 5 | High | 1 | High | 0 |
| | | | | | | | | |
| | | | | | | | | |

Figure 4.9: Binned social anxiety values for three time durations, and for the feedback video present condition

duration.

Distribution of social anxiety was uneven across conditions, with vastly more participants having high social anxiety.

In order to get a more granular look at the data, the social anxiety values were classified as very low, low, medium, high and very high based on the mean and standard deviation. Low and high were calculated as half a standard deviation from the mean, and very low and very high were calculated as one standard deviation from the mean. Figure 4.10 shows the processed data based on this modified classification for the three ranges of duration, for the feedback video present condition. The distribution shows that most of the sessions without feedback video for the first story fell into the medium time-range (201s - 500s) and that none of them had very high social anxiety.

| | | Feedback Video | | Feedback Video | | No Feedback Video | | No Feedback Video | |
|--------------|--|----------------|------------------|----------------|------------------|-------------------|------------------|-------------------|------------------|
| | | Listener | | Speaker | | Listener | | Speaker | |
| Time < 250 s | | <i>Bin</i> | <i>Frequency</i> | <i>Bin</i> | <i>Frequency</i> | <i>Bin</i> | <i>Frequency</i> | <i>Bin</i> | <i>Frequency</i> |
| | | Very low | 0 | Very low | 1 | Very low | 1 | Very low | 0 |
| | | Low | 0 | Low | 1 | Low | 0 | Low | 1 |
| | | Medium | 4 | Medium | 1 | Medium | 1 | Medium | 0 |
| | | High | 1 | High | 2 | High | 0 | High | 2 |
| | | Very High | 1 | Very High | 1 | Very High | 1 | Very High | 0 |
| Time < 501 s | | <i>Bin</i> | <i>Frequency</i> | <i>Bin</i> | <i>Frequency</i> | <i>Bin</i> | <i>Frequency</i> | <i>Bin</i> | <i>Frequency</i> |
| | | Very low | 1 | Very low | 0 | Very low | 3 | Very low | 2 |
| | | Low | 0 | Low | 1 | Low | 2 | Low | 1 |
| | | Medium | 2 | Medium | 1 | Medium | 1 | Medium | 3 |
| | | High | 0 | High | 0 | High | 2 | High | 2 |
| | | Very High | 0 | Very High | 1 | Very High | 0 | Very High | 0 |
| Time > 500 s | | <i>Bin</i> | <i>Frequency</i> | <i>Bin</i> | <i>Frequency</i> | <i>Bin</i> | <i>Frequency</i> | <i>Bin</i> | <i>Frequency</i> |
| | | Very low | 1 | Very low | 1 | Very low | 0 | Very low | 0 |
| | | Low | 0 | Low | 0 | Low | 0 | Low | 0 |
| | | Medium | 3 | Medium | 0 | Medium | 0 | Medium | 1 |
| | | High | 1 | High | 2 | High | 0 | High | 0 |
| | | Very High | 0 | Very High | 2 | Very High | 1 | Very High | 0 |

Figure 4.10: Binned social anxiety values for three time durations, and for the feedback video present condition, for a more granular classification

4.7 Reactions to the Presence of the Feedback Video

Many participants commented that the setup with the feedback video present was 'weird' or 'awkward', one participant, P26, even going so far as to describe it as lacking realism and making the conversation feel artificial, and another P9 saying that they felt "psyched out". While the idea behind the study was to understand how participants reacted to the presence of the feedback video which enabled them to see themselves in real-time while interacting with another person, it seems that the unique nature of the setup had an alienating effect on the participants and decreased their comfort. This is interesting as most people seem to be okay with the small feedback video, which is present during normal videocalls.

4.8 Focus when feedback video was present

The videos of the screen recordings indicated that there were no overt signs of distraction or self-focus. Although eye-ball tracking was not performed, the high quality of the video and the central positioning of the video camera, ensured that self-focus would be easily detectable.

During the semi-structured interviews, more than half of the participants mentioned their points of focus during the story. No direct question was asked about this.

Table 4.10: Number of participants exhibiting a specific kind of focus

| Focus | Number of participants |
|-----------------|------------------------|
| Partner (Story) | 10 |
| Self | 2 |
| Both | 17 |
| Camera | 2 |

4.9 Focus and Social Desirability

It was found that 5 out of the 9 participants with high social desirability (>19) who had a feedback image present during the first story, reported choosing to focus on their partners. Conversely, 2 out of the 3 participants with low social desirability (<9) who had a feedback

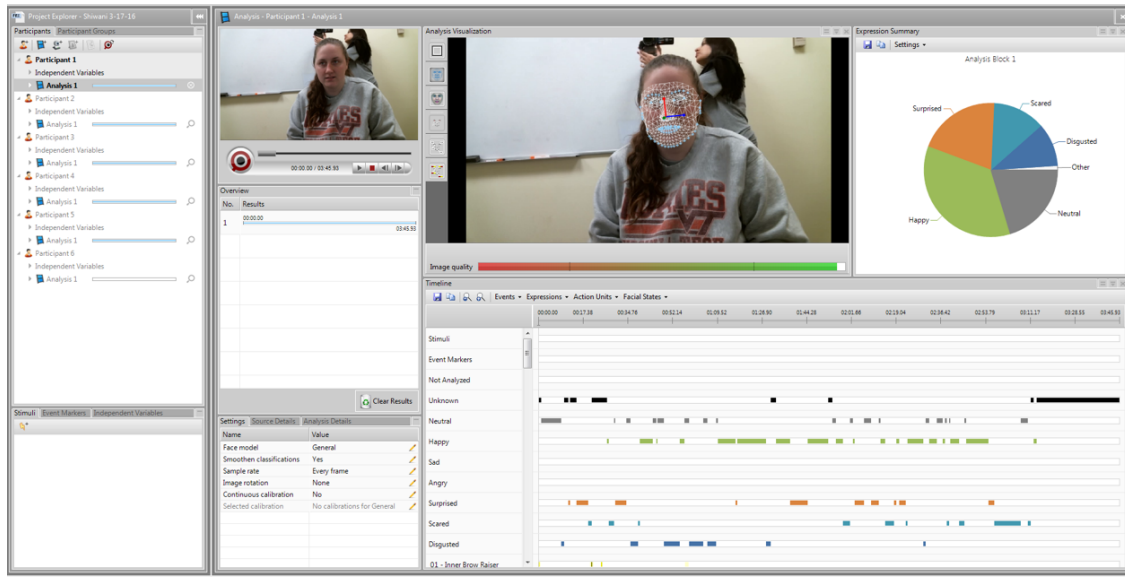


Figure 4.11: Output from Nodulus FaceReader for one of the speakers

image present during the first story, were focused on themselves, while the third participants perceived the setup to be artificial.

4.10 Analysis with Nodulus FaceReader

Nodulus FaceReader was tested on 4 videos, including listener and speaker video recordings. The system is based on Ekman's work in micro-expressions [10]. It was hoped that the resultant analysis would provide information about the emotional state of the participants at every stage of the session through its frame by frame analysis. However, the system detected surprise most of the time, and did not detect other emotions which were clearly visible. Figure 4.11 shows the output for one of the speaker's videos. As a result, it was decided to not use the data from these four videos and to not continue with the software.

4.11 Other Results

Various other charts were created to understand the behaviour for parameters across conditions and story types. The parameters included attentiveness, responsiveness, comfort, and so on. Additionally, correlations were calculated for duration and all other factors. Some of the more promising correlations can be found in the Appendix E. However, when these were plotted using frequency charts, no concrete patterns were found.

Chapter 5

Discussion

5.1 RQ1: Are there deeper psychological effects caused by the presence of a large feedback video, specifically with respect to self-esteem?

36 participants experienced a change in self-esteem, but no conclusive evidence was found that the presence of feedback video was a factor influencing this change. The analysis involved grouping the participants based on conditions, levels of social desirability, and presence and absence of the feedback image. Social desirability was explored in more depth and a correlation of 0.0145 was found, which indicated that there was no strong correlation.

Figure 5.1 shows a plot of the number of participants experiencing decreases, increases or no change in self-esteem, grouped by the feedback video condition. While the condition with feedback video had most people experiencing a change, for the condition without feedback video, there were more participants experiencing an increase than there were participants experiencing no change or a decrease.

Other factors that were explored separately were:

1. Initial levels of Self-Esteem: Correlation= -0.2145)
2. Story Type (Pride vs Shame): Correlation= 0.1667)
3. Role (Listener vs Speaker): Correlation = 0
4. Social Desirability: Correlation = 0.0145
5. Self-rated efficacy: Correlation= 0.0760

None of these factors, individually, can quite explain the reasons for the changes in self-esteem, due to their low correlation values. The correlation between the initial levels of self-esteem and the changes in self-esteem seemed promising (-0.2145) and indicated that participants with low initial levels of self-esteem were more likely to experience an increase

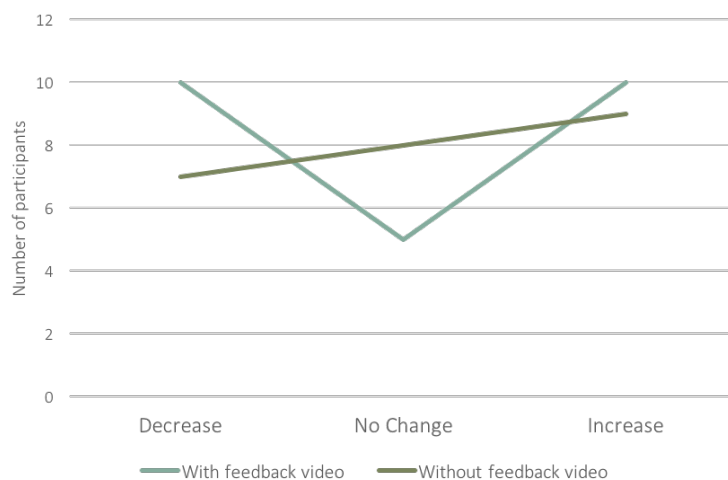


Figure 5.1: Number of participants by direction of change of self-esteem

in self-esteem, and vice versa, that participants with high initial levels of self-esteem were more likely to experience a decrease in self-esteem. However, the skewed distribution of participants- only 1 participant had high initial self-esteem and was in the condition with feedback video present- suggests that this correlation may not be as indicative.

5.2 RQ2: Does the presence of a large feedback image impede or aid various facets of mediated video communication?

5.2.1 Duration of stories

I expected that the durations of the stories would be affected by factors such as the nature of the story and the presence or absence of the feedback video. Average durations for shame stories were longer than pride stories in both feedback video conditions. This could be explained by the notion that participants might have taken more time to situate and contextualize their shame stories. A different theory would be that participants were keen to wrap up their pride stories and attempted to keep the session short. The analysis is between subjects, that is, only the first story for each participants' pair was considered, which precludes the comparison of a story of each nature for a pair of participants. This coupled with the small population, and the large standard deviation in the average duration (118.9s to 216.0s), makes it challenging to ascertain any statistical significance.

A secondary finding was that the second story was always longer than the first story, irre-

spective of condition. This finding was different from the finding in Dr Tatars dissertation, which stated that shame stories were shorter for inattentive listeners than for attentive listeners [29]. In this study, although the perceived attentiveness and responsiveness of listeners varied, the durations showed no link to these factors. It is possible that the comfort of having already talked about one story and no longer being complete strangers might have added to the participants comfort and caused them to talk longer during the second story. Additionally, the listeners might have become more adept at responding or reading facial cues from the speaker. On the other hand, participants might have been keen to wrap up the session, and could have kept the second story short. I believe that the fact that the second story was always longer could be indicative of a certain investment in the study, or an engagement with the partner.

The distribution of durations for the first stories was random, for both story type and presence/absence of feedback videos. This finding persisted even after outliers were removed. However, two of the three longest first stories (> 1000 seconds) were shame stories with feedback video and had all female participant pairs. The third one amongst these was for the same condition, but for an all male participant pair. Interestingly, there was a total of three all female pairings, and the third one had a pride story without a feedback video as the first story. It seems plausible that having the first story as a shame story resulted in feelings of empathy or association, causing the participants to have a longer conversation. On the other hand, for the third all female pair, starting with a pride story might have had an alienating effect causing the conversation to have a medium length. The third long story, between two male participants, is likely an outlier, as there were two other cases which had all male participants and the same condition for their first story, and which did not last as long. This would be somewhat in-line with the findings from Wheeler, which surmised that women had a more favorable attitude towards technology because they perceived it as a means for social interaction, and also had greater verbal ability [31].

5.2.2 Efficacy of story-telling and listening

The efficacy felt by each participant about the execution of their role, whether it was telling of the story or listening, was interpreted through their answers to the questions of how they felt they had handled themselves, how the story had been told, and how interesting the story was.

Speakers' perception of self-presentation seemed to be independent of feedback video. The ratings of how they felt they had handled themselves did not vary based on the feedback video condition. Interestingly, speakers mentioned that they had gauged how they had handled themselves based on three main factors, viz. the fluency of delivery, the conciseness of the story, and the choice of story. None of these factors would have been highlighted more by the presence of the feedback video. If speakers had mentioned their composure as a factor, it would have been more probable for the feedback video to have played a role in either

improving their self-presentation or derailing them by making them more self-conscious.

Across conditions, more listeners perceived the story as being better told and more interesting than listeners who didn't; while more speakers perceived the converse, i.e. fewer speakers perceived the story as better told and more interesting than speakers who didn't. It is possible that listeners chose to provide more positive ratings for their speakers, either due to considerations for social desirability or due to the acknowledgement of the speaker having shared a personal story with them, which they themselves might not have felt comfortable doing if they had been the speaker. The fact that the shame story with feedback video had the highest discrepancy seems to align with this hypothesis. It is also possible that the speakers were more critical of themselves or self-conscious due to the nature of the study which involved telling personal stories to a complete stranger. There is no concrete evidence to support this, although a few speakers did mention that they told the first story which came to their mind and did not necessarily evaluate whether it would be an interesting story.

5.2.3 Sentiment resonance/dissonance

The resonance/dissonance between ratings of sentiments between the speaker and listener, and between the speaker's rating of how they had felt during the narration and after the narration, did not significantly change when feedback video was present. This could be linked to the observation that the speakers' perception of self-presentation was influenced by the absence or presence of the feedback video. If the feedback video did not cause the speaker to notice and change their self-presentation in terms of non-verbal cues, there would be no basis for reduced dissonance between the listener and the speaker. Similarly, the feedback video did not appear to amplify or reduce the emotions the speaker felt during narration of the story. I had expected that the nature of the stories could potentially cause an amplification in emotions if the feedback video was present as the speaker might additionally visually experience the emotions shown on their face. However, the data indicates that the feedback video did not play such a role.

5.2.4 Focus

When feedback video is present, high social desirability seems likely to cause focus on partner; while low social desirability seems likely to cause self-focus. This finding seems fairly intuitive. People with high social desirability are deemed to feel a stronger need for approval from others, which would likely manifest itself in a social setting by them focusing more on other people and continuously evaluating their approval. On the other hand, people with low social desirability are less likely to care for the approval of others, which would explain why they might choose not to focus on the other person's feed. While this explains some of the behaviour, it does not quite address why participants with low social desirability focused on themselves. Since the setup was in a controlled laboratory environment and they were

requested to not use their cellphones, it is possible that they simply chose to focus on the other screen which had their feedback video. On the other hand, it is also possible that there is a correlation between tendencies to self-focus and low social desirability.

5.2.5 Social Anxiety

For social anxiety, I saw some promising correlations to the duration, for both speakers and listeners. For listeners, the correlation was negative indicating that the durations of conversation were shorter when the listeners had higher social anxiety; while for speakers, the correlation was positive indicating that the durations of conversation were longer when the speaker had higher social anxiety. This can be explained by considering that conversations where the listener had high social anxiety probably involved some cues from the listener to shorten the conversation, such as not asking for more context or clarification, or displaying lack of engagement or nervousness. These might have been intentional or unintentional. Similarly, it can be considered that speakers with higher social anxiety might have lacked conciseness in their stories, leading to longer conversations. However the skewed distribution across the population towards high social anxiety makes it difficult to generalize this finding. Additionally, when the actual social anxiety values were analyzed against the durations, the resulting plot indicated that there may be a correlation between medium time durations and lack of high social anxiety for the no feedback video condition, but there were no overarching patterns which stood out.

5.3 Reactions to the presence of the large feedback video

In the questionnaire as well as the interview, participants were explicitly asked to provide feedback about how they had felt about the presence of the large feedback image. Most of the reactions focused on the artifice of the setup, the utility of the feedback and the impact on their own comfort. The following sections contain some quotes from participants around these three themes. The key highlight was that the perception of the feedback video was highly individualized and context-dependent.

5.3.1 Artifice of the setup

Several participants acknowledged the unique nature of the setup; some of whom noted that it seemed artificial or not real.

[...] There were two of me, so that was problematic [...]

[...] It didn't bother me but it took away from some of the realism. [...]

This is particularly interesting because participants did not seem to have a similar notion about the smaller insert feedback video. This indicates that the smaller size and the positioning as an inset might seem more natural to participants, although it is unclear whether this is an acquired notion.

5.3.2 Utility of the feedback

Participants had different reactions as to how useful the presence of the feedback video was. A few found it to be helpful, while some thought that it would have been more beneficial in a professional setting such as an interview. Others felt it was distracting and took away from the conversation.

[...] It helped to see my expression on my face to see what the other person could see but it did not really matter [...]

[...] It was slightly odd since I'm not used to seeing myself speaking, but it did help me become aware of my appearance while speaking [...]

[...] Will talk more like a "gentleman" if I have feedback, good for me to have the screen, good experience [...]

[...] But it did help a little bit because when I hear people outside of this going to interviews, going to make sure you sit upright, you wanna make sure you are not leaning back to much and that you aren't leaning forward too much.. keep conscious about all that stuff.. but when they tell me that I am supposed to do all this, how am I supposed to make sure I am not presenting myself in a negative way if I can't see myself [...]

[...] It was distracting. I felt conscious of how I was reacting to her story [...]

5.3.3 Impact on comfort

Many participants mentioned varying degrees of discomfort, ranging from feeling uncomfortable to being unnerved. One participant mentioned that it was actually more comforting, because it allowed her to know what the other person was seeing, while another participant

thought it was cool and seemed quite at ease. Some quotes from interviews and questionnaires are below:

[...] honestly, it was a little unnerving. Seeing myself in my peripheral was a weird reminder of how I react to things which I usually don't notice [...]

[...] I found it to be uncomfortable. It made it harder to focus on the conversation because I wanted to look over at myself [...]

[...] Not comfortable! I usually turn off my own camera when in video calls [...]

[...] The lack of the big screen with my face on it helps me concentrate on the story more [...]

[...] Made me less confident (I don't like the way I look), I would rather not watch myself talk [...]

[...] I thought that was cool. I know the few times that I use Skype I like seeing how I look to the other person [...]

[...] More comforting to know exactly what he was seeing [...]

Chapter 6

Conclusions

6.1 Overview

In this thesis, I explored the effects of the presence of a feedback video from a new perspective, which focused on deeper psychological aspects such as social desirability and self-esteem. Although similar efforts had been employed in psychology for gauging the effects of presence of mirrors and audiences, nothing of this kind had been done for feedback videos, in the domains of communication or human-computer interaction or otherwise. For studying these effects, I created a unique setup which featured an enlarged feedback video in addition to the video feed of the co-participant. This was meant to exaggerate the size of the otherwise small feedback video in order to draw attention to it. Based on interviews with participants, this succeeded to a moderate amount- some found it easy to ignore the feedback video because it was on a different screen, whereas others perceived the setup as the presence of three entities.

There were several limitations which can be attributed to the exploratory nature of the study and the unique setup that was constructed for it. In the next sections, I describe both the limitations and avenues for future work to help build on this study, and arrive at a more thorough understanding of the deeper effects of real-time feedback, especially during video conferencing sessions.

6.2 Limitations

Number of sessions

I conducted 26 sessions, with a total of 52 participants, which led to about 6-7 sessions per study condition. There were a lot of variables involved including ethnicity, age, gender, social desirability, self-esteem, and role among others. A larger population of participants,

facilitating more sessions would have increased the data set sufficiently to account for and analyze beyond these variables.

Participants

The demographics of the participants was not very diverse. They were all Virginia Tech students, and primarily undergraduate students majoring in Computer Science. Although the age range was from 19 - 41 years, 88.6% were female and 11.4% were male. Additionally, although 38.46%

Nature of stories

The type of stories chosen for this study were pride and shame stories. This model has been used in psychology studies for a long time, and was successfully employed in Tatar's work [29]. I chose these stories because they tend to be sensitive by nature, and seemed likely to elicit concerns about social desirability and self-presentation. However, having conducted 26 sessions, I would contend whether the stories had the anticipated effect across participants. Some participants expressed concerns or discomfort about a specific type of story, for example P10 said "[...] you can be proud of smaller things whereas ashamed is more of a personal experience [...]" and P33 said "[...] both of them are personal.. but for me, bad things are more personal[...]" while P28 said "[...] It was slightly awkward telling a story about something that I was proud of, like it felt a little like boasting at times [...]". On the other hand, the order of stories also seemed to have been significant for some people. For example, P49, who told a pride story and then a shame story, said "[...] Yeah, I think it made me more comfortable. If that was the first story, you had asked, if you had told me to say when I was ashamed first, I would have been like.. uhhhhh.. I just would have been like oh god, what am I doing right now. [...]. It is possible that a larger sample set would have reduced the variable impact, but a different approach could be to change the nature of stories. The choice would likely have to depend on the intended target demographic, factoring in age, gender and perhaps cultural differences. For example, teens might be more susceptible to stories about vanity or disappointment, and adults might respond in a specific way to narrating a story about dishonesty or irresponsibility.

Positioning of cameras

For the sessions, the cameras were positioned between the two screens, in such a way that the participant could look at either of the two screens without causing too much eyeball movement and without giving too strong an impression of lack of eye contact. While one participant mentioned that they were very happy with the setup as compared to the usual camera-on-top setup which most laptops have, many participants seemed distracted by the eye-contact misalignment, which made them look as if they were looking away even when they

were actually looking straight at their co-participant. I experimented with various setups, I picked this particular setup within the constraints of the available technology. If and when video-calling technology is able to provide better eye contact, the distraction caused by their desire to maintain eye contact would be eliminated and allow participants to focus on the actual study.

6.3 Future Work

6.3.1 Extensions to this study

A large amount of data was collected and analyzed as part of this study. However, during the course of the data analysis phase, it became clear that more studies would be required to fill missing pieces of the puzzle. Some of the proposed extensions are:

Control group of participants who are familiar/unfamiliar with VC

Separating groups of participants with different levels of technological naivete/maturity, especially with respect to using video conferencing systems might provide more insights into how big a role this plays in participants' reactions to the feedback video.

Larger, Diverse Population

Repeating this study with a larger population could reduce the challenges of having a large number of variables. Additionally, a more diverse population would enable more pairings across genders, ethnicities and age-ranges.

Study with interdependent pairs as opposed to strangers

The stakes for sharing sensitive information with non-strangers such as friends, significant others, parents and spouses are likely to be different than with strangers. While for some pairs, the additional comfort may reduce their concerns about self-presentation, for others, such as new couples, emphasis on social desirability and self-presentation might be significantly stronger.

Study where participants are told that the feedback video is to help them present themselves better

During the study conducted as part of this thesis, no attempt was made to draw attention to the feedback video. While adjusting the setup, the researcher asked participants whether they were comfortable and whether they were satisfied with the positioning of the cameras, but the researcher made no special mention of the feedback video or indicate that it was especially significant. In fact, one participant did not notice the feedback video at all. Specifically drawing attention to the feedback video and indicating that it was intended to have a beneficial effect could cause participants to react very differently to the feedback video and hence be subject to different psychological effects.

6.3.2 Studies to situate the study better

Study of participants talking with a mirror behind each one of them, strategically placed

This kind of study would combine mirror and audience presence, more explicitly, in a simpler setting where both participants could be sitting across from each other. Since in-person conversation, in everyday life, does not include opportunity for real-time feedback, even in a toned down version like videoconferencing systems do, the effects on participants may be different than with the technological mature participants for the study conducted in this thesis.

Study of participants with only their own feedback video

Taking the setup another step forward, and removing the feed of the co-participant during a video-conferencing call could be another study. As opposed to the previous study which proposes a similar setup, but in a simpler setting, this one would take things one step further and create a completely different experience. Since there would be only one screen available, and no other visual avenue for distraction, participants would likely be forced to either look at themselves or look away. At the same time, the nature of conversation would have to be modified to allow for more of a dialogue, in order to draw attention to the telepresence of the other person.

Bibliography

- [1] Gordon Willard Allport. *Personality*. Holt New York, 1937.
- [2] Victoria Bellotti and Abigail Sellen. Design for privacy in ubiquitous computing environments. In *Proceedings of the Third European Conference on Computer-Supported Cooperative Work 13–17 September 1993, Milan, Italy ECSCW93*, pages 77–92. Springer, 1993.
- [3] Michael John Boyle. *Privacy in video media spaces*. University of Calgary, 2005.
- [4] Charles S Carver and Michael F Scheier. Self-focusing effects of dispositional self-consciousness, mirror presence, and audience presence. *Journal of Personality and Social Psychology*, 36(3):324, 1978.
- [5] Jerry L Cohen and James H Davis. Effects of audience status, evaluation, and time of action on performance with hidden-word problems. *Journal of Personality and Social Psychology*, 27(1):74, 1973.
- [6] Charles Horton Cooley. *Human nature and the social order*. Transaction Publishers, 1992.
- [7] Douglas P Crowne and David Marlowe. A new scale of social desirability independent of psychopathology. *Journal of consulting psychology*, 24(4):349, 1960.
- [8] Jose Eurico de Vasconcelos Filho, Kori M Inkpen, and Mary Czerwinski. Image, appearance and vanity in the use of media spaces and video conference systems. In *Proceedings of the ACM 2009 international conference on Supporting group work*, pages 253–262. ACM, 2009.
- [9] Paul Ekman and Wallace V Friesen. Constants across cultures in the face and emotion. *Journal of personality and social psychology*, 17(2):124, 1971.
- [10] Paul Ekman and Wallace V Friesen. Facial action coding system. 1977.
- [11] Douglas C Engelbart. The mother of all demos. 1968.

- [12] Seymour Epstein. The self-concept revisited: Or a theory of a theory. *American psychologist*, 28(5):404, 1973.
- [13] Allan Fenigstein, Michael F Scheier, and Arnold H Buss. Public and private self-consciousness: Assessment and theory. *Journal of consulting and clinical psychology*, 43(4):522, 1975.
- [14] Robert S Fish, Robert E Kraut, Robert W Root, and Ronald E Rice. Evaluating video as a technology for informal communication. In *Proceedings of the SIGCHI conference on Human factors in computing systems*, pages 37–48. ACM, 1992.
- [15] Batya Friedman, Peter H Kahn Jr, Jennifer Hagman, Rachel L Severson, and Brian Gill. The watcher and the watched: Social judgments about privacy in a public place. *Human-Computer Interaction*, 21(2):235–272, 2006.
- [16] Erving Goffman et al. *The presentation of self in everyday life*. Harmondsworth, 1978.
- [17] Ernest A Haggard and Kenneth S Isaacs. Micromomentary facial expressions as indicators of ego mechanisms in psychotherapy. In *Methods of research in psychotherapy*, pages 154–165. Springer, 1966.
- [18] E Tory Higgins. Self-discrepancy: a theory relating self and affect. *Psychological review*, 94(3):319, 1987.
- [19] Carl-Herman Hjortsjö. *Man's face and mimic language*. Studen litteratur, 1969.
- [20] Mark R Leary and Roy F Baumeister. The nature and function of self-esteem: Sociometer theory. 2000.
- [21] Rainer Martens. Palmar sweating and the presence of an audience. *Journal of Experimental Social Psychology*, 5(3):371–374, 1969.
- [22] et al. Maurin, Hanna. Exploring gender differences in perceptions of 3d telepresence collaboration technology: An example from emergency medical care. In *Proceedings of the 4th Nordic conference on Human-computer interaction*. ACM, 2006.
- [23] David T Nguyen and John Canny. More than face-to-face: empathy effects of video framing. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*, pages 423–432. ACM, 2009.
- [24] Paul B Paulus, Angela B Annis, and Hal T Risner. An analysis of the mirror-induced objective self-awareness effect. *Bulletin of the Psychonomic Society*, 12(1):8–10, 1978.
- [25] Morris Rosenberg. Rosenberg self-esteem scale (rse). *Acceptance and commitment therapy. Measures package*, 61, 1965.
- [26] Morris Rosenberg. *Conceiving the self*. RE Krieger, 1986.

- [27] Maryalice Citera Stuhlmacher, Alice F. and Toni Willis. Gender differences in virtual negotiation: Theory and research. *Sex Roles*, pages 329–339, 2007.
- [28] Leila Takayama and Helen Harris. Presentation of (telepresent) self: on the double-edged effects of mirrors. In *Proceedings of the 8th ACM/IEEE international conference on Human-robot interaction*, pages 381–388. IEEE Press, 2013.
- [29] Deborah Gail Tatar. *Social and personal effects of a preoccupied listener*. Stanford University, 1997.
- [30] Hon Leng Teoh. *Body Language Availability In Videoconferencing*. PhD thesis, University of Otago, 2012.
- [31] Steve Wheeler. User reactions to videoconferencing: Which students cope best? In *Educational Media International*, pages 31–38, 2000.

Appendix A

Forms

A.1 Consent Forms

This section contains various forms which participants were asked to fill out including the consent forms, demographics surveys and various psychological scales.

Consent Form

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

Informed Consent for Participants in Research Projects Involving Human Subjects

Title of Project: Video conferencing: a user study

Investigator(s): Shiwani Dewal (shiwaniid@vt.edu, +1 540 750 9357), Steve Harrison (srh@vt.edu), Dr Deborah Tatar (dtatar@vt.edu) and other investigators approved by the Virginia Tech Institutional Review Board

I. Purpose of this Research Project

We are studying how interacting through a video-call can affect individuals older than 18 years. The results of the study will be part of a dissertation and may be published.

II. Procedures

Should you choose to participate, the study will take place as a single session in the McBryde Usability Lab (133 EFH) and the anticipated time commitment is about 90 minutes. At any point, you can ask the researcher for a break, or if you feel uncomfortable continuing, we can terminate the session completely.

During the study you will interact through a video-call with one other participant, based on sign-up for the same slots and confirmation that you and the other participant do not know each other. Your interaction with the other participant will involve two stories, one emotionally positively charged and one emotionally negatively charged. The roles (speaker vs listener) will be decided using a randomization technique (coin toss) at the very beginning of the study. Between these parts, you will be asked to fill out some standardized questionnaires.

As the study involves a video-call, both audio and video need to be recorded. All recordings will be treated as confidential. They will be transcribed and reviewed only by researchers approved by the Virginia Tech Institutional Review Board, and all data will be erased once the dissertation has been published and all relevant work on the topic completed.

III. Risks

The risk is minimal. Recollecting the stories or listening to someone's stories may make you emotional or uncomfortable, although this effect should be temporary. If you assume the role of the speaker, we strongly encourage you to identify a story which you deem appropriate. In either role, you may request that the session be terminated for any reason at any time.

Any expenses accrued for seeking or receiving medical or mental health treatment will be the responsibility of the subject and not that of the research project, research team, or Virginia Tech.

IV. Benefits

No promise or guarantee of benefits has been made to encourage you to participate.

V. Extent of Anonymity and Confidentiality

The results of this study, as well as recordings will be kept strictly confidential. You will be assigned an identifier based on chronological order of participation, and your data will be stored separately on a password protected computer, and associated only with your identifier. Identifiable information will be stored separately.

The details of the conversation between you and your co-participant will be known to both of you, as well as the researchers handling the data. At no time will the researchers release identifiable results of the study to anyone other than individuals working on the project without your written consent. If you permit it in the separate form, stills from the video recordings may be used while publishing for the purpose of illustration.

The Virginia Tech (VT) Institutional Review Board (IRB) may view the study's data for auditing purposes. The IRB is responsible for the oversight of the protection of human subjects involved in research.

Note: in some situations, it may be necessary for an investigator to break confidentiality. If a researcher has reason to suspect that a child is abused or neglected, or that a person poses a threat of harm to others or him/herself, the researcher is required by Virginia State law to notify the appropriate authorities. If applicable to this study, the conditions under which the investigator must break confidentiality must be described.

VI. Compensation

No compensation is being offered to you for your participation in this study.

VII. Freedom to Withdraw

It is important for you to know that you are free to withdraw from this study at any time without penalty. You are free not to answer any questions that you choose or respond to what is being asked of you without penalty. Please note that there may be circumstances under which the investigator may determine that a subject should not continue as a subject. Should you withdraw or otherwise discontinue participation, you will be compensated for the portion of the project completed in accordance with the Compensation section of this document.

VIII. Mandatory reporting

Certain participant responses obtained during the course of this research may require Virginia Tech and its researchers to break promised confidentiality with research subjects to apply federal mandatory reporting rules under Title IX and the Clery Act. Under both Title IX and the Clery Act, the researchers conducting this study are designated mandatory reporters of sexual misconduct. Any report of sexual harassment, sexual violence, stalking, or intimate partner violence involving a student is required to be shared with the Virginia Tech Title IX Coordinator. After review of that report, the Virginia Tech Title IX Coordinator will initiate an investigation of the incident(s).

IX. Questions or Concerns

Should you have any questions about this study, you may contact one of the research investigators whose contact information is included at the beginning of this document.

Should you have any questions or concerns about the study's conduct or your rights as a research subject, or need to report a research-related injury or event, you may contact the VT IRB Chair, Dr. David M. Moore at moored@vt.edu or (540) 231-4991.

IX. Subject's Consent

I have read the Consent Form and conditions of this project. I have had all my questions answered. I hereby acknowledge the above and give my voluntary consent:

_____ Date _____

Subject signature

Subject printed name

(Note: each subject must be provided a copy of this form. In addition, the IRB office may stamp its approval on the consent document(s) you submit and return the stamped version to you for use in consenting subjects; therefore, ensure each consent document you submit is ready to be read and signed by subjects.)

Consent Form: Release of Stills

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

Informed Consent for Participants
in Research Projects Involving Human Subjects

Title of Project: Video conferencing: a user study

Investigator(s): Shiwani Dewal (shiwaniid@vt.edu), Steve Harrison (srh@vt.edu) and other investigators approved by the Virginia Tech Institutional Review Board

Yes, you may use stills from the video recordings for the purposes of illustration in your publication. I understand that although my face will be visible, no other identifying information will be published along with the still. I hereby acknowledge the above and give my voluntary consent:

_____ Date _____

Subject signature

Subject printed name

Confirmation of 'Strangerness'

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

Informed Consent for Participants in Research Projects Involving Human Subjects

Title of Project: Video conferencing: a user study

Investigator(s): Shiwani Dewal (shiwaniid@vt.edu), Steve Harrison (srh@vt.edu) and other investigators approved by the Virginia Tech Institutional Review Board

I understand that the study requires interaction between strangers, and I hereby acknowledge that I do not know the other participant, nor have I had any previous interaction with him/her.

Name of fellow participant

_____ Date _____

Subject signature

Subject printed name

A.2 Demographics and Psychological Scales

Demographic Survey

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

Questionnaire for Participants

Participant ID: ____

Please fill out the demographic questions below:

Age: ____

Gender: ____

Highest degree obtained:

- High school diploma
- Bachelor's degree
- Master's degree
- Ph.D.
- Other: _____

Ethnicity: _____

Years at Virginia Tech (if applicable): _____

Do you regularly use video-conferencing/video-call tools (e.g. Skype/Hangout)? Yes | No

If yes, what is the purpose of the video-calls?

- Personal
- Professional

Marlowe Crowne Scale Social Desirability

Listed below are a number of statements concerning personal attitudes and traits. Read each item and decide whether the statement is true or false as it pertains to you personally.

1. Before voting I thoroughly investigate the qualifications of all the candidates.
2. I never hesitate to go out of my way to help someone in trouble.
3. It is sometimes hard for me to go on with my work if I am not encouraged.
4. I have never intensely disliked anyone.
5. On occasion I have had doubts about my ability to succeed in life.
6. I sometimes feel resentful when I don't get my way.
7. I am always careful about my manner of dress.
8. My table manners at home are as good as when I eat out in a restaurant.
9. If I could get into a movie without paying and be sure I was not seen I would probably do it.
10. On a few occasions, I have given up doing something because I thought too little of my ability.
11. I like to gossip at times.
12. There have been times when I felt like rebelling against people in authority even though I knew they were right.
13. No matter who I'm talking to, I'm always a good listener.
14. I can remember "playing sick" to get out of something.
15. There have been occasions when I took advantage of someone.
16. I'm always willing to admit it when I make a mistake.

17. I always try to practice what I preach.
18. I don't find it particularly difficult to get along with loud mouthed, obnoxious people.
19. I sometimes try to get even rather than forgive and forget.
20. When I don't know something I don't at all mind admitting it.
21. I am always courteous, even to people who are disagreeable.
22. At times I have really insisted on having things my own way.
23. There have been occasions when I felt like smashing things.
24. I would never think of letting someone else be punished for my wrongdoings.
25. I never resent being asked to return a favor.
26. I have never been irked when people expressed ideas very different from my own.
27. I never make a long trip without checking the safety of my car.
28. There have been times when I was quite jealous of the good fortune of others.
29. I have almost never felt the urge to tell someone off.
30. I am sometimes irritated by people who ask favors of me.
31. I have never felt that I was punished without cause.
32. I sometimes think when people have a misfortune they only got what they deserved.
33. I have never deliberately said something that hurt someone's feelings.

Self Consciousness Scale: I

Rate the following on a scale of 0 (extremely uncharacteristic) to 4 (extremely characteristic):

1. I'm always trying to figure myself out.
2. Generally, I'm not very aware of myself.
3. I reflect about myself a lot.
4. I'm often the subject of my own fantasies.
5. I never scrutinize myself.
6. I'm generally attentive to my inner feelings.
7. I'm constantly examining my motives.
8. I sometimes have the feeling that I'm off somewhere watching myself.
9. I'm alert to changes in my mood.
10. I'm aware of the way my mind works when I work through a problem.
11. I'm concerned about my style of doing things.
12. I'm concerned about the way I present myself.
13. I'm self-conscious about the way I look.
14. I usually worry about making a good impression.
15. The last things I do before I leave my house is look in the mirror.
16. I'm concerned about what other people think of me.
17. I'm usually aware of my appearance.
18. It takes me time to overcome my shyness in new situations.
19. I have trouble working when someone is watching me.
20. I get embarrassed very easily.
21. I don't find it hard to talk to strangers.
22. I feel anxious when I speak in front of a group.
23. Large groups make me nervous.

Self Consciousness Scale: II

Rate the following on a scale of 0 (extremely uncharacteristic) to 4 (extremely characteristic):

1. I have trouble working when someone is watching me.
2. I'm aware of the way my mind works when I work through a problem.
3. Generally, I'm not very aware of myself.
4. I feel anxious when I speak in front of a group.
5. I never scrutinize myself.
6. I'm generally attentive to my inner feelings.
7. I sometimes have the feeling that I'm off somewhere watching myself.
8. The last thing I do before I leave my house is look in the mirror.
9. I'm often the subject of my own fantasies.
10. I'm concerned about the way I present myself.
11. I get embarrassed very easily.
12. I'm self-conscious about the way I look.
13. I'm alert to changes in my mood.
14. Large groups make me nervous.
15. I'm concerned about what other people think of me.
16. I'm usually aware of my appearance.
17. It takes me time to overcome my shyness in new situations.
18. I'm always trying to figure myself out.
19. I'm constantly examining my motives.
20. I don't find it hard to talk to strangers.
21. I usually worry about making a good impression.
22. I reflect about myself a lot.
23. I'm concerned about my style of doing things.

Rosenberg Self-Esteem Scale: I

Please record the appropriate answer for each item, depending on whether you Strongly agree, agree, disagree, or strongly disagree with it.

- 1 = Strongly agree
- 2 = Agree
- 3 = Disagree
- 4 = Strongly disagree

- _____ 1. On the whole, I am satisfied with myself.
- _____ 2. At times I think I am no good at all.
- _____ 3. I feel that I have a number of good qualities.
- _____ 4. I am able to do things as well as most other people.
- _____ 5. I feel I do not have much to be proud of.
- _____ 6. I certainly feel useless at times.
- _____ 7. I feel that I'm a person of worth.
- _____ 8. I wish I could have more respect for myself.
- _____ 9. All in all, I am inclined to think that I am a failure.
- _____ 10. I take a positive attitude toward myself.

Rosenberg Self-Esteem Scale: II

Please record the appropriate answer for each item, depending on whether you Strongly agree, agree, disagree, or strongly disagree with it.

- 1 = Strongly agree
- 2 = Agree
- 3 = Disagree
- 4 = Strongly disagree

- _____ 1. I wish I could have more respect for myself.
- _____ 2. At times I think I am no good at all.
- _____ 3. I certainly feel useless at times.
- _____ 4. All in all, I am inclined to think that I am a failure.
- _____ 5. I feel I do not have much to be proud of.
- _____ 6. I feel that I'm a person of worth.
- _____ 7. I feel that I have a number of good qualities.
- _____ 8. I take a positive attitude toward myself.
- _____ 9. On the whole, I am satisfied with myself.
- _____ 10. I am able to do things as well as most other people.

Rosenberg Self-Esteem Scale: III

Please record the appropriate answer for each item, depending on whether you Strongly agree, agree, disagree, or strongly disagree with it.

- 1 = Strongly agree
- 2 = Agree
- 3 = Disagree
- 4 = Strongly disagree

- _____ 1. At times I think I am no good at all
- _____ 2. All in all, I am inclined to think that I am a failure.
- _____ 3. I feel I do not have much to be proud of.
- _____ 4. On the whole, I am satisfied with myself.
- _____ 5. I feel that I'm a person of worth.
- _____ 6. I feel that I have a number of good qualities.
- _____ 7. I take a positive attitude toward myself.
- _____ 8. I wish I could have more respect for myself.
- _____ 9. I am able to do things as well as most other people.
- _____ 10. I certainly feel useless at times.

A.3 Questionnaires

Pre-story sentiment rating

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

Questionnaire for Participants

Participant ID: ____

How did you feel about the story when it originally occurred?

| | | | | | | |
|------------|---|---|---|---|---|------------|
| Distressed | 1 | 2 | 3 | 4 | 5 | Distressed |
| Excited | 1 | 2 | 3 | 4 | 5 | Excited |
| Upset | 1 | 2 | 3 | 4 | 5 | Upset |
| Guilty | 1 | 2 | 3 | 4 | 5 | Guilty |
| Proud | 1 | 2 | 3 | 4 | 5 | Proud |
| Irritable | 1 | 2 | 3 | 4 | 5 | Irritable |
| Alert | 1 | 2 | 3 | 4 | 5 | Alert |
| Ashamed | 1 | 2 | 3 | 4 | 5 | Ashamed |
| Inspired | 1 | 2 | 3 | 4 | 5 | Inspired |
| Determined | 1 | 2 | 3 | 4 | 5 | Determined |

Post-task questionnaire for speaker for the condition with feedback video

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

Questionnaire for Participants

Participant ID: ____

In the course of performing your task, you may have noticed some characteristics and behaviors in your partner and yourself. Please answer the following as well as you can:

How did you feel about the overall experience?

How attentive were you towards your partner?

Not attentive at all 1 2 3 4 5 6 7 Very attentive

How attentive was your partner towards you?

Not attentive at all 1 2 3 4 5 6 7 Very attentive

How responsive were you towards your partner?

Not responsive at all 1 2 3 4 5 6 7 Very responsive

How responsive was your partner towards you?

Not responsive at all 1 2 3 4 5 6 7 Very responsive

How well do you think you handled yourself?

Not well at all 1 2 3 4 5 6 7 Very well

How personal/intimate was the story you just told?

Not personal at all 1 2 3 4 5 6 7 Very personal

How interesting was the story you just told?

Not interesting at all 1 2 3 4 5 6 7 Very interesting

How well did you tell the story?

Not well at all 1 2 3 4 5 6 7 Very well

How comfortable did you feel sharing the story you just told?

Not comfortable at all 1 2 3 4 5 6 7 Very comfortable

How comfortable do you think your partner was while listening to the story you just told?

Not comfortable at all 1 2 3 4 5 6 7 Very comfortable

How close do you feel to your partner?

Not close at all 1 2 3 4 5 6 7 Very close

How close do you think your partner feels to you?

Not close at all 1 2 3 4 5 6 7 Very close

How much do you like your partner?

Not like at all 1 2 3 4 5 6 7 Like a lot

How much do you think your partner likes you?

Not like at all 1 2 3 4 5 6 7 Like a lot

How did you feel about the incident while you were narrating it?

| | | | | | | |
|------------|---|---|---|---|---|------------|
| Distressed | 1 | 2 | 3 | 4 | 5 | Distressed |
| Excited | 1 | 2 | 3 | 4 | 5 | Excited |
| Upset | 1 | 2 | 3 | 4 | 5 | Upset |
| Guilty | 1 | 2 | 3 | 4 | 5 | Guilty |
| Proud | 1 | 2 | 3 | 4 | 5 | Proud |
| Irritable | 1 | 2 | 3 | 4 | 5 | Irritable |
| Alert | 1 | 2 | 3 | 4 | 5 | Alert |
| Ashamed | 1 | 2 | 3 | 4 | 5 | Ashamed |
| Inspired | 1 | 2 | 3 | 4 | 5 | Inspired |
| Determined | 1 | 2 | 3 | 4 | 5 | Determined |

How do you feel about the incident now?

| | | | | | | |
|------------|---|---|---|---|---|------------|
| Distressed | 1 | 2 | 3 | 4 | 5 | Distressed |
| Excited | 1 | 2 | 3 | 4 | 5 | Excited |
| Upset | 1 | 2 | 3 | 4 | 5 | Upset |
| Guilty | 1 | 2 | 3 | 4 | 5 | Guilty |
| Proud | 1 | 2 | 3 | 4 | 5 | Proud |
| Irritable | 1 | 2 | 3 | 4 | 5 | Irritable |
| Alert | 1 | 2 | 3 | 4 | 5 | Alert |
| Ashamed | 1 | 2 | 3 | 4 | 5 | Ashamed |
| Inspired | 1 | 2 | 3 | 4 | 5 | Inspired |
| Determined | 1 | 2 | 3 | 4 | 5 | Determined |

How did you feel about seeing yourself?

Other comments:

A large, empty rectangular box with a thin black border, intended for providing additional comments or information.

Post-task questionnaire for speaker for the condition without feedback video

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

Questionnaire for Participants

Participant ID: ____

In the course of performing your task, you may have noticed some characteristics and behaviors in your partner and yourself. Please answer the following as well as you can:

How did you feel about the overall experience?

How attentive were you towards your partner?

Not attentive at all 1 2 3 4 5 6 7 Very attentive

How attentive was your partner towards you?

Not attentive at all 1 2 3 4 5 6 7 Very attentive

How responsive were you towards your partner?

Not responsive at all 1 2 3 4 5 6 7 Very responsive

How responsive was your partner towards you?

Not responsive at all 1 2 3 4 5 6 7 Very responsive

How well do you think you handled yourself?

Not well at all 1 2 3 4 5 6 7 Very well

How personal/intimate was the story you just told?

Not personal at all 1 2 3 4 5 6 7 Very personal

How interesting was the story you just told?

Not interesting at all 1 2 3 4 5 6 7 Very interesting

How well did you tell the story?

Not well at all 1 2 3 4 5 6 7 Very well

How comfortable did you feel sharing the story you just told?

Not comfortable at all 1 2 3 4 5 6 7 Very comfortable

How comfortable do you think your partner was while listening to the story you just told?

Not comfortable at all 1 2 3 4 5 6 7 Very comfortable

How close do you feel to your partner?

Not close at all 1 2 3 4 5 6 7 Very close

How close do you think your partner feels to you?

Not close at all 1 2 3 4 5 6 7 Very close

How much do you like your partner?

Not like at all 1 2 3 4 5 6 7 Like a lot

How much do you think your partner likes you?

Not like at all 1 2 3 4 5 6 7 Like a lot

How did you feel about the incident while you were narrating it?

| | | | | | | |
|------------|---|---|---|---|---|------------|
| Distressed | 1 | 2 | 3 | 4 | 5 | Distressed |
| Excited | 1 | 2 | 3 | 4 | 5 | Excited |
| Upset | 1 | 2 | 3 | 4 | 5 | Upset |
| Guilty | 1 | 2 | 3 | 4 | 5 | Guilty |
| Proud | 1 | 2 | 3 | 4 | 5 | Proud |
| Irritable | 1 | 2 | 3 | 4 | 5 | Irritable |
| Alert | 1 | 2 | 3 | 4 | 5 | Alert |
| Ashamed | 1 | 2 | 3 | 4 | 5 | Ashamed |
| Inspired | 1 | 2 | 3 | 4 | 5 | Inspired |
| Determined | 1 | 2 | 3 | 4 | 5 | Determined |

How do you feel about the incident now?

| | | | | | | |
|------------|---|---|---|---|---|------------|
| Distressed | 1 | 2 | 3 | 4 | 5 | Distressed |
| Excited | 1 | 2 | 3 | 4 | 5 | Excited |
| Upset | 1 | 2 | 3 | 4 | 5 | Upset |
| Guilty | 1 | 2 | 3 | 4 | 5 | Guilty |
| Proud | 1 | 2 | 3 | 4 | 5 | Proud |
| Irritable | 1 | 2 | 3 | 4 | 5 | Irritable |
| Alert | 1 | 2 | 3 | 4 | 5 | Alert |
| Ashamed | 1 | 2 | 3 | 4 | 5 | Ashamed |
| Inspired | 1 | 2 | 3 | 4 | 5 | Inspired |
| Determined | 1 | 2 | 3 | 4 | 5 | Determined |

Other comments:

Post-task questionnaire for listener for the condition with feedback video

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

Questionnaire for Participants

Participant ID: ____

In the course of performing your task, you may have noticed some characteristics and behaviors in your partner and yourself. Please answer the following as well as you can:

How did you feel about the overall experience?

How attentive were you towards your partner?

Not attentive at all 1 2 3 4 5 6 7 Very attentive

How attentive was your partner towards you?

Not attentive at all 1 2 3 4 5 6 7 Very attentive

How responsive were you towards your partner?

Not responsive at all 1 2 3 4 5 6 7 Very responsive

How responsive was your partner towards you?

Not responsive at all 1 2 3 4 5 6 7 Very responsive

How well do you think you handled yourself?

Not well at all 1 2 3 4 5 6 7 Very well

How interesting was the story you were just told?

Not interesting at all 1 2 3 4 5 6 7 Very interesting

How well was the story told?

Not well at all 1 2 3 4 5 6 7 Very well

How comfortable did you feel about your partner sharing the story with you?

Not comfortable at all 1 2 3 4 5 6 7 Very comfortable

How comfortable do you think your partner was while telling the story you just heard?

Not comfortable at all 1 2 3 4 5 6 7 Very comfortable

How close do you feel to your partner?

Not close at all 1 2 3 4 5 6 7 Very close

How close do you think your partner feels to you?

Not close at all 1 2 3 4 5 6 7 Very close

How much do you like your partner?

Not like at all 1 2 3 4 5 6 7 Like a lot

How much do you think your partner likes you?

Not like at all 1 2 3 4 5 6 7 Like a lot

How do you think your partner felt about the incident narrated in the story when it originally occurred?

| | | | | | | |
|------------|---|---|---|---|---|------------|
| Distressed | 1 | 2 | 3 | 4 | 5 | Distressed |
| Excited | 1 | 2 | 3 | 4 | 5 | Excited |
| Upset | 1 | 2 | 3 | 4 | 5 | Upset |
| Guilty | 1 | 2 | 3 | 4 | 5 | Guilty |
| Proud | 1 | 2 | 3 | 4 | 5 | Proud |
| Irritable | 1 | 2 | 3 | 4 | 5 | Irritable |
| Alert | 1 | 2 | 3 | 4 | 5 | Alert |
| Ashamed | 1 | 2 | 3 | 4 | 5 | Ashamed |
| Inspired | 1 | 2 | 3 | 4 | 5 | Inspired |
| Determined | 1 | 2 | 3 | 4 | 5 | Determined |

How did you feel about seeing yourself?

Other comments:

Post-task questionnaire for listener for the condition without feedback video

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

Questionnaire for Participants

Participant ID: ____

In the course of performing your task, you may have noticed some characteristics and behaviors in your partner and yourself. Please answer the following as well as you can:

How did you feel about the overall experience?

How attentive were you towards your partner?

Not attentive at all 1 2 3 4 5 6 7 Very attentive

How attentive was your partner towards you?

Not attentive at all 1 2 3 4 5 6 7 Very attentive

How responsive were you towards your partner?

Not responsive at all 1 2 3 4 5 6 7 Very responsive

How responsive was your partner towards you?

Not responsive at all 1 2 3 4 5 6 7 Very responsive

How well do you think you handled yourself?

Not well at all 1 2 3 4 5 6 7 Very well

How interesting was the story you were just told?

Not interesting at all 1 2 3 4 5 6 7 Very interesting

How well was the story told?

Not well at all 1 2 3 4 5 6 7 Very well

How comfortable did you feel about your partner sharing the story with you?

Not comfortable at all 1 2 3 4 5 6 7 Very comfortable

How comfortable do you think your partner was while telling the story you just heard?

Not comfortable at all 1 2 3 4 5 6 7 Very comfortable

How close do you feel to your partner?

Not close at all 1 2 3 4 5 6 7 Very close

How close do you think your partner feels to you?

Not close at all 1 2 3 4 5 6 7 Very close

How much do you like your partner?

Not like at all 1 2 3 4 5 6 7 Like a lot

How much do you think your partner likes you?

Not like at all 1 2 3 4 5 6 7 Like a lot

How do you think your partner felt about the incident narrated in the story when it originally occurred?

| | | | | | | |
|------------|---|---|---|---|---|------------|
| Distressed | 1 | 2 | 3 | 4 | 5 | Distressed |
| Excited | 1 | 2 | 3 | 4 | 5 | Excited |
| Upset | 1 | 2 | 3 | 4 | 5 | Upset |
| Guilty | 1 | 2 | 3 | 4 | 5 | Guilty |
| Proud | 1 | 2 | 3 | 4 | 5 | Proud |
| Irritable | 1 | 2 | 3 | 4 | 5 | Irritable |
| Alert | 1 | 2 | 3 | 4 | 5 | Alert |
| Ashamed | 1 | 2 | 3 | 4 | 5 | Ashamed |
| Inspired | 1 | 2 | 3 | 4 | 5 | Inspired |
| Determined | 1 | 2 | 3 | 4 | 5 | Determined |

Other comments:

Appendix B

Instructions to Participants

Instructions to Speaker

”Think of an event where you felt proud (or ashamed). Please choose an event which you would be comfortable sharing, which you think is appropriate and which would not cause you undue distress.”

Instructions to Listener

”The other participant will be telling you a story. Listen as you normally would.”

Appendix C

Setup

The pictures in this section illustrate the setup used in the listener room, the speaker room as well as the common area during each study session, for both the feedback video present and feedback video absent conditions.

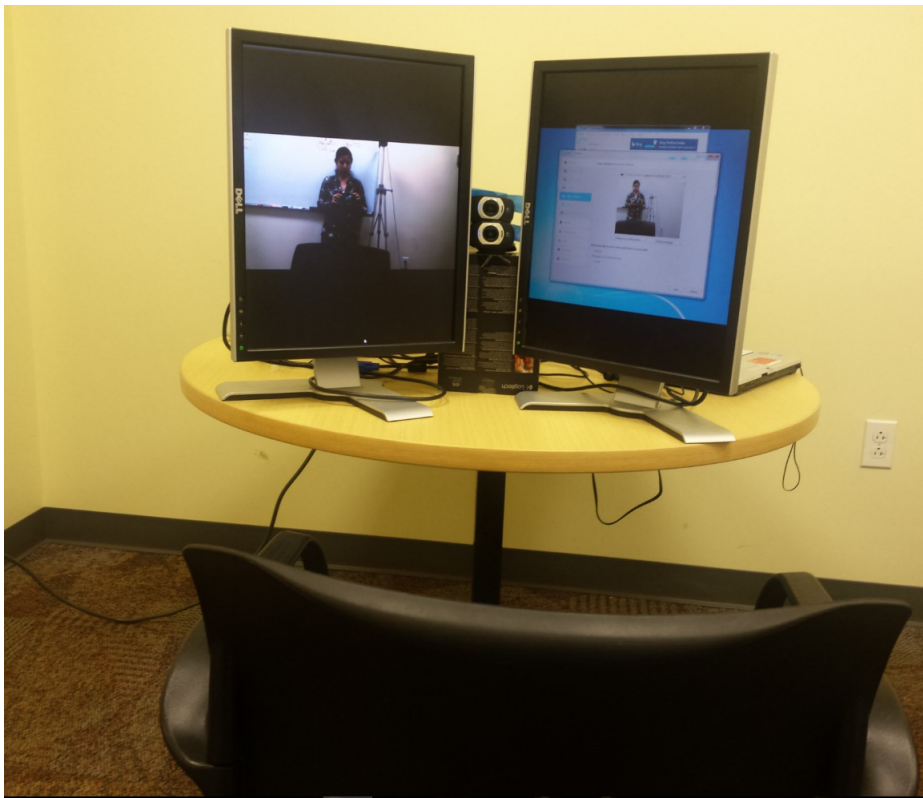


Figure C.1: Speaker room setup for the condition with feedback video

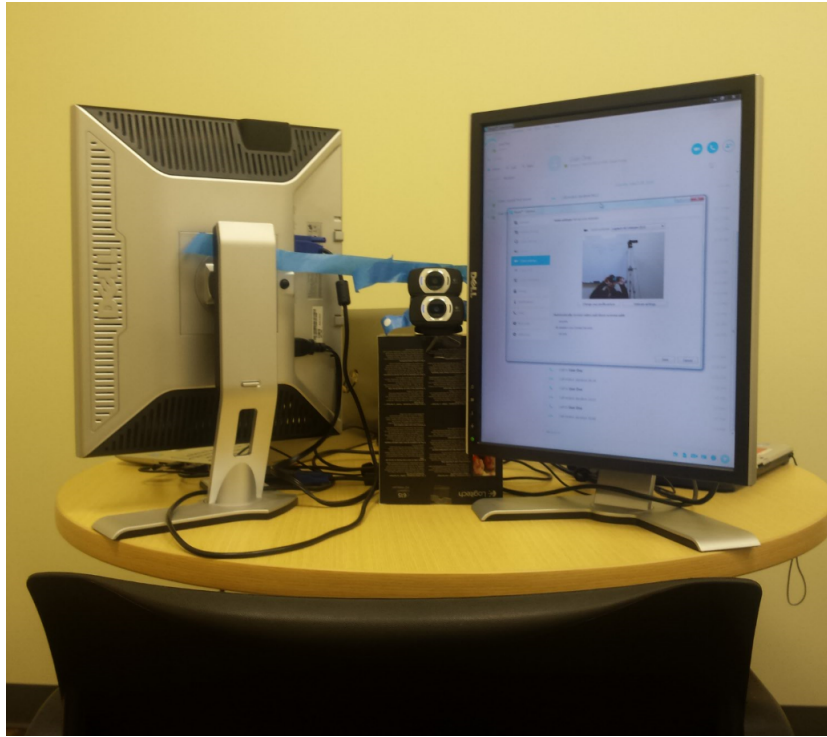


Figure C.2: Speaker room setup for the condition without feedback video

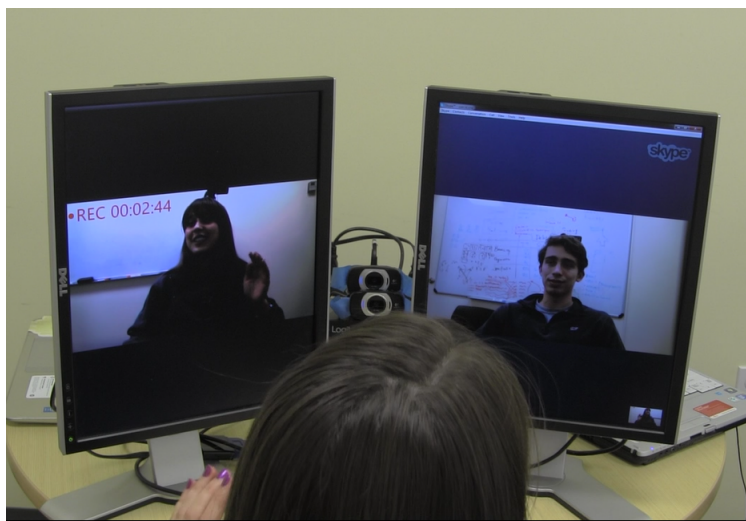


Figure C.3: Speaker room during session for the condition with feedback video



Figure C.4: Speaker room during session for the condition without feedback video

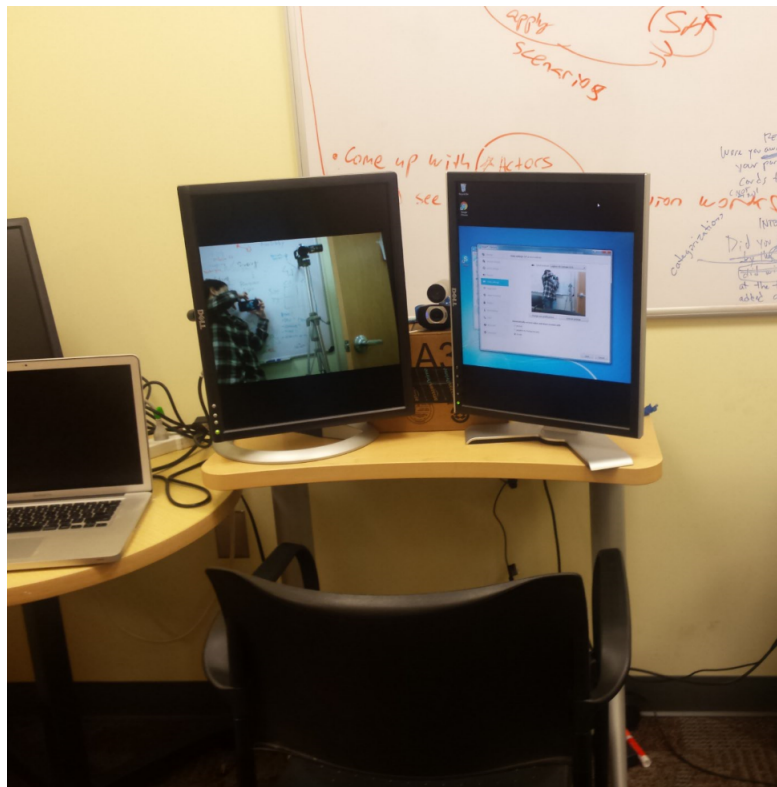


Figure C.5: Listener room setup for the condition with feedback video

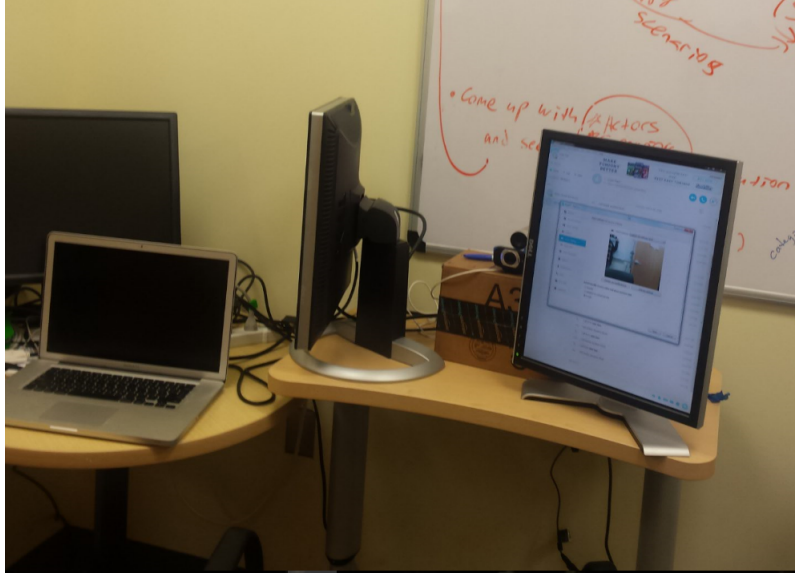


Figure C.6: Listener room setup for the condition without feedback video



Figure C.7: Listener room during session for the condition with feedback video

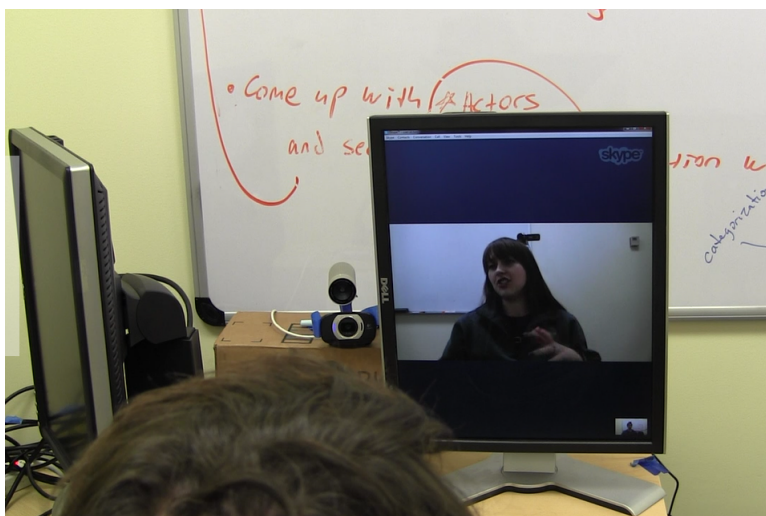


Figure C.8: Listener room during session for the condition without feedback video



Figure C.9: Common area with access to the Speaker (left) and Listener (right) rooms



Figure C.10: Common area where participants filled out forms



Figure C.11: Researcher's work station

Appendix D

Interview Snippets

This section contains transcribed snippets from the interviews with the participants. Questions or comments from the researcher are marked in <>. The snippets focus on the feedback image as well as other relevant comments made by the participants.

Interview snippets - Session1 listener

I have never really done video conf before. I never do that. If anything, we just do that over the phone. <> I don't like seeing myself. That was the biggest issue I had. <Why I don't Skype> Never really came up. People have always just talked on the phone. Never really changed up when video calls came around.

I didn't really speak at all. I thought I wasn't supposed to.

<> It was weird. I felt like I had to respond specifically, whereas the second time, it was a lot more natural.

<> Sometimes I think I wasn't responding enough.. maybe I should nod.. it was more like I didn't know how to act.

Interview snippets - Session1 speaker

It was good. It was interesting. I definitely felt a difference like between the two. Being able to see myself in the previous one kinda <...> that a little bit. Whereas in this one I was definitely like more focused on my partner, like who I was talking to. So I kinda like noticed his reactions more than my story versus like the first time, it was more like I was watching myself tell a story.

My story weren't too, too intimate.. intimate to the point where they would make either of us uncomfortable. So, based on the stories, there wasn't any like discomfort or anything with the conversation.

It was kinda weird with him not talking. I am kinda like used to getting somewhat of a response you know, aside from just a few laughs here and there. But overall I think it went well.

Unless I like asked him a question, he didn't say anything. Just listening.

<Was he a good listener>

Yeah.. I... Well, it is tough to say. The only way I would be able know is if I asked him afterwards. Like did he retain anything or did he just sit here and space out. It was tough. Based on like visual response, it didn't seem like there was like anything noticeable different anytime I said anything different. Because when I like talk to someone or whenever I am listening, if I hear something new in the story, I try to indicate that I picked up on that visually in response or something. Just how I have done this.

<Was very receptive, but responsiveness 4>

Receptive would be like if they are retaining, versus responsiveness would be how they are reacting. Responsiveness was based on what I said before, react or indicate if a different part of the story comes in. From a receptive stand point, it was more of just a feeling. I don't know if it was just the expression he had the whole time.. like I am listening.. at some point he looked like

he was thinking about what I was saying.. So, I was like, he is not just zoning off, he is taking it in, but he isn't responding.. that's how I interpreted it. It seemed like he liked the story.

<nature of story>

I definitely am the type of person who is more conscious of myself. So, for the second story, I was beating around the bush. For the first story, I jumped right in. Whereas the second story, I gave a whole lot of background and context and then eased into.. I think the second story took a bit more of prep work and foundation..

<handled yourself well>

I think I felt comfortable, and also like, being able to see myself.. I didn't really feel like I was freezing up.. I felt like I explained why I was proud well.. (respect sort of thing).. even for the second story, as I was telling the story, I explained why I felt ashamed well.. Both times, I felt very comfortable. Neither time I was like should I not say this or not say that, I just sorta said right what came to my head.

Interview snippets - Session2 listener

<you mentioned it was cool to see what you looked like. can you elaborate>

I mean it's like.. it was interesting to see my face when I like reacted to like things he said. If that makes sense. Because like.. Often times you are not like looking in the mirror...making faces, unless you are like Jim Carey, which is what he did. So, I thought that was interesting.

<Examples?>

Like. I laughed a lot. I guess that was the main thing.

<Any other effect>

I just felt inclined to look back and forth. I don't know if he could tell.. but if he did, it was probably distracting. Did he have the same thing? (Yeah) Then he probably did the same thing.

<More comfortable with second story- kind of story, chat after first story, etc?>

Interview snippets - Session2 speaker

<Being able to see yourself- how did you feel about that>

Ummmm.. I mean yeah.. sometimes, like.. I do this thing where if there is another screen that is like on, and I am not looking at it.. I tend to quickly flash over and figure out what it is.. I subconsciously knew I was there, but I had to look back over.. and I would be like oh that's me.. I would kind of be confused wih that.. So yeah.. I know that's a little weird..It's just out of the corner of my eye.. especially when I can't see without my glasses which is kind of blurry.. so I am like oh..I just do that on occasion..

<Was it interesting, weird, etc>

Oh.. I mean yeah.. When I did look at the screen, I was like oh.. it's me.. and then I was like but I am supposed to be talking to this other person..so, I was like oh its me..and then I went back. You don't see yourself every day.. But then you realize what you can see out of the corner of your eye is like you talking, which was a little weird. So I was like that's okay.

<Was it distracting at all>

Yeah.. when the screen was off, I could just focus on the person.. and so.. I flashed.. sometimes I might have seemed distant or unengaged.

<Changing wall paper>

Probably yeah. Honestly. Yeah.

Interview snippets - Session3 listener

<How was it overall>

It was cool.....

And also with the screen here, it had a different element to it when I could see myself. First one I couldn't. I don't think I really looked at myself very much. I don't think it changed too much.

<Why>

Well, the first time, there was still the small box in the corner. Where I could see myself. And then when it was full screen, I might have been partially conscious. But I didn't just really..

Cause She was speaking.. So..Even though.. I couldn't really tell if she knew whether I was looking at her or not.. I feel like maybe she could.. So I was just looking at her to like to be able to more actively engage in the conversation and listen to her speaking

<bigger or smaller did not make a difference>

No... not really, I don't think.

Interview snippets - Session3 speaker

<feedback image>

I just tried to not pay attention to it. To be honest. Because I know sometimes when I am video chatting.. on my personal time..like talking to random people.. sometime I will get distracted by seeing my own image..and trying to think like what's happening in that side of my room.. or like what's happening with my hair right now.. I usually just try and ignore it unless I am trying to adjust the lighting or something..

just because I get distracted then .. the point of video chatting is to spend time with somebody who is not there.. so.. I like I just really try to..

I noticed that it was there a little.. to me it is just distracting.. not in really a positive or negative way. but it is just kinda there.. and it will get me side tracked if I looked at it too long..

<if smaller or bigger>

It didn't really matter to me.

Interview snippets - Session4 listener

<Distracting, movements caught your eye>

He would be here talking.. And then, if I react.. I see my reaction out of the corner of my eye.. It like distracts me.. It takes me away from paying attention to the story.. Just makes it harder to focus.

<Anything else?>

I didn't look at it at all.. But.. It was distracting.. Just having that there. Makes you a little self-conscious about your reactions.. More aware of them I guess..

Interview snippets - Session4 speaker

The second screen.. uhh. honestly, I did not even notice the second screen....

....

the second screen.. I guess was nice but it did not make me feel like he was more responsive.

<anything the second screen did?>

I think I looked at this screen(first). If I recall I did not even look at this screen.

<deliberate?>

It was the conversation I was having.. I was more engaged in my own conversation.. So, I was already used to this screen. Right? So the second screen.. After I.. I was proud of what I was saying.. I was excited.. I just looked at this screen.. because...It was like my brain switched to just talking about the story rather than looking at the other screen..

<handled? scored high>

I guess the way I grew up. I reflected on myself a lot. That's why I scored myself high. Because I am constantly checking myself. Or checking myself around people. I want to present myself the way I want to. Like the golden rule. I want others to treat me the way I treat them. So, I am very courteous and responsive/respectful and other things. That's why I scored myself high because I feel like I know myself pretty well.

Interview snippets - Session5 listener

<duration>

I felt like because I could see that most of the durations were longer we weren't doing something right, we missed something or that our interaction wasn't as deep as most people's.

...

<partner's attentiveness 3->6>

Throughout all of it, I felt that the pace of the conversation and perhaps the way Skype works.. and I am used to SKype.. I know it is a little bit awkward to jump in between the way you normally would.. because of the delay it is a bit awkward... it kinda throws the **speaker** off.. (forgot train of thought)

Throughout the second one, I felt that as I warmed up to speaking to this person and got used to her pace and rhythm of speaking, I was more able to interject my own thoughts.. I relate to this.. etc Because I was able to do that, we were able to relate to each other more..

<feedback image>

Yes, definitely. I am on Skype a lot. I try to hide the little box that shows you your image. I would make it a toggle-able feature that you can turn on and off.

<why>

I am more likely to stare at myself while I talk than look at the other person...make sure I look okay... Definitely made me feel less confident. I don't really like the way that I look.. I mean I don't know.. Watching myself talk- I would rather not watch myself while I talk.. I feel more comfortable that way.

Interview snippets - Session5 speaker

The first time was a little uncomfortable, but the second time we had a conversation.. I kind of knew how it worked...Was a little bit easier Felt more of a conversation rather than me speaking..

<handled 4 -> 5>

I just felt more comfortable over all.. since we had already had conversation.. it is harder to think of things you are ashamed of, you kinda just want to forget them..

the second time it was easier, since you know like I had already had the conversation and you also didn't have to look at yourself..on the second screen.. so it was like nicer.. and then you could just like talk and it was like a little bit uncomfortable when your face is right there..

<why? more detail>

so.. when I like use Skype, was when I boyfriend and I were farther apart.. So I would want to look at myself and like see that I was looking okay and stuff like that.. but here I didn't really wanna do that.. because I didn't know this person and I didn't really care what I look like, but I was still tempted to look over.. and then it was weird if I look over, because it is then obvious.. I sometimes have a hard time looking at people.. I move my eyes around when I am talking.. it is hard for me to constantly look at someone, especially with Skype because it is easier to just look all around.. but it was easier to look at myself, but then it was weird because I was looking at myself and it was obvious.. so it was easier because I didn't have that distraction.. so it was more comfortable in that way.

<how intimate>

you can be proud of smaller things whereas ashamed is more of a personal experience.. in a way.. proud is more like just bragging about yourself so sometimes it is kinda more impersonal..so if you don't see yourself as this great person all the time, it is more like it wasn't really me, it was more this thing that I did.. so it is more disconnected in a way..

<any other comments>

It was nice to have someone you didn't know.. because if you knew someone, they may already know stories about you.. and it may honestly be harder.. because sometimes you don't necessarily wanna know how you are ashamed.. depending on how well you know them.

I feel like because you don't know them you still pick a specific story, but it was good because even if they are in CS, there is a small possibility that they would be in your class.

Like I said with the talking to people, it sometimes makes me feel uncomfortable.. at that, I was uncomfortable but not to the point where I was like I didn't wanna do this.. it was fine..

Interview snippets - Session6 listener

...

It feels weird talking to a computer

...

I don't tend to care about my appearance.. just seeing what I look like..umm.. I don't really care what I look like.. Just having to look at myself doing that.. I don't know..

Like.. sometimes I choose to look at myself.. butI don't like being forced to look at myself.. and I feel like sometimes the computer makes you do that.. because you have this small box in the corner and you can see yourself..

<small box -- elaborate>

Well I was actually able to ignore the bigger one because it wasn't on the other screen. I guess it was mostly the smaller one. I was able to kind of block that one as well. But then I felt forced to

look at the other person, which.. I am just uncomfortable making eye contact.. I have Aspergers.. It is just one of those things that goes with it..

Interview snippets - Session6 speaker

<How did you feel about seeing yourself>

I mean like I would occasionally. when you talk to someone you look at.

But I would occasionally look over just like.. The first story.. I don't wanna be like... Occasionally I would be smiling when I should be smiling.. When I am talking to normal people. Just having that check was interesting.. Just to see what.. Subconsciously you think I am telling something.. I am in this mood.. this is how my face is projecting itself.. but a lot of the time.. at least I found that with myself.. that's not how people portray me..

I will be sitting at the dinner table back home and my folks will be talking about something..not just smile about.. not frowning.. and they'll get mad.. and I won't notice.. It is more subconscious.. It is interesting to see.. Not that it matters. it is just interesting..

<Did anything happen here>

not really. Just monitoring. Seeing what I look like when I tell stories.

<So what do you think you look like>

I didn't really register. It doesn't really matter. I didn't really care.

<So you were fine>

I wasn't alarmed or anything. The first story was like a negative. It was weird. So I was kind of smiling. Not that it matters. But it was kind of interesting. Just to see what other people see.

Interview snippets - Session7 listener

I don't know if I was.. I think she was looking for something a little more like re-assuring. That's all.

<What stopped you>

I realized at the time that I was like.. I felt I had to say something. But I didn't know what to say.

<second monitor>

That was weird. Yeah.. Just cause a) it would slightly bother me that if I looked at myself, I was looking away from it.. like looking at the screen.. but seem.. That always bothers me a little bit. And also, just trying to.. I was just conscious of how I was like..if I looked concerned or.. I don't know.

<specific moment you remember, "no">

It was kinda on and off during the entire conversation.

<>

Probably just because the first story was so positive. I told her it was really cool and that I was happy for her. The second one because it was slightly more negative, it required more of a response..

Interview snippets - Session7 speaker

<Managed to just tune out the second monitor>

So, when you were just setting up, I was surprised to see you turn the second monitor on, and surprised to see myself in that monitor.

So, it just struck me as odd. But you know once everything was setup and everything got going, I just completely ignored it and focused on that, and ignored this extra weirdness that was over here.

<Why did you want to ignore the extra weirdness. It was just you talking>

I mean it was. I guess I have never been the kind of person to like even practice speeches in front of the mirror or anything like that. I just get up and pretend there is an audience and count that as good enough. I guess I always feel weird trying to look at myself when I speak. I don't know why. I can't give you a better reason beyond it feels weird and so I never do it.

Interview snippets - Session8 listener

When the big screen was up with me on it, I would instinctively look at it where I was looking, but that would make me look away from the camera.. I don't know, if you are having a conversation with someone, you want to have more eye contact.

<Very focused on eye contact>

Interview snippets - Session8 speaker

Nothing related to feedback image

Interview snippets - Session9 listener

... I could see myself.. it was kinda psyching me out a bit.. oh wow I moved my head really weird.... not actively, but I would start reacting to something, see myself and then stop..

You don't think about this in conversation.....but when you see it.. I look kinda strange.. I don't see myself react usually.

I was doing like this noddig motion, but right there.. I looked really weird.

<"unnerving">

It was.. It was bizarre.. I don't know.. I don't do that very often..

<more natural during the second one>

He had figured out the format...He seemed more comfortable. We were both a little more comfortable... I was more focused on his story and less focused on.. what am I doing..

Interview snippets - Session9 speaker

Nothing related to feedback image

Interview snippets - Session10 listener

.....

I didn't really like look at that screen.. but.. it was weird knowing it was there kind of.. but I didn't like look at it.. but I still knew.. just like in the periphery..

<More beneficial to focus on the other person>

I guess I was trying not to notice myself.

<Beneficial to the other person or to you>

Both. Like, I think it was easier for me to react when I was not paying attention to my video. It was easier.. Like I don't know if sharing emotional stories via video or with like physical distance would be weird.. for people.. But I kind of didn't mind.. I kind of liked it.. because I am not like a touchy person.. Like I wouldn't console someone physically, and there physically it feels more awkward. Because you are expected to do that. So, like I couldn't. So, circumstantial work for you.

<Happy with style of response>

I didn't really think about how I came across. Like my facial expressions. I was just trying to think about the right thing to say.

Interview snippets - Session10 speaker

I felt like she was looking at me.

....

<More focused on feed of other person>

Because I felt like I was looking at her. I had to stop myself from being like this, leaning into the screen. I was really close. I felt like I was looking at her, and she was looking at me. Which my natural thing is to orient myself to the person I am talking to.

<Own screen distraction>

It was nice. Because there were some times when I was like.. or when I thought do I look the way I feel like I am looking to her. And I glanced over and I was doing what I thought I should be doing.

<Example?>

I think I am mostly looking straight at her, but do you know how with Skype and what not, if you look straight at somebody you actually look like you are looking at your chest or something. So, I would glance over. It looked like I was oriented towards her, and then I would go back to focusing on her.

<Posture vs how you look>

Yes. (posture)

Interview snippets - Session11 listener

<You preferred the smaller box and found it distracting>

Yeah, so, having myself, like my own face, just as big, I was getting distracted. I think I said that maybe I am concerned about my appearance..or something..

Look at myself, and look, go, moving my hair, I don't know if I actually did that. Or just be concerned about my facial expression or something. I was just more distracted by that.

<Were you happy with what you saw? What was going on>

Well, like, just the fact that I would be looking at the screen and then look to the side, or whatever.. I felt distracted. For a split second, I would not be paying attention to his story. So I don't know if he noticed that or not, but I was not actually looking at the camera.

<You were concerned about your appearance and facial expression>

Yeah, I could definitely see myself, like my facial expression. I think I might have just smiled more or something. I don't know if I actually did that. I feel like it is something I might have done.

<Any other comments>

I don't like hearing my voice, I don't like seeing my own face when I talk.

Interview snippets - Session11 speaker

<Not exactly transcribed>

I find any conversation over video weird.

If you look at the camera, it looks like you are looking at them, but you are not looking at them. And vice versa. There is a disconnect.

<>

When I also had mine on the screen, it was just distracting.... If there was a way that you could look at the person and their eyes were where the camera was. Also with the screen that shows what I look like, it is even more distracting. For me anyways. I don't think it helps. If it was like a presentation rather than a one on one call so that you can see what more than one person is seeing, but not so much in a one on one, it is distracting. I would rather just look at the screen which has the call on it.

<You didn't like looking at your screen. Can you talk a little bit more about that?>

It is sort of the same thing with like, if I am recorded on video or something like that, I don't like watching videos of myself. It is that part of thing where your experiencing things from your.. you just see whatever you..besides for like looking at a mirror or whatever, I don't spend a lot of time looking at myself. So, it is just weird to see like a view of yourself constantly. Which is the sort of the same as I don't like watching if there is videos of myself. I don't like how my voice sounds on video, and it is sort of the same idea. That is why I didn't like looking at it. And that with the fact that it is also distracting for me. It is mostly those two things that I meant.

....

Focused on telling it, rather than reflecting on it.

Interview snippets - Session12 listener

<Mentioned it was not comfortable. It was sort of distracting>

There were two of me. So that was problematic I think.

<Fine with the small box>

I don't think so. The small box is okay, the big one is just like me staring at me. I am like that.

<elaborate>

it is just a.. It's like another person is here..I mean, eventually I registered that this is me and I don't.. I think this is more of a sort of a I don't know what to call it.. it is like an adjustment thing.. I do Skype calls multiple times a day. I am used to this weird combination of.. because when you think in your head you are looking at the person directly, but you are not.. when you catch a glimpse of yourself, it looks like you are looking in an entirely different direction.. and I try to subconsciously try to correct myself and then I have to tell myself that I can't correct myself..so, it was like that happened like twice. So, in that box I kind of like my mind blocks it off.. it is tiny, it is small, it doesn't even register.

But, this thing was kind of staring at me and I was constantly looking at me and thinking oh I am not looking at the person.. my eyes are weird. Actually, I was looking at the person in my head but the way I see.. like.. that image of myself is not looking back at me, it is sort of looking in a very weird sort of direction..

<So, it was the eye contact thing for you>

Yeah, I mean.. that image was telling me that there was something wrong here. I can't really put a finger on what I was registering, but that image of me was constantly telling me that I was looking in a weird direction, which I don't want to see.

Even on my.. whenever I can shut my image down in any kind of video conference program, I just close it. I mean Skype you can't really make it go away, but you can make it really tiny, so that is what my setting is.

<But it is only about eye contact>

It is about that image telling me that there is something wrong here. Eye contact or I don't know what it is. Never really thought that much about it.

Interview snippets - Session12 speaker

<Shame reduced>

He had the same experience. That made me feel a little better.

...

<You were a little bit distracted>

Yeah, I more prefer both screens is presenting his face If it is my face, it is like mirror. That is why I was distracted.

I sometimes noticed myself. I probably prefer both being him.

<How did you feel>

It doesn't distract that much. Because when I am talking to.. when I am doing talking, I may look at myself in the monitor, that feels weird.

<Elaborate>

I can see like my hair... That made me not too focused on the conversation.

Interview snippets - Session13 listener

It was fine, pretty normal.. nothing out of the ordinary.. odd to see yourself, right next to you.. but I didn't think much of it.. seemed pretty normal..

The thing that was strange.. I don't have anything invested in her or getting to know her... it isn't like I am at a job interview and I need to act interested.. or I am interested in the person and trying to get to know them more... no initiative to ask questions.. nothing for me to gain from it..

<asked if you could ask questions>

I wasn't sure if it was just a narrative.. like a story, or a conversation.. I wasn't sure if I was observing and taking in their body language or trying to get a conversation going..

I probably could have.. I didn't really respond a whole lot.. it would probably have been more beneficial if I had done that.. it wasn't really a point for me to do that.. in my mind..

....

<more attentive to partner, more responsive partner>

The story was more interesting.. the first one.. the second one was more like I struggled.. and I could relate to some of this.. generated more response from me.. was more interesting..

<seeing yourself took away from the realism>

I got no benefit from seeing myself.. made it seem like a setup.. not that if I have faceted in the past.. I understand that.. but having it that big, right next to the other screen.. what's the point of it..

<>just to see if your body language or the way you react.. if you get more uncomfortable.. with public speaking in general.. get more self-conscious about yourself the way you look the way you appear.. I am pretty self-confident of the person I am.. I didn't really care about my appearance.. I know how I am..

<handled well: 7>

I never felt nervous or uncomfortable at all.. I listened and I remember the story.. I don't think I had anything nervous characteristics.. I felt I was pretty smooth..

<don't care about the other person>

If you gain knowledge from an interaction (see a business and want to know what they do), or want to meet someone at a bar, you can get a benefit from that.. her telling me that story.. there are how many students here.. it doesn't make a difference to me.. should I just keep asking questions or prodding.. it's a waste of time... with friends or relatives, I might ask questions..

<specific about how you spend your time>

Yes, and no. I don't like wasting time, but I tend to. If I am enjoying myself, it isn't really a waste of time.. it is more coming from.. I don't have anything invested in the person.. so why go prodding on..

Interview snippets - Session13 speaker

I don't know if my stories were interesting.. that would be my one like..

...

<why>

I find I am not good at telling stories.....I don't know.. my stories were short too.. didn't have too much of a build-up.. he is a very flat person.. I don't know if that is just some people are.. I am very not flat..it could be anything.. maybe my stories were just depressing..

I talk really fast...things I am ashamed of, I don't like talking about.. I keep it very brief.. I know I don't like talking about things like that.. so I didn't make it very detailed..

<more attentive>

He asked me a question at the end of the second one.. so I was like.. ah, he is listening.. he smiled a few times.. so I was like this is good.. he has a sense of humor, deep in there.. it wasn't like there was a lot of nodding going on..

<handled>

The way I was looking at it was how well I presented myself and the story.. the first one, went a little better was a little more organized, the second time, I wasn't sure how much I wanted to share.. I was adding detail at the end.. not very organized.

<speaker sentiments>

I don't think I answered those right..personally I have accepted it and moved on.

I like seeing how I look to other people.. do I look like a crazy person, no.. I look adorable, I am in-screen..

Interview snippets - Session14 listener

<Seeing yourself was kind of cool, and you liked it, but worried about where your eyes were>

I mean.. It was just weird.. if you looked over here, you are never really looking at the camera.. it is just kind of weird to look back and forth and you can see the delay between it and so it is kind of distracting to an extent..

At the same time, if you see your hair is messed up or something, you can fix it. Or like if you that see you are slouching or looking like you are not paying attention, you can fix it. If you are over here.. if you are leaning like this and you may look like you're not paying attention, but you are.. you are like oh I look like crap and fix it..

<Remember a specific moment>

Not a specific moment. I just remember looking over and being like my hair looks kind of weird and fixing it. A couple of times.. Maybe once or twice, but that's pretty much it.

<Screen shut off>

I don't really think so. Other than the couple of minutes where I was trying to fix it and listen to him at the same time. But besides that, not really. I mean I could still see myself right here. It's just small.

<But the screen is small>

I guess it can be distracting, but at the same time, it is good to know how you look when you are talking to somebody. I feel like it is something that you don't get to see normally. There is usually not a mirror there in front of you, so it is different.

Interview snippets - Session14 speaker

It was.. I mean it was not the first time I have had a face to face sort of thing before....It was easier sharing the story. For some reason. Not sure what to say about it.

...

<Experience felt more personal because you could see other person's reactions. Screen being in between>

It definitely had a sense that.. like the saying where people wear glasses because they want a distance between the person. same idea. With the screen.

...

It was a more personal experience because I have more lot more experience typing and communicating by text with people. So, I have to imagine based on their words what they are feeling about what I am saying. But with the face to face on the screen even though there is a screen in between, it makes it easier for there to be less of a barrier.. Creates less of a barrier. But it also allows me to gauge myself and how well I am.. this conversation is going.

<Just going by the other person's reactions?>

Yeah.

<Having the second image helped. You could figure out little movements, and ensure you were presenting yourself the way you wanted>

Yeah. It was to the side for the first one, and to the bottom for the second one. They weren't as helpful as it seems like what I wrote over there. But it did help a little bit because when I hear people outside of this going to interviews, going to make sure you sit upright, you wanna make sure you are not leaning back too much and that you aren't leaning forward too much.. keep conscious about all that stuff.. but when they tell me that I am supposed to do all this, how am I supposed to make sure I am not presenting myself in a negative way if I can't see myself.. So, having an image of myself... <not sure 03:12>

<Any specific moments, did you see anything you didn't like>

I suppose when I saw my listening partner.. when he.. it is something I picked up watching television like binary and stuff.. you start to look like.. when he gave these nonverbal hints, maybe I should continue the story instead of giving all this back story.. maybe I should hurry up my story along so that it gets to the more interesting parts and keeps him more engaged.. yeah, that's what I felt like.. I saw the nonverbal movements, not particularly.. I started to change my story a little bit.

....

Interview snippets - Session15 listener

I hate looking at myself, but I love looking at other people.

...

I am a very visual person. So, having everyone just on a phone call, that doesn't work out. I love video conferencing. But I prefer face to face meetings.

...

I am a high empathy person. I know that.. It is a weird thing to say. It is weird to tell that someone. I am a very high empathy person, and I am also very excitable. So, when people are excited, I am very happy for them.. When people are very sad, I feel very sad because I don't like seeing people suffer needlessly.. and that is kind of dumb.. and everyone says that.. and I don't know how to qualify or quantify that to you, but I do know that I am a very high empathy person. So.. that's kind of where it might come from..

But I felt like.. `I don't know.. I feel like every human being.. and this is so weird.. because s a scientist.. if you think with a scientists' mind or in a very logical, we shouldn't be thinking about feelings and how those impact.. but then, on the other side of things, being human, we inevitably always connect with everybody.. like despite how as I think.. and this kind of also goes into race relations.. I connect much better with other women of color, than I do with white people.. and I am sorry.. because we experience things very differently than they do.. and culturally and it's.. it might be that as well.. and I know that this brings all of these random social science things and as scientists we are just like what the f*** is that.. trust me, I know where that comes from.. because I used to think like that too.. because.. you know what I am saying..and I think it comes a lot from that.. just being.. just as humans I feel like we should always just be able to try to connect with each other.. we shouldn't always separate ourselves from each other.. and I feel like every moment is an amazing moment to meet someone and get to know them...

You can kind of see from both perspectives too.. It's so weird.. because I know what I should be thinking.. the quantification should be exactly this so why am I trying to quantify everything, and it is so f***ing retarded.

...

<The second screen had your image on it.. How did you feel about that>

It was so awkward. It was so awkward. That was really it. I am just like.. my face is so awkward. Like.. I know that I look awkward so I am always like oh my god this is so awkward.. and now I am like snotty everywhere and it is even more awkward.. and I think I look really weird. So, that's the thing. I think that I look really weird and I understand that this is all a perception thing.. Everyone looks amazing and every time I look in the mirror, I am like you look so f***ing weird. And I can't

help that. That is just who I have always like.. my mom is like..I am very critical of the way that I look but not for any other reason.. I don't really like looking at myself.. but then I can't inevitably.. and there is also the narcissism part where you are like uuh.. I look at myself in the mirror and this is so narcissistic and uuh I look so good today, and at the same time, I look so weird.. And look so good at the same time. Cannot help myself.

<How distracting or anything was it..>

I just kinda looked away from it. The conversation was on her side and more focused more on her. But at other times, when it is just the small box, I tend to keep looking at myself.. like what do other people see.. But yeah..

Interview snippets - Session15 speaker

<About the second screen. Nothing special, just like looking in a mirror>

That was because I was mostly seeing her and that was only when I was.. fleeting glances.. I had mentioned it in my comments section.. when I paused or something like that, only then I looked at it.. it was more of an interaction with her than with me..

<Has it happened that you were speaking on the phone and ended up in front of the mirror>

Yeah, it has happened because I walk around and talk always. I don't think it mattered much. Maybe if I was specifically instructed to look at myself and talk, I would have consciously made an effort to see.

<Seeing yourself talk is something you don't ever do...>

Oh.. I have done it before. Mostly it is for presentations. Yesterday I had a presentation, so before I presented it to the class, I wanted to look at someone and talk and facing myself is the worst thing so I practiced it in front of the mirror. So I have done it a lot of times before.

I am seeing myself, so it is fine.

Interview snippets - Session16 listener

Comment: quite involved in trying to figure out the setup, and the psychological aspects of the study.

<You didn't like seeing yourself>

What I mean is that it is kind of awkward..looking at yourself.. it is not so much the fact of what I look like, or say whether my hair or my clothes are.. you know appearance, but it is more about

that information being fed back to you.. it is kind of awkward seeing the feedback up there.. eyes and everything..

<I still tried to maintain a conversation>

Like.. it was there, but because this whole distracted by the setup thing, still knowing what's going on.. so yeah...

Interview snippets - Session16 speaker

<How you felt about seeing yourself. Thumbs up>

I did... Want me to elaborate a little more?

<Yes please>

Okay.. I didn't really have that much of an opinion. I mean usually when I am thinking about something or talking to someone like right now.. like I just space out for a sec.. So.. I mean when I Skype with my parents, I look at myself.. but I guess since I knew it was a test.. It wasn't a very good placebo. Like, if you had done it like see yourself, then don't see yourself, I might have reacted differently. But since I knew it is a test if you see yourself, I kind of.. as a result of that, I didn't really pay attention to it. I guess.

<Was it easy to tune it out?>

Yes.

Interview snippets - Session17 listener.

...

Just (looked) a few times.. Feel normal..

....

I think when we speak, it is easier when we don't see ourselves.. whereas when we listening, it is okay to see ourselves to see what we react to the speaker.. so that we can tone the reaction.. if we don't see ourselves when we speak, it is easier..

when you see yourself in the screen, when you speaking, you stop to think and you may not speak..

<listener may also get distracted>

when listening, you don't have to listen word by word.. so it is okay..

<reacting appropriately>

I think so

Interview snippets - Session17 speaker...

The first one is better because the experience of talking about good things is better.. but with strangers.. because I have never seen him, it was hard to tell about one thing I am ashamed of..

The first one where I see myself it was bad because then I can't look at the camera.. I am a little shy.. I can't look at the camera because I see myself.. so the second one was better, because I didn't see myself.. I just see him..

...

<resp, att higher for first one>

Maybe because of the bad feeling I had in myself about the whole thing.. I feel like I don't want to be connected with these thing.. with the camera, with him.. when I talk about good things, it is easier to be responsive than with bad things..

sometimes if I feel like I want to talk.. to my friends.. it is easier.. but to strangers, it is.. maybe that is the one reason..

<personal/intimate 4 vs 6>

Both of them are personal.. but for me, bad things are more personal.. because good things.. all people can talk about good things with each other.. even if they are very personal.. more personal things are those that are bad things.. I don't know why.. but that is how I feel.. both of them are personal, about my real life.....

I don't want to talk about it.. it is my privacy..

<Speaker Sentiments-- reduced>

Because now these things are passed.. now I have other things.. when I talk about, I go to that moment.. but afterwards, I feel like it is finished.. and now I have other things..

<being able to see yourself>

I prefer to not see me because I feel more comfortable when I don't see myself.. maybe I didn't understand what you meant by that (the question)..

Interview snippets - Session18 listener

When you are made to read out something, you don't put emotions into it.. or you try to, and it doesn't come out as well.

I don't know.. I guess the second story was from memory instead of from a page or something. We could feel that the person was recollecting the memory and actually feeling good about the memory.

<So, you think the first story was from a page?>

I don't know. Actually, when I sat, I assumed it might be from a paper. But the second story, he actually showed a picture of the boy. For the first story, I thought you have supplied some story to him. So, that's why I didn't actually.. I thought it was just a story, and you are mapping reactions and doing some research... if you get proof that it is actually a person's feelings attached to a story, then you connect with that rather than if I just tell you something from a page..

...

When someone talks to you directly, that's more engaging than reading out from a paper..

...

<How did it feel to see yourself>

It's good. It is like another Skype call. It's good. I don't know. Actually, once I was Skyping with my friends, and I looked at the camera 10 or 12 times. I was constantly looking how I look. I don't know if it helps. I actually thought of minimizing it. But I guess it doesn't go away in Skype. So, I am wondering because Skype.. basically, even in facetime or something, you see a small image of yourself. I guess people might have thought about it, that it is needed. But I still have to figure out that is it absolutely necessary to have it or if you just remove it altogether, will you have a better experience.

But this time, if he had been reading out stuff, then I guess I would have looked at my image more. So, really depends on what the other person is saying and how much I look at myself.

<So, you did look a few times>

I guess once or twice.

<And how was that>

I was not noticing anything. Am I looking good or anything. I don't know. Just a glance.

Interview snippets - Session18 speaker

Talking about the embarrassing or ashamed part was difficult. I had to come up with an appropriate thing which could be publicly recorded. I think coming up with a proud moment was easy. I could have come up with many more maybe.

...

It made me feel lighter.

...

Makes me feel weak.

...

When you ace something and you overcome it yourself without sharing with anyone, I feel good. That I didn't need anyone, that I could overcome it myself. I am more than okay (listening to other people).

...

Personally I feel no one is happy for you when you are happy or you succeed, except maybe your close ones. People tend to show they are so called happy. I remember when I got my first job. My friends came to know about it. They were happy apparently. But they show in Three Idiots, that when your best friend gets 0 that's better than when they top the class.

...

Sharing happy stuff is fine, but sharing happy stuff professionally, no one is happy. Except your parents maybe.

...

I wasn't even listening.. looking at him.. I was just talking to myself. So, that's why I was not alert to what the other person was doing. And he wasn't doing at all. He wasn't reciprocating. ... He didn't do anything to grab my attention. The story I was telling, it felt more like I was talking to myself.

<Same for both stories>

Yes. So, if there was any reciprocation, if there was some questions, that would have gotten my attention and I would have looked at him, tried to understand his point of view, but it was more like a poker face.. so.. I couldn't feel like I was talking to someone.

<Second screen.. Not really paying >

I was trying to relive the moment. And I was reminiscing what I.. didn't want to, but I was trying to do that.. I wasn't looking at the screen, I was to be me and not be disturbed by the camera in front of me.. definitely not looking at myself.. So I was not alert to the camera..

<Did you look at yourself and make a conscious effort to not look>

It just came naturally. I didn't make an effort.

Comment: Personal in the sense of how willing he is to share the story with other people. That's why the proud story wasn't very personal- he had told the story to other people before.

Interview snippets - Session19 listener

<How did you feel about seeing yourself>

It was like a normal Skype call. I mean I have Skyped before, so...

<Normally you don't see yourself that big>

I am.. I don't get why it is supposed to make a difference.

<Very few people know what they look like when they speak>

I mean I think I know what I look like pretty well. That's why I wasn't very interested in that monitor.

<Do you have a sense for why you know that>

Like being aware of myself. It's like... I have done it.. I have looked at myself in the mirror so many times that I just didn't need to look at myself anymore. That's it.

Although, I am pretty sure if I heard myself over some video recording, I would be pretty woah is that what I really sound like. Everyone's like that, right?

....

For the second story, I thought it was anger.

Interview snippets - Session19 speaker

<Your attentiveness dropped from 3 to 1>

When I was telling the story, I was trying to pay more attention to the camera.. or the second story, I just kind of looked away the entire time.

I was attentive when she asked me questions.. But I guess I was not like seeing her reaction to the story.

<Do you know why>

I guess in the first one I was just focusing on looking at the camera. I don't know why exactly my thought process was. I guess I was just like I should look at the camera versus looking at her. Because I know when you are looking at the camera, on the screen it looks like I am looking at her. And then, in the second one, I don't know why I looked away. I guess because I was thinking about the story as I was telling it. And obviously, it was also harder to tell, just because of the different subject. So, I guess it was harder to pay attention.

...

<You said it felt strange, and that you preferred to avert your gaze for majority of the session>

Ummm.. It was a combination of just like.. it was weird because I could see her and me.. I don't know. there is something really strange about seeing.. I don't know.. it is weird.. it is really hard to describe why.. It was just like when I was looking.. the first time, when I tried to look at the camera, and so it was over here.. and then I glance over.. but then I see myself talking and I see her like reacting.. so I just kind of wanted to look away the whole time.. or something like that..

Yeah. I mean. I guess I just don't like. It's weird because I am fine being seen I guess. I am not like.. That's fine. But when I see myself in a camera, it is kind of different.

<What about recordings of yourself>

See.. yeah.. my voice is fine. It's just.. I don't know. In a mirror.. it is not like I am weird when I look in a mirror.. it is just that recordings are kind of different I guess.

<If I taped this and played this to you in an hour>

Yeah, that would probably.. I would probably feel slightly uncomfortable at least. Yeah.

<Do you have a sense for why>

I guess the only reason why is just that I don't do that very often I guess. I don't take a lot of pictures or videos or anything. It's kind of just like.. I guess emotional muscle I have.. is not very strong.. seeing myself in a recording..

<Are pictures also iffy for you.. Or are pictures fine?>

Ummm.. like.. regular pictures. If we were to take a picture now, that would be fine. But candid pictures, I am uncomfortable with.

<Candid pictures. So, you are not sure how you are going to end up looking in them>

I guess so. When there is no control. When I don't have control over the thing.. the picture I guess. I guess I have done like high school or so.. a film class or movie and that is a lot more okay.

<If someone gave you a script and gave you time to rehearse>

Yeah, that would be fine. It's more of a natural setting that is awkward for me.

Interview snippets - Session20 listener

<You mentioned you did not even realize or look at the other screen>

Yeah.. I mean.. actually I didn't.. and that's the reason that question.. I really didn't understand and that's why I came out to just ask you.. yeah.. it just didn't catch my attention.

Interview snippets - Session20 speaker

Comment: **speaker** remarked that **listener** was more responsive during the second one, specifically, more verbally responsive, and this increased his attentiveness and responsiveness. It made him look more and see her responding..

....

<You tried to look at your partner more so that you could tell the story in a better way>

Well.. I do use Skype a decent amount. I just find that when I am talking to people, there is usually the box in the corner.. and there is something about it, where you find yourself looking at it. I don't know how to explain it.. You don't see a live feed of yourself very often, so it is kind of a different experience.. So, I usually minimize it.. because I just find it takes away from the conversation.. makes it harder to like have a conversation with someone, so.. I don't know.. that is harder on a normal Skype call cause.. it is like inset. but this one, it wasn't hard for me to look at just one.. yeah.. it was just something that I am aware of. That you are going to engage in a

conversation- well, it wasn't a conversation- but generally speaking, if you are going to engage better in a conversation looking at the other person.

<Did you look at all>

Not much. Maybe a little. I am sure I did a bit. But not much.

Interview snippets - Session21 listener

<Trying to make sure you looked good, that you looked better than the other participant>

Because I like attention, so I need to make sure that I'm worthy of paying attention. Maybe.

...

I make sure.. when you look at somebody you know if you like them or not, so when I am looking at myself, if I like myself then it should be good.. but if I don't like to look at myself then others are not going to like looking at me. So, that's how I make sure.

...

Comment: Good job because he was responding appropriately and making sure the speaker felt like he was paying attention

...

Interview snippets - Session21 speaker

Comment: Looking down during pride story, to not come off as too boastful. Looking down during shame story because it was embarrassing.

Comment: Gets nervous a lot, especially during presentations. And this felt like a presentation. The person felt like he was being judged by the listener.

...

Nothing related to feedback image.

Interview snippets - Session22 listener

<It was a little weird to have yourself on the big screen>

It is kind of distracting. Like, because.. like.. you know.. there like.. usually like.. normally I just look at them and there is a small screen of me which I don't pay attention to. But it shows me like if I am connected or not.. But the big screen there.. it just looks weird. Like, like.. that's like I am constantly looking at it.. because that's how my face is looking at the other angle.. So, it is kind of weird to me. I don't know why. It feels a bit weird.

<Looking in a different direction seemed weird>

Because of the camera angle..I know that. But it still feels weird.

<Did you look at yourself at all>

Like a glance or two. I guess.

<And...>

I don't know.. Like.. I just feel.. It is a bit distracting.. like.. but it is really nothing.. not a big deal..

...

<Lack of big screen with your face on it helped you concentrate on the story more>

I don't look up.. I look at that screen. I don't look at that screen. So, I feel more concentrated on the story.

<Because it was distracting>

It was a bit distracting. Seeing myself on the other screen.

Interview snippets - Session22 speaker

I was trying to look at the camera and also trying to.. I tend to look at myself when I video call because I find it weird to look into the camera. So, I probably wasn't as attentive to him as he was to me. But I was kind of looking for his reactions and seeing what.. if he is saying yeah or something like that.

...

<Prefer looking at other person or yourself>

I find it kind of odd to just stare directly at the camera because it is not a person when you are video calling, you are.. the point is to be talking to a person.. and when I am looking at myself, I am making sure that I don't look like I am at a weird angle or have to adjust my screen, but it just

feels so weird to stare into a blank camera that is not responding at all. And just look at that. So, I tend to just look at the screen, which you know, puts off the angle, which is kind of odd. It isn't like a mirror because you are kind of off to the side looking at an angle. But yeah, looking at the camera is kind of odd..

...

I don't prefer to look at myself. I just tend to. I am aware that I am in a camera and want to make sure I don't have a hair out of place or something like that. So, I tend to look at myself but I look at the other person.

...

<So how did it feel to have yourself blown up big>

Ummm.. not too weird. Cause I look in the mirror and that's like a big screen in a way and my computer at home is a big 15-inch laptop so when I video call, it is pretty big too. So, I guess I am used to it. Not weird.

Interview snippets - Session23 listener

<You tried not to look because it would appear that you are not being attentive>

Yeah.. I don't know.. I felt like I should be looking at him the whole time. And I didn't want to look at myself and like, be like.. oh.. I felt like I should be attentive towards him. So.. I didn't want to..

<With a video camera, you are technically never looking at the person>

Yeah.. I know..I don't know. I just didn't want to.. I wanted to focus on him more than look over at myself.

<Was that more for you or because he might feel weird if he thinks you are looking at yourself>

Ummm.. I don't know. Hmm.. I feel like it is weird looking at yourself when you are trying to talk to someone and also like.. I felt like he might be like 'oh, she is looking at herself.. that is weird'..

<The few times that you did glance at yourself, what were your thoughts?>

I don't know. I literally just glanced and looked away. Just a couple of times. And oh no.

<Was it different at all>

It was just kind of, there I am. And looked away again.

Interview snippets - Session23 speaker

<You mentioned being concerned about your appearance, your posture, etc. In the second one you could actually see yourself.>

Ummm.. I could see myself.. bigger?

That..hmmm.. no..

<Did you look at that screen at all>

I guess I felt a little. I wrote that down for the second one but I was feeling it for both stories. But, no, not really. I might have just felt a little more comfortable with the second one just because it is more clear.. the image is more clear. I could see better. Like manage/adjust my own posture and actually see how it actually looked. Better.

<Did you do a lot of adjusting>

I mean, it was like shifting from one side to the other.

<Did you do a lot of adjusting based on what you could see>

Yes, definitely. Definitely. Where I was looking at, if I was looking at the camera, or if I wanted to look at myself, but then I wasn't looking at the camera. So, it was just.. general stuff I think you do when you Skype or video call.

<Was that distracting at all>

No, not really.

<Do you practice presentations in front of mirrors>

No, I don't practice presentations. Ummm.. I don't. But I Skype a lot. A lot. I Skype with my parents almost every day. So...

Interview snippets - Session24 listener

He was laughing a lot throughout..

...

<In the second story..You were more conscious of what you ..>

Definitely. When you are talking to somebody you kind of want to look at them. But.. it is kind of like talking with a mirror off to your side. So, you occasionally see yourself glance, but you try and not to stare at yourself. And it is kind of just in the side of your vision.

Ummm.. I don't know. Along with that it just makes you more conscious of your mannerisms that you might not know otherwise. If you like tilt your head or something that you normally don't think about, you immediately notice like 'oh I did that' and it is just like a little bit distracting.

<Was there anything like that that happened>

Yeah.. I think I noticed how much I nodded my head while he was talking. And that was like an example. It's not like I had to agree with something he was saying. Me just confirming that I was listening. And I was just doing this motion quite a lot, and I noticed that, and it was a bit strange. You know you don't see that a lot.

<How did you feel about that?>

Little bit surprised. But it was not shocking or anything. It was just like, I guess I do that. I don't know.

<Did you stop?>

I did do a little bit less once I noticed.

Interview snippets - Session24 speaker

If without the screen I talk to Austin, then there are two situations, right? When I have the face, right? I will talk more- how to say- like a gentleman. If I just talk to him in -how to say- on the phone right or without seeing the face, I will just like -how to say- response so much right? With my hands and weird things.. and it is good for me.. seeing myself in the screen making me feel correctly.

...

<So it was good for you because you could see what you were gesticulating and so on. Did it do anything else? Did it make you think something or feel something?>

I think it is good. You should take more students to join this activity. It is good. It is a good experience to -how to say- find out something valuable about myself. It is a good experience to be honest, okay? When you experience -how to say- remind of something shameful, go back and remind yourself of something you are proud of yourself, it is just a curve. If you go back, then you find something and you should continue that. It was good.

Interview snippets - Session25 listener

This is a role that I like. I liked to listen. So, this was very natural for me. And I think I am used to people sharing stories with me. So, this is quite normal. If I was on the other side, I would really hate it.

...

Always been the case.

<Do you know why>

I am used to people saying I am a good listener. This year is quite different, because it is part of my job. But I have always had people tell me that.

...

<You mentioned you were just not comfortable seeing yourself>

That is usually what I do when I am doing video calls or whatever. I just don't like watching myself. And generally if I am not on a video call, but I am watching a video recording for me, or audio recording, I don't like to hear myself or see myself. I would be over-criticizing. So, I prefer not to.

<Because you are over-critical of yourself. Are you the same way if you are getting dressed in front of a mirror>

So, one thing I do is I have to look in the mirror before I leave. But.. it may not be the last thing I do.. and I can skip it if I am in a hurry, if I have other things that I need to do. I can check my mobile instead of checking the mirror. So.. yeah. It is not the major concern.

<Do you think you are overcritical there as well>

No, I think it is different. Maybe I just don't care that much about how I look unless I really need to.. like.. if I am going to an official meeting or something. But otherwise I don't care a lot about how I look. But for me, for the video calls or audio calls because it relates to job.. part of my job..

me representing something, me explaining something to people, so usually if I do it and see myself talking, I will have all the comments that they can say and so I prefer not to watch it when it is happening or later.

<So this is more professional setting, but what about a more personal setting. For example, if there is a birthday party going on informally and someone records it>

No, still no. I don't think I like to see myself doing anything. It just happens. Because it is like in retrospect of how you presented something, how you are talking, how you are showing.. I don't know. Generally I don't like to see myself or hear myself. And this is quite real. Because I am always talking in front of people, so I don't have a problem speaking to people but maybe.. part of this is that I would be overcritical of myself. And that.. If people have to see me, they have to.. But I don't have to.

<Very interesting that you say overcritical and not just critical. Some people like to tape rehearsals to find areas of improvements. Here it sounds like you think you do okay, but that you think you would still nitpick>

I wouldn't say that I do okay. I know that I will always be missing stuff. But talking about your rehearsals.. I hate to rehearse.. I never rehearse. I will always have comments, no matter how much rehearse I do, I will have more comments to say, and one other part, which is not related to what we are talking about, is that I feel it will be more natural if I represent without rehearsal. So, I like it more, especially for presentations, to be spontaneous. And to be.. umm.. reflecting to what the people I am taking to are. So, this makes it more natural for me.

...

<Going back to seeing yourself.. You didn't turn off your screen>

No, because I didn't want to ruin your experiment. I was thinking that of course you need to record something about me. And maybe you wanted to see if I am doing something or stuff. But I cared about you, so I decided not to do anything. You asked me not to touch anything.

<So, did you glance at yourself at all>

Ummm.. not sure. Maybe. Not sure.

<Given a choice and if I was just another researcher, you would have turned it off?>

Yes.

Interview snippets - Session25 speaker

<For the second one, very uncomfortable.. did not want to remember this>

Oh well. the difference was just because of the nature of the story. I think in general, as humans, we like to present ourselves in a good way. So.. it was just very strange for me.. It was okay showing myself in a positive light to someone that I didn't know, but when it was negative it was just like ummmm... I don't know.. I wasn't feeling it I guess.. would be a good way to describe it. Like, I was just uncomfortable. But.. Also the nature of telling the story itself, like, independent of whom I am telling it to.. like even if I was telling it to my best friend, I would still be uncomfortable because the situation itself made me uncomfortable and I was unhappy with my actions just by themselves, let alone.. just thinking about the story and telling the story made me uncomfortable. And then coupled with it being to a stranger, just made it very strange for me..

<Your first conversation went well. Did that make it better?>

In a way. Yeah. It made it better just because.. I don't know.. I could tell after I finished the story, in both cases, that he was paying attention and that.. like.. I don't know he understood and could sympathize in a way. Like, before.. especially because the first story that I said was like a good one, that made it better. Because he already had a semi good impression, and then, when I told the second story... ehh.. like.. I feel like first impressions especially are very important so it was like, it was good and then there was a little bad but there is still good before so it is okay.. So, umm.. I think, that like it definitely.. the order of the stories made it better.

....

Yeah, I think it made me more comfortable. If that was the first story, you had asked, if you had told me to say when I was ashamed first, I would have been like.. uhhhhh.. I just would have been like oh god, what am I doing right now. Whereas like because it was the second story, it was a little bit better. I was like okay, I can do this.

....

<Coming to.. being able to see yourself, you said it was weird.. but on the other hand it was nice to see what your partner was seeing>

Yeah.. So, kind of like.. if I am on facetime with my mom or anyone really.. I can see their whole.. the whole screen is basically their face and then there is this little tiny icon with my face. So, I can have feeling for what she is seeing but I can't really tell. Like.. ummm.. I don't know. It is more comforting to know exactly what he was seeing. Because one, he is stranger. I don't know him all that well. Like, what is he looking at right now.. Ummm.. it was weird because in general, like in normal conversations, I am not looking at myself, I am looking at you. Ummm.. versus like, on a video chat type thing, I can see a little bit of myself, so it kind of puts emphasis on that. So, while I was talking, like, it was weird because I could see myself and in a normal conversation, normally, I can't. But it was nice because.. I don't know.. sometimes, in normal conversation, other people see things you can't see and you have something stuck in your teeth or something like that.. so,

it is just nice to know that. So, it wasn't like incredibly like life changing that I could see myself but it also wasn't entirely bad. If that makes sense.

<So, whenever you would glance over>

I would look over, and just go.. hmmm.. I can deal with that. And yeah, it was kind of weird because I would look in the camera most of the time versus at him. Because I think it was slightly uncomfortable and I was concentrating more on the story than I was on him, but then again, towards the end of the story, I would look more at him just because I don't know if at that point like my story was trailing off, and I was getting more comfortable with the fact that I told it.. so I like told most of it already anyway or what.. but yeah.

Interview snippets - Session26 listener

<For the first study you could see yourself. You mentioned it was a bit awkward>

I just.. like.. It is like a mirror here and hence I feel a little bit more awkward. And I am not a person who always check if I wore a right dress today, if my hair looks okay. I barely check that. So.. it is a little bit awkward with a side of me.. so I just take a peek at it.. I don't even know what would I look from the side. I did look at it for several times

<And what did you feel>

Uhhh.. not very good looking.. Yeah..

<Anything else>

Uhhhh.. no.. I just peeked and go back to the conversation.

Interview snippets - Session26 speaker

Comment: More ashamed about the proud story. Cultural thing most likely.

<You could see yourself. You said you liked to see your expression, but some of it was new to you>

Yes. Because normally we see each other on the mirror with the mirror face. It is different when you are making gestures and telling.

My shame story is kind of funny also.... you'll see...and I see I was having a good time telling her the story. But for the second one, it was good not to be see myself.

Because I could focus more on her. Because for me.. It was good to have this opportunity to talk about myself. But at the end it is stressful. I feel the need to say.. and about yourself...to include the other person.

<I would like to hear more about the "a few expressions were new to me". Specific example>
I think I glanced one particular moment. I don't know. Maybe a facial expression, that I (went) 'is it me' I did not know I had this particular.

It was good. It was kind of a relaxed thing. Very spontaneous. It was good. I think... It's... I don't know about other people. But I do need this kind of feedback sometimes.

<How did you feel? Oh my God is that me or more positive>
Oh no no, It was positive. And it was me enjoying the moment. And that is a better description. Just being present and telling the story and having this kind of conversation.\n

Appendix E

Data and Results

Table E.1: Promising correlations for duration of story

| Parameter | Correlation |
|--|-------------|
| With attentiveness towards partner (Listener's self-rating) | 0.2542 |
| With attentiveness towards partner (Speaker's self-rating) | 0.1926 |
| With partner's attentiveness (Speaker's rating) | 0.1909 |
| With responsiveness towards partner (Listener's self-rating) | 0.2473 |
| With partner's responsiveness (Listener's rating) | 0.3324 |
| With partner's responsiveness (Speaker's rating) | -0.2389 |
| With how interesting the story was (Listener's rating) | 0.2358 |
| With how interesting the story was (Speaker's rating) | 0.3520 |
| With how personal/intimate the story was (Speaker's rating) | 0.2532 |
| With closeness felt towards partner (Listener's rating) | 0.4156 |
| With closeness felt towards partner (Speaker's rating) | 0.2764 |
| With perceived closeness felt by partner (Listener's rating) | 0.3044 |
| With perceived closeness felt by partner (Speaker's rating) | 0.2921 |
| Same gender for both listener and speaker | 0.3454 |