

**DEVELOPING METHODOLOGY OF ELICITING EMOTIONS FOR  
THERAPUETIC, PREVENTATIVE, AND CORRECTIVE MEASURES**

An Undergraduate Research Scholars Thesis

by

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## **ABSTRACT**

Developing Methodology of Eliciting Emotions for Therapeutic, Preventative, and Corrective Measures. (May 2013)

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The purpose of this research was to develop up to date reliable methods of eliciting emotions that could further be used by the scientific community. While breakthroughs have been made in almost every field of scientific research, the everyday methodologies utilized by Psychology researchers has failed to grow accordingly. We set out to bridge the gap between actual and idealized efficiency in psychological research through the use of recently developed technologies. The emotion elicitation method which we set out to refine was the use film clips since they are not easily influenced by other factors and have proven to be very effective in prior psychological research. Combining the utility of movie clips and modern methods, a resourceful and proficient methodology protocol was developed. To make this research possible we utilized a total of four film clips, which were divided into two categories consisting of amusement and fear with two films in each category. All the film clips used were discovered through a public domain film clip bank. Participants were selected through the Amazon Mechanical Turk subject pool. Two studies were created in order to control for between and within effects. The first study consisted of the participants self reporting their mood via the standard emotional inventory

questionnaire the PANAS-X, watching one of the four clips embedded into the site, and self-reporting their mood through PANAS-X. The second studies only difference to the first was the PANAS-X was not given at the beginning. Emotions will be elicited more efficiently through our method and can further serve in creating positive emotions that develop a state of happiness in schools or workplaces.

## **ACKNOWLEDGEMENTS**

We would like to thank Dr. Takashi Yamauchi for all of his help in our endeavors. Without his assistance and guidance none of this would have been possible. At the beginning of this project we lacked direction and enthusiasm, and he infused our work with both. While the final results did not align with our initial expectations it was a fulfilling experience nonetheless. We hope that the methodology we developed has a chance to be implemented in meaningful ways and allows for an increase in work productivity in emotion elicitation areas. This project allowed for us to learn what it takes to be a productive and cohesive team. This has proved to be an indelible learning experience and provided us with opportunities, which we would not have been able to access otherwise. While we did come across several setbacks and near fall-outs, we are proud that we were able to successfully overcome them. We hope that our participation in research will spur the ambitions of fellow undergraduates and hopefully lead others to feed their curiosity and keep asking questions. We would also like to thank Casady Bowman and Kunchen Xiao for all of their efforts and assistance with our undertaking. This work would not have been feasible if it weren't for their diligence and persistence.

# CHAPTER I

## INTRODUCTION

Emotions play a pivotal role for our mental and physical well-being. A countless amount of psychological research is based on the pretense of the effects of emotions. However, the methods currently being used are fairly outdated. Currently, many laboratories only have access to undergraduates at universities, and of those undergraduates most are enrolled in a psychology class at the time of participation in the experiment. Additionally, participants are required to come in to a psychology laboratory to complete the experiments, which further reduces the subject pool down to participants who have the time and capabilities to come in to the lab. Being able to measure the efficacy of emotion elicitation techniques without the prior confinements would be a great asset to future research, the most effective emotion elicitation technique currently being the use of media. Many aspects of media demonstrate how much of an effect sound, images, and video clips have on human emotion. Video clips in particular, have mainly been used for entertainment but have found their implications in mental and physical health in modern times. In previous studies films have been discovered to be beneficial in eliciting emotions because they are not easily influenced by other factors (Gross & Levenson, 1995). For example, the experimenter does not interact with the participant to elicit these emotions and therefore cannot influence the participant's mood. Emotions are also being evoked externally from the participant. Examples of the uses and assistance of emotion elicitation tools can be seen through the terminally ill and in measuring stages of dementia. This is because the power of these devices is unquantifiable as they are capable of accessing almost every facet of human emotion (Juslin & Slobods, 2001). One of the latest studies in emotional elicitation through films was done by Gross and Levenson (1995). Although their study was successful in eliciting emotions, it was only to a certain extent, and there is still a need to develop better methods of measuring emotion elicitation. An example

of this is the emotion of fear, since emotions such as tension are linked with fear making it hard to elicit on its own. This study evaluated the current methods and uses of emotional elicitation techniques in developing more refined emotion elicitation tools. Our study mainly focused on improving Gross and Levenson's (1995) design for eliciting emotions through film clips. Their study consisted of showing film clips to undergraduate students and using a fairly brief (16 item) questionnaire to measure the participant's mood. The problem with their design was that the films they used could now be considered outdated. Using undergraduates from a particular University was not representative of the population and therefore results would not be able to be generalized adequately. The questionnaire they used was only given after the subjects watched the film clips and might not be able to measure a change in the subject's mood. Gross and Levenson's (1995) study was then modified by finding subjects that were more representative of the population, using an efficient self report inventory for measuring emotions, and finding films that were culturally relevant.

## CHAPTER 2

### METHODS

#### **Participants**

Subjects for the study were selected from the Amazon Mechanical Turk subject pool. They were self-selected in that each of the participants had created an account with amazon.com and additionally enrolled in the Mechanical Turk program, which allows them to participate in “Human Intelligence Tests”. These participants are categorized as either people who used Mechanical Turk as their primary source of income or those participants who utilize Mechanical Turk for supplemental income. Being available through amazon.com, anyone with access to the internet is eligible to be a participant. This allows for a very broad and diverse subject pool.

#### **Materials**

Amazon Mechanical Turk was the online system which was decided upon due to its capability to obtain results quickly and its allowance for a larger representative sample. Subjects taking the study were signed in as workers and were paid a minimum amount of money for taking the study. Our lab was the requester and had to incorporate our studies design into the html format of the system. The PANAS-X (expanded version of the positive and negative schedule) was the questionnaire our lab used to measure subject’s emotions and can be seen in Figure 1. The film clips used were discovered through a public domain film clip bank and can be seen in Table 1. In order to test and support our improvements in the basic research of emotion elicitation, for each emotion group one film clip that was historically used in prior research and another that was selected from more socially relevant films that were considered “popular” upon their release were included in the study (Rottenberg, Ray, & Gross, 2007). The “new” and “old” film clips being related by the emotion which they typically elicit but differentiated in there “era of



relevance”. The film selection initially consisted of a 16 different clips, but after some sample trials of different study designs, and our focus on specific emotions only four remained. After in lab sample trials, it was determined that showing multiple video clips as part of the same “HIT” (human intelligence test) confounded the answers given on the PANAS-X questionnaire.

*Figure 1: Sample PANAS-X Questionnaire\**

This scale consists of a number of words and phrases that describe different feelings and emotions. Read each item and then mark the appropriate answer in the space next to that word. Indicate to what extent you have felt this way during the past few weeks. Use the following scale to record your answers:

1	2	3	4	5
very slightly or not at all	a little	moderately	quite a bit	extremely
_____ cheerful	_____ sad	_____ active	_____ angry at self	
_____ disgusted	_____ calm	_____ guilty	_____ enthusiastic	
_____ attentive	_____ afraid	_____ joyful	_____ downhearted	
_____ bashful	_____ tired	_____ nervous	_____ sheepish	
_____ sluggish	_____ amazed	_____ lonely	_____ distressed	
_____ daring	_____ shaky	_____ sleepy	_____ blameworthy	
_____ surprised	_____ happy	_____ excited	_____ determined	
_____ strong	_____ timid	_____ hostile	_____ frightened	
_____ scornful	_____ alone	_____ proud	_____ astonished	
_____ relaxed	_____ alert	_____ jittery	_____ interested	
_____ irritable	_____ upset	_____ lively	_____ loathing	
_____ delighted	_____ angry	_____ ashamed	_____ confident	
_____ inspired	_____ bold	_____ at ease	_____ energetic	
_____ fearless	_____ blue	_____ scared	_____ concentrating	
_____ disgusted with self	_____ shy	_____ drowsy	_____ dissatisfied with self	

\* Watson, D., Clark, L. A., & Tellegan, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology*, 54(6), 1063–1070.

Table 1: Study's Film Clips

<i>ID</i>	<i>Film Name</i>	<i>Lab Length of Film Clip (min:sec)</i>	<i>Release Date</i>
	<b>Old</b>		
	<b>Amusement</b>		
1	When Harry Met Sally <i>Discussion of orgasm in café</i>	2:06	21-Jul- 98
	<b>Old Fear</b>		
2	The Shining <i>Boy Playing in the hallway</i>	1:57	23- May-80
	<b>New</b>		
	<b>Amusement</b>		
3	Anchorman <i>Sex panther scene</i>	2:00	9-Jul- 04
	<b>New Fear</b>		
4	The Grudge 2 <i>Yoko is attacked</i>	2:00	Oct. 13, 2006

## Procedures

In this study, subjects were exposed to auditory and visual stimuli through their computer monitors. To make this research possible we utilized a total of four film clips, which were divided into two categories consisting of amusement and fear, as can be seen in Table 1.

Although there were many advantages to Mechanical Turk, there were also a few problems that

came with using an online program. One of these was incorporating our film clips and questionnaire into their html format. We eventually managed to configure the html format for the questionnaire, and an example of the code as used for one question is displayed below:

```
<p>1. Cheerful</p>
<table cellspacing="4" cellpadding="0" border="0">
  <tbody>
    <tr>
      <td valign="middle" style="text-align: left;"><input type="radio" name="Q1" value="Choice1" /></td>
      <td style="text-align: left;"><span class="answertext">1 - very slightly or not at all</span></td>
      <td valign="middle" style="text-align: left;"><input type="radio" name="Q1" value="Choice2" /></td>
      <td style="text-align: left;"><span class="answertext">2 - a little</span></td>
      <td valign="middle" style="text-align: left;"><input type="radio" name="Q1" value="Choice3" /></td>
      <td style="text-align: left;"><span class="answertext">3 - moderately</span></td>
      <td valign="middle" style="text-align: left;"><input type="radio" name="Q1" value="Choice4" /></td>
      <td style="text-align: left;"><span class="answertext">4 - quite a bit</span></td>
      <td valign="middle" style="text-align: left;"><input type="radio" name="Q1" value="Choice5" /></td>
      <td style="text-align: left;"><span class="answertext">5 - extremely</span></td>
    </tr>
  </tbody>
</table>
```

Our study consisted of two experiments. The first experiment is estimated to be completed in around sixteen minutes. The subjects self reported their mood via a standard questionnaire (e.g., PANAS-X, Watson & Clark, 1999), watched one of the sixteen clips embedded into the site, and one again self-reported their mood through PANAS-X. The PANAS-X was a more thorough questionnaire than the one used by Gross & Levenson and can be seen in Figure 1. According to Watson & Clark (1999) this is because it “can be used validly to access long term individual differences in [emotions]” (p. 26). The version we incorporated into Mechanical Turk consisted of a 1-5 scale in which one signifies that the participant felt the emotion very slightly or not at all and 5 means the participant felt the emotion extremely. An example of one question in the questionnaire formatted into Mechanical Turk is shown below.

- **This scale consists of a number of words and phrases that describe different feelings and emotions. Read each item and then mark the appropriate answer in the space next to that word. Indicate to what extent you have felt this way during the past few weeks. Use the scale below each word to record your answers:**

1. Cheerful

- 1 - very slightly or not at all       2 - a little       3 - moderately       4 - quite a bit       5 – extremely

The second study took around seven minutes, and its only difference from the first was that the PANAS-X was not given at the beginning. The two experiments were used to help control for effects of the questionnaire such as; the variability in answers from different participants and the two design samples can be seen below in Figure 2 and Figure 3. No strategy of deception was included in this study. All experimental procedures were controlled by the computer program and the experimental data was recorded by the program automatically. Finally, differences in pre and post exposure moods and mood variance across groups exposed to correspondingly designated stimuli were to be analyzed.

Figure 2: Design # 1 Sample

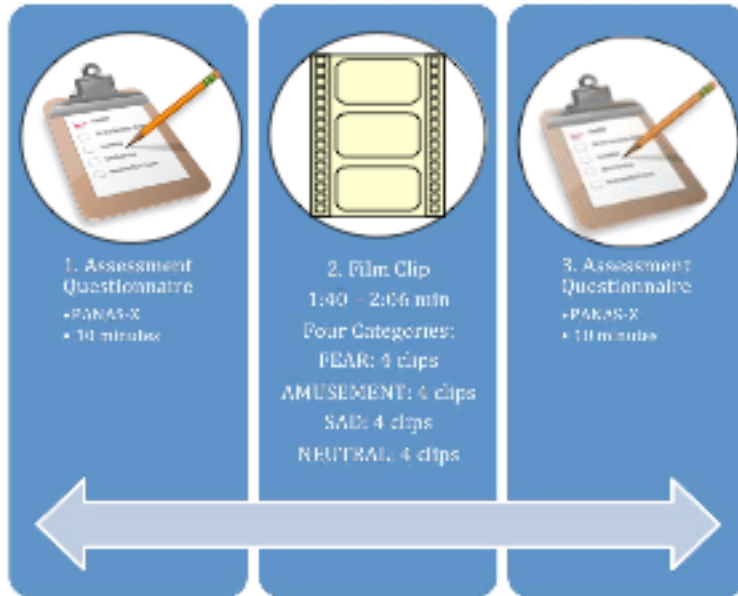
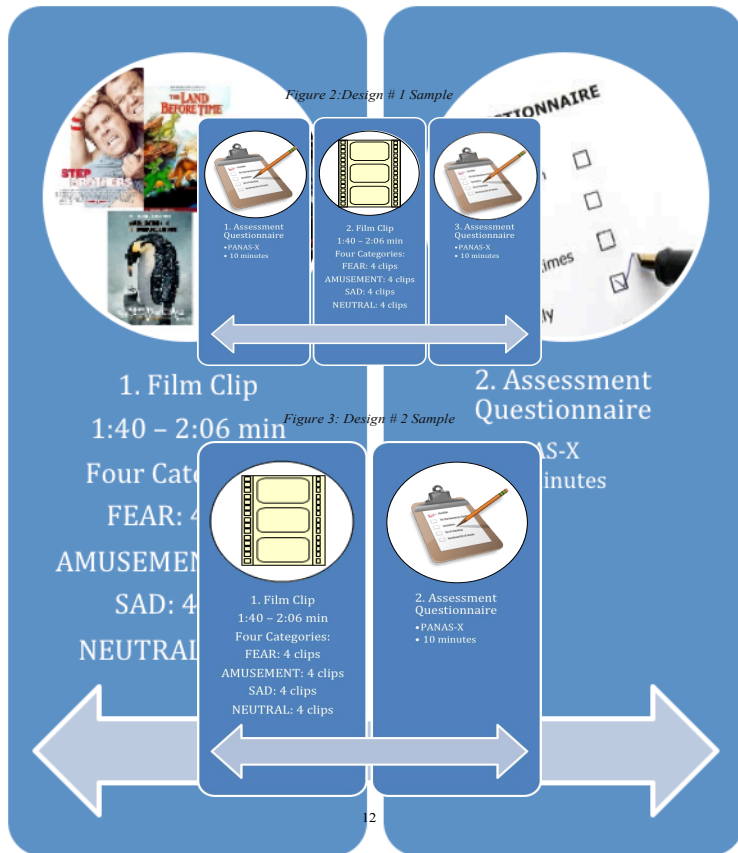


Figure 3: Design # 2 Sample



## CHAPTER 3

### RESULTS

In order to develop better methods for eliciting emotions we decided to utilize an online human intelligence marketplace service, Amazon Mechanical Turk. This system allows flexibility, speed, and accuracy in obtaining results and allows us to use subjects that are more representative of the population. The problem with utilizing this service was incorporating our questionnaires and film clips into their html format. It was a lengthy process but was finally resolved and we are now able to explain this process if future researchers in our area attempt to use Mechanical Turk. So far we have done a few sample trials using our amusement film clips to demonstrate that the film clips we selected fall under this category of emotion. This was done by having the subjects view one of the four clips in the amusement section and rate it as: hilarious, funny, slightly amusing, boring, or confusing. Results demonstrated that there are some clips that are seen more amusing than others and that we might need to work on selecting the time frame for our clips since some are viewed as confusing. One drawback of conducting research using new methods is having to discover and then work through all of the kinks. Our major dilemma was completely unforeseen. When conducting experiments on Mechanical Turk, once every participant submits their HIT response, the “requester” then approves or rejects the results. If approved, the participant is paid for their efforts but if rejected there is no reimbursement and no resulting data. Our first “batch” came back with unusable results and brought to our attention that the formatting of our questions needed to be reformatted. The unusable results were all rejected by us, the requesters. As a result, we were effectively black-balled in the participant pool and could no longer obtain participants. For every requester there is a rejection and acceptance statistic which is displayed to workers so they are aware of their likeliness of being approved or

rejected. So while the infrastructure and procedure are in place, the conducting of research through our primary account reached a stalemate.

## **CHAPTER 4**

### **DISCUSSION**

After refining these techniques they might also serve in creating positive affect or positive emotions that are advantageous to society, because these emotions can improve efficiency and dedication to tasks (Isen, 2000). These results were shown in studies presented in Isen's article in which individuals who were presented with a "happy" as opposed to a neutral stimuli arrived at answers more quickly. Participants also tended to go above and beyond and do more than was required. Creating positive emotions can benefit society by developing a state of happiness in schools or workplaces that will promote creativity and help with problem solving (Isen, 1987). Overall emotional elicitation techniques are currently being used more widely and if applied properly can actually be very beneficial (Norton, 2011). While the pecuniary costs associated with having to reward each participant individually may be seen as a drawback of the developed methodology, when these costs are compared to the cost of having to maintain an area and tools for participants to come in and use they are negligible. One of the major advantages of this methodology is that participants use their own tools (computer, mouse, etc.) in completing tasks and so the hazards and issue that come with maintaining community equipment are avoided. The developed methods allow researchers access to a number and range of participants currently unrivaled by in-lab testing procedures. The variance in age alone provided by the use of the internet would mean much broader implications for revised and re-conducted experiments. While the exact experiment we had set out to replicate was stopped short by a concealed technicality, the replication of past experiments using the same stimuli but with this broader subject pool and more efficient data collection should prove to be esteemed.



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