THE EFFECTS OF BODY GESTURES AND GENDER ON VIEWER'S PERCEPTION OF PEDAGOGICAL AGENTS' EMOTIONS

by

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GLOSSARY

Pedagogical Agents: 2D or 3D animated characters that are developed to be utilized in a digital educational environment. They are used to supplement and enhance lectures or interactive lessons.

Gesture: A pose that an APA may perform to either express an emotion or to provide body language that helps to facilitate learning.

Syncing: Refers to the process of timing animations or other time sensitive elements (i.e. a Slideshow), especially to an audio source.

Animation Clips: A development technique where actions (i.e. Walking, Pointing) are all stored in a prebuilt database of clips. The resulting animation is then constructed by combining and interpolating between the clips. Some animation clips can be looped seamlessly.

Valence: Refers to a character's mood when expressing an emotion. High valence means that the character is in a pleasant (i.e. happy) mood, while low valence means that the character is in an unpleasant (i.e. sad or angry) mood.

Arousal: Refers to a character's level of energy when expressing an emotion. High arousal means the character has a high level of energy (i.e. excitement or anger), and low arousal means that the character has a low level of energy (i.e. sad or calm).

ABSTRACT

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Title: Determining if Modifying an Animated Pedagogical Agent's Body Gesture and Gender Affects Human Emotional Perception
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The goal of this research is to develop Animated Pedagogical Agents (APA) that can convey clearly perceivable emotions through speech, facial expressions and body gestures. In particular, the two studies reported in the thesis investigated the extent to which modifications to the range of movement of 3 beat gestures, e.g., both arms synchronous outward gesture, both arms synchronous forward gesture, and upper body lean, and the agent 's gender have significant effects on viewer's perception of the agent's emotion in terms of valence and arousal. For each gesture the range of movement was varied at 2 discrete levels. The stimuli of the studies were 8 12-seconds animation clips generated using a fractional factorial design; in each clip an animated agent who speaks and gestures, gives a lecture segment on binomial probability. 4 clips featured a female agent and 4 clips featured a male agent. In the first study, which used a within-subject design and metric conjoint analysis, 120 subjects were asked to watch the 8 stimuli clips and rank them according to perceived valence and arousal (from highest to lowest). In the second study, which used a between-subject design, 300 participants were assigned to two groups of 150 subjects each. One group watched the 4 clips featuring the male agent and one group watched the 4 clips featuring the female agent. Each participant was asked to rate perceived valence and arousal for each clip using a 7-point Likert scale. Results indicated that extending the arms outwards and forwards as well as modifying the agent's gender from male to female increased perceived valence and arousal, whereas rotating the body backwards increased only perceived valence.

CHAPTER 1. INTRODUCTION

1.1 Problem Statement

A current challenge is the process of effectively teaching material through distance learning. One novel approach is using pedagogical agents, which are virtual animated characters embedded in e-learning environments. Research has shown that animated pedagogical agents (APA) can be effective in promoting learning (Schroeder, Adesope, & Gilbert, 2013), but many questions remain unanswered, particularly concerning their emotional design. With the growing understanding of the complex interplay between emotions and cognition, there is a need to develop life-like agents that not only provide effective expert guidance, but also convincing emotional interactions with the learner (Yanghee Kim & Baylor, 2016).

There has been considerable debate as to whether posture and movement reliably convey emotions, or rather convey only the intensity of the emotion (Ekman & Friesen, 1969; Lhommet & Marsella, 2015). We examine how body gestures might convey both the quality of the emotion and its level of activation. We use Russell's (2003) model of core affect in which any particular emotion can be placed along two dimensions, valence (ranging from positive to negative), and arousal (ranging from activation to deactivation) and investigate whether and how changes in the motion parameters of a set of body gestures affect the perception of the agent's emotion along both dimensions. We also examine whether the agent's gender has an effect on viewer's perception of the emotional content.

Studies like the ones reported in this thesis are important because they may advance not only research on representation of emotion in affective embodied agents, but also psychology research on bodily expression/perception of emotion in general.

1.2 Purpose

The purpose of this research is to develop APAs that can convey clearly perceivable emotions through speech, facial expressions and body gestures. The studies

reported in the thesis are a first step in this direction. They focus on how emotions are conveyed through body cues and, in particular, they examine the extent to which modifications to the range of movement of a set of beat gestures affects viewer's perception of the agent's emotional state. An important issue in bodily expression of emotion research concerns the distinction between a person's encoding of emotion in physical behavior versus an observer's decoding of emotion from observations of the person's behavior. We are concerned with the latter, and whether the observed perceptual effects are moderated by viewer's characteristics such as gender, age, and educational level.

1.3 Assumptions

This research used the following assumptions:

- Study participants were honest with their opinion throughout the procedure. They were to answer the survey based on their own knowledge and experience, rather than answering based on what they assumed the researchers would like to observe. The study participant's intent was that they were interested to contribute towards the study.

1.4 Limitations

This research acknowledged the following limitations:

- The agent's gesture modifications were performed by a parameterized script rather than by manual keyframing. This potentially meant there may be occasional postures in the animation that might not be perceived as natural.
- Participants needed to be able to identify different emotions through only a few changes in visual body cues.
- Even though the agents within the study had both a blurred face and young adult proportions, their intrinsic design characteristics could initially influence emotional perception.

- Perception of the agent's emotional state might have been influenced by the differences between the male and female voice recordings used in the clips.

1.5 Delimitations

This research acknowledged the following delimitations:

- The topic used in the study's digital lecture was from statistics.
- Animations used in the study were assembled using interpolated pre-built motion-captured animation clips rather than manual keyframe animation to save time during production.

1.6 Definitions

The following key definitions are used throughout this paper:

- *Valence:* the perceived positivity from a character's body language, ranging from unpleasant (low valence) to pleasant (high valence)
- *Arousal:* the perceived energy level from a character's body language, ranging from deactivated / disengaged (low arousal) to activated / engaged (high arousal)

1.7 Abbreviations

The following abbreviations are used throughout this paper:

- *OG:* Short for open gesture, used when referring to spreading the arms horizontally in relationship towards the agent's body.
- *FG:* Short for forward gesture, used when referring to spreading the hands directly in front of the agent's body.
- *BL:* Short for body lean, used when referring to the forward or backward tilt of the agent's upper torso.
- *G:* Short for the gender parameter
- *OGxFG:* Represents the interaction when both OG and FG are adjusted simultaneously

- *OGxBL:* Represents the interaction when both OG and BL are adjusted simultaneously
- *FGxBL:* Represents the interaction when both FG and BL are adjusted simultaneously

CHAPTER 2. LITERATURE REVIEW

In this section, first, I examine prior research on the benefits of including animated agents in digital media learning. Second, I discuss expression of emotions through body gestures and report different classifications of emotions, especially Russell's Model of Affect. Third, I review prior studies on perception of agents' emotions from body cues, as well as prior studies based on the perception of the agents' gender.

2.1 Affective Pedagogical Agents

Studies have suggested that the presence of pedagogical agents improves learning. A meta-analysis by Schroeder suggested that lessons with animated pedagogical agents displayed a statistically significant learning improvement compared to lessons without them (Schroeder et al., 2013). One characteristic of why a pedagogical agent helps to facilitate learning was that they could "signal the learner's attention to the relevant information" (Schroeder et al., 2013). A test performed by Wang suggested that having a pedagogical agent point to diagrams on display helped to redirect the viewer's eye gaze on the subject matter (Wang, Li, Mayer, & Liu, 2018). This consequently led to students that had a lecture with gesturing agent score higher on a post-lesson test than students that had a lecture with a static agent or without an agent.

Another reason why pedagogical agents help to facilitate learning could be that the viewers find them engaging because of their "human-like" personalities (Dehn & Van Mulken, 2000, p. 2). A study by Poggiali showed that students found "animated videos easier to learn form, in part because they held their attention" (Poggiali, 2018, p. 36). The agent's personality helped to contribute towards the student's engagement; study participants reported that the agent's outgoing personality helped them relate to it like an outgoing human instructor. This emphasizes the importance of establishing a social connection between the agent and the learner.

Despite the positive benefits of utilizing pedagogical agents, the agent could be a visual distraction if its presence does not contribute towards presenting on-screen

information. The cognitive load theory suggests that the presence of pedagogical agents may contribute to additional cognitive load (Clark & Choi, 2007). Wang's study has shown that study participants that had a static non-gesturing pedagogical agent in a lesson scored just about as poorly as the participants that did not have a pedagogical agent (Wang et al., 2018, pp. 259–260). The eye-tracking information demonstrated that for both the static agent and the animated agent, the amount of time spent gazing at the agent was roughly the same. The key difference was that the animated agent constantly pointed to course material, whereas the static agent was primarily a bystander that was not integrated into the lesson. In short, the animated agent helped the viewers to redirect their eyes back towards the slideshow (Wang et al., 2018).

2.2 Expression of Emotions through Body Gestures

The agent's gestures are crucial in conveying its emotional state, as non-verbal cues potentially can make up to 93% of the conversation during conversation (Larsson, 2014, pp. 6–7). A study by Anasingaraju showed that body motion was the biggest contribution to a believable stylized animated character, rather than the character's facial and lip sync (Anasingaraju, 2017). Incorporating emotional design within the pedagogical agents improved learning outcomes within a lesson (Mayer & Estrella, 2014), showcasing the need for the agents to have recognizable emotions.

An emotion, or an affective state, is a short duration-mood that is closely associated towards a specific event (André, Klesen, Gebhard, Allen, & Rist, 2000). Ekman classified emotions in six basic categories. e.g. happiness, sadness, anger, disgust, fear, and surprise (Ekman, 1992). A study by Atkinson has shown that viewers were able to recognize five of the six basic emotions (Surprise was not tested in the study) from static and dynamic images containing body markers (Atkinson, Dittrich, Gemmell, & Young, 2004). A similar study by Coulson using a posed virtual mannequin confirmed the similar results (Coulson, 2004).

Despite gestures playing a crucial role in conversation, identifying emotions from body gestures alone is not straightforward. Several emotions are easily classifiable through body gestures only, especially basic emotions such as anger, sadness, and

happiness (Karg et al., 2013). However, there are also emotions that are difficult to express with body language alone. From Ekman's basic emotions, surprise, disgust, and fear are the most difficult emotions to express from arm movements alone (Sawada, Suda, & Ishii, 2003). A study by Atkinson suggests that sadness and disgust were most easily misclassified for each other (Atkinson et al., 2004). A study by Ennis showed that body gestures only without the face caused confusion in differentiating emotions with high arousal (Ennis, Hoyet, Egges, & McDonnell, 2013). Ennis concluded that body gestures alone caused difficulties in identifying between happy and angry gestures, but in contrast sadness and fear were more identifiable from each other. Karg has also stated that high valence and low arousal gestures, such as content, were not easy to express from gestures alone (Karg et al., 2013). While gestures may help to differentiate between emotions with high and low valence, arousal was more easily identifiable by agent's movement than just from still poses. This helped to forewarn that there was a possibility that showing off one emotion's gestures could result in a misclassification of another emotion with similar arousal levels.

2.3 Russell's Model of Affect

Russell's Model of Affect (RMA) classifies most human emotions along two dimensions: valence (ranging from displeasure to pleasure) and arousal ranging from deactivation to activation) (Russell, 2003). Figure 2.1 shows a diagram of RMA, where valence and arousal form two axes of the model. Combinations of positive or negative valence and arousal can lead to the emotion being placed in quadrant 1 (anger and confusion), quadrant 2 (happiness), quadrant 3 (content), and quadrant 4 (sad and tired).

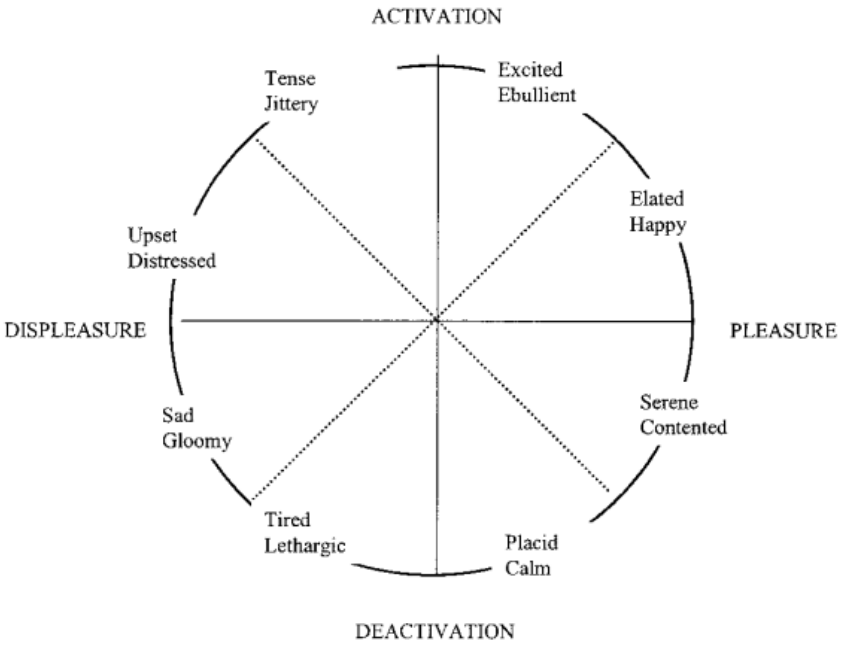

Figure 2.1: Russell's Model of Affect. (Russell, 2003)

2.4 Gestures and Perception of Agents' Personality

Compared to an emotion, a personality is defined as a set of permanent or long-lasting complex characteristics that make up how the agent interacts with the environment (André et al., 2000). In this section I review primarily studies that compared between extroverted and introverted personalities. Table 2.1 sums up the gestural and movement difference between introversion and extraversion based on Neff's study findings.

Table 2.1: Introversion and Extraversion difference table

	Introversion	**Extraversion**
Body Attitude	Backward learning, turning away	Forward leaning
Gesture Amplitude	Narrow	Wide, broad
Gesture Direction	Inward, self-contact	Outward, table-plane and horizontal spreading gesture
Gesture Rate	Low	High, more movement of head, hands, and legs
Gesture Speed, Response time	Slow	Fast, quick
Gesture Connection	Low smoothness, rhythm disturbance	Smooth, fluent
Body Part	Legs leaning, bouncing, shaking of legs	Head tilt, shoulder erect, chest forward, limbs spread, elbows away from body, hands away from body, legs apart

Note. Adapted from Neff (2010)

An agent with an extroverted personality is more likely to show interest and friendliness towards the viewer (Allbeck & Badler, 2002; Mehrabian, 1996). In order to look more engaged, the agent tends to open outwards to amplify a sense of space, (Neff et al., 2010), such as extending the hands horizontally, rotating out the elbows, and raising the shoulders. An agent that expresses friendliness, tends to consistently make eye contact with the viewer (Neff et al., 2010) and open up the arms towards the viewer (Ball & Breese, 2006). In general, an extroverted agent is likely to express emotions that have positive valence and high arousal.

An agent with an introverted personality tends to show disinterest towards the viewer. As a result, the agent is more likely to focus on minimizing their body size (André et al., 2000). The upper torso is more likely to stand upright or to lean slightly backwards, whereas the hands are prone to close and touch the agent's own body (Neff et al., 2010). When comparing the horizontal spread the agent's gestures, the introverted agent's horizontal spread is only 10% to 60% of the extroverted agent's horizontal spread (Neff et al., 2010). Considering that the introverted agent is more prone to minimizing occupied space, the agent tends to perform fewer out-directing gestures, leading to the introverted character showing more submissiveness (Allbeck & Badler, 2002). Looking at the attributes listed above, this means that an introverted agent is more likely to show emotions that have negative valence and low arousal.

The relationship between valence, arousal, and personality is better illustrated by the Positive and Negative Affect Schedule (PANAS) included in Figure 2.3 (Watson, Clark, & Tellegen, 1988). Extraversion corresponds to having high valence and high arousal, and Introversion corresponds to having negative valence and low arousal. Neuroticism (negative valence and high arousal) and Constructive Thinking (low arousal and positive valence) make up the remaining quadrants.

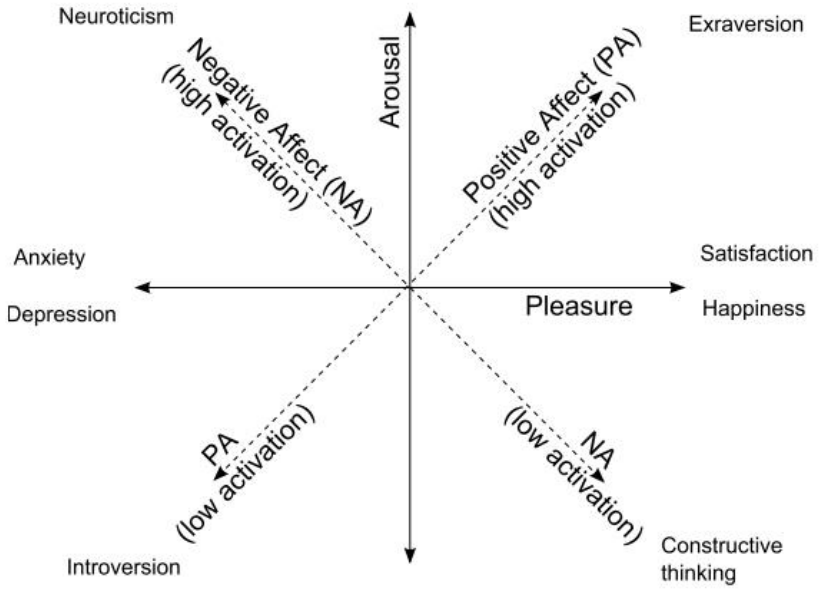

Figure 2.2: Showing personalities in the PANAS model. (Saerbeck & Bartneck, 2010)

Extroverted and introverted characters would also show a different amount of control over another person. The Pleasure-Arousal-Dominance (PAD) model was built similarly to RMA, but include an additional dimension, e.g. dominance (third axis) (Mehrabian, 1996). In the PAD-model, dominance is defined as the amount of control that a character had over others (André et al., 2000). An extroverted character asserted more dominance than an introverted character. This gives the extroverted character an additional incentive to both directly make eye-contact towards the viewer and to amplify a larger sense of space (Neff et al., 2010).

While gesture frequency rate and movement speed are not variables that are to be explicitly tested within this study, they both are also factors in identifying personalities. In terms of frequency, an extroverted would perform more gestures than an introverted character in the same time frame (Neff et al., 2010). Considering that an extroverted character is prone to talk more quickly, he would need to provide more conversational gestures to compensate. As for movement speed, an extroverted character's motions are quicker and snappier compared to an introverted character's motion, which are slower and more lethargic (Neff et al., 2010).

2.5 Agent's Gender

The gender of the pedagogical agents has shown to affect interaction with the viewers. Some studies suggest that female agents are perceived as more supportive. A study by Baylor and Kim has shown that study participants who have worked with female agents "showed higher self-efficacy beliefs than [study participants] who worked with male agents" (Baylor & Kim, 2010). However, Baylor and Kim have also conducted an earlier study where study participants who worked with male agents, regardless of the participants gender, were more engaged and showed higher interest in a given exercise (Y. Kim, Baylor, & Shen, 2007), which was also consistent with past studies indicating that college students "showed higher motivation and more positive perceptions of agents after they had worked with a male agent than after they had worked with a female agent" (Y. Kim et al., 2007).

The gender of the viewer could also influence the interaction with the pedagogical agent. A study by Krämer et al. has shown that a study participants group who interacted with agents that were of the opposite gender resulted in them giving a higher rapport rating that study participants group who interacted with agents with the same gender. This led to the former group having higher learning efforts during the study (Krämer et al., 2016). Baylor and Kim have stated from their results that while both male and female participants rated the male agent as more engaging when the agents were both expressing a positive emotion, study participants were more likely to rate the opposite-gender agent as more engaging when both genders were displaying more negative emotions (Y. Kim et al., 2007).

2.6 Summary

The literature review begins with establishing the context behind the motivation of including of pedagogical agents within distance-based online learning materials, as well as the context of emotion classification. Russell's model of affection would serve as basis to quantify emotions with both valence and arousal (Russell, 2003), which would be used throughout the study.

Next, the literature review provides the foundation on body gesture patterns that make up an engaging pedagogical agent. For an agent to appear engaging towards the viewers, the agent would need to expressive traits from an extroverted personality in order to portray friendliness with the viewer. This meant that the agent needed to amplify a larger sense of space and to reach and open out to the viewers more via its arms and upper body (Ball & Breese, 2006; Neff et al., 2010). Consequently, having the agent minimize space and amplifying distance towards the viewer would result in an agent looking more disinterested in the viewer (André et al., 2000; Neff et al., 2010).

Finally, the literature review investigates on how the pedagogical agent's gender may affect the resulting perceived emotions. Overall, female agents appeared more supportive (Baylor & Kim, 2010). As for which gender looked more engaging, there have been studies that suggested that either male agents were generally viewed as more engaging (Y. Kim et al., 2007), or that the gender of the participant mattered and that the agent with the gender opposite from the participant was viewed to be more engaging (Y. Kim et al., 2007; Krämer et al., 2016).

CHAPTER 3. METHODOLOGY

The objective of the studies was to examine the extent to which changes to the range of movement of 3 beat gestures and the agent gender affect viewers' perception of the agent's emotional state along Russell's dimensions of valence and arousal. The three beat gestures selected for the study, e.g., both arms synchronous outward gesture, both arms synchronous forward gesture, and upper body lean, are gestures that are commonly produced by instructors while lecturing and have been shown to convey some information about the speaker's emotional state, personality or status (Cui, Adamo-Villani, & Popescu, 2014).

Two experiments were conducted; one study used a within-subjects design and Metric conjoint analysis; the other study used a between-subject design and linear regression. The stimuli for both studies were 8 12 seconds clips generated using a partial factorial design, each clip showed a different combination of body gestures and ranges of motion. 150 subjects participated in the first study and 300 subjects participated in the second one. In the first study subjects were asked to watch the stimuli clips and rank them from highest to lowest arousal and valence. In the second study subjects were asked to watch the same stimuli clips and rate the valence and arousal of each clip using a 7-point Likert scale.

3.1 STUDY 1

3.1.1 Defining the Variables.

The study included four independent variables, each one with two levels (see table 3.1 and figure 3.1), and two dependent variables, e.g. valence ranking and arousal ranking of the stimuli clip, with 1 being the highest ranking and 8 being the lowest.

Table 3.1: Representing different factor levels.

Factor	**Level 1**	**Level 2**
OG	Hands are close to body on the sides	Hands are spread apart horizontally
FG	Hands are right in front of the body	Hands are stretched in front of the agent
BL	Body leans backwards	Body leans forwards
G	Agent is Male	Agent is Female

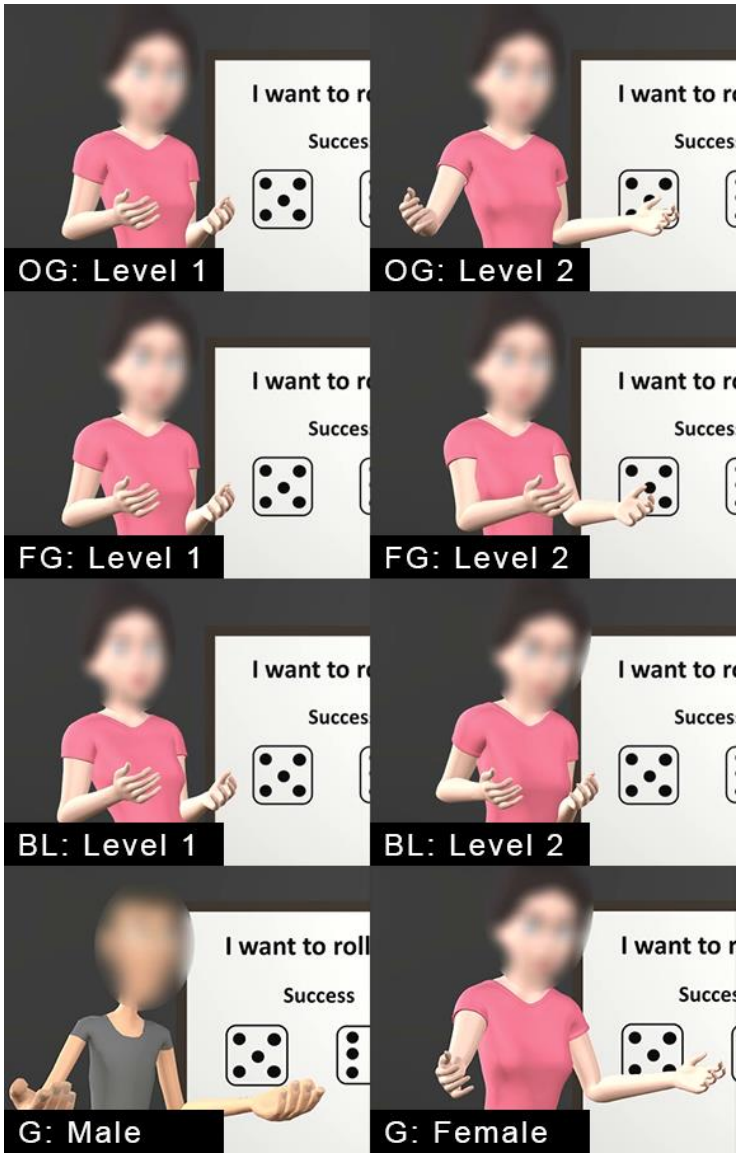

Figure 3.1: Showing different factor and level changes

While the main factor effects might have been potentially important on their own, there was a possibility that a combination of factors would also be significant. For example, extending the arm/hand outward and forward independently might not result in a significant difference on the participant's valence perception but having a combination of the scenarios might. The two-way effect factors were built from all body gesture factors (OG, FG, and BL). This meant there would be three more parameters that would be considered during statistical analysis: OG and FG (OGxFG), OG and BL (OGxBL), FG and BL (FGxBL).

3.1.2 Stimuli

The stimuli were eight 12-seconds animation clips; in each clip an animated agent who speaks and gestures, gave a lecture segment on binomial probability. Four clips featured a female agent and four clips feature a male agent. All animation clips were assembled within the Unity game engine. The scene, based on a university classroom, included a pedagogical agent and a virtual display. All the gesture animations and slide timings were manually synced using the Unity's Timeline feature.

The full quote that the agent spoke was the following: "A success is defined by you as one or more of the possible outcomes. For example, a success of rolling a die could be that you rolled a number greater than four." The first sentenced served to introduce the concept to the viewer. While the agent was speaking the first sentence, he or she would point towards the viewer with his or her left hand, and then returned to a standing position after the sentence was finished. This gesture was not modified and remained the same in all animation clips. While the agent was presenting a fact with the second sentence, the agent would smoothly transition to another gesture which involved the agent opening out his or her hands and leaning his or her body. This gesture was what altered for all clips. Afterwards, the agent smoothly transitioned back to a standing posture.

The agent in the study was framed from thigh-up, at a ¾ views towards the camera to more clearly see varying FG and BL levels. Observing body language required the

viewers to view multiple body parts together as a whole, especially the person's head, posture, gestures, and hand positions (Larsson, 2014, pp. 6–7). Identifying an emotion from a body posture is easier if the agent is looking towards the perceiver, as this implies an interpersonal connection between the agent and the viewer (Coulson, 2004).

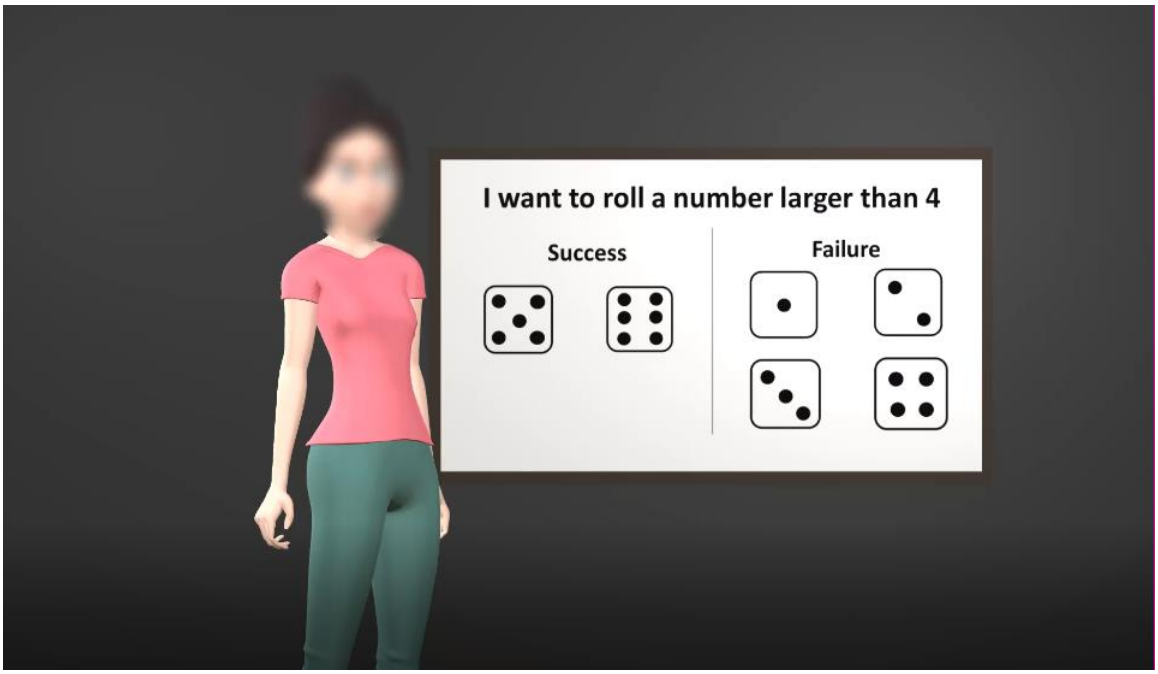

Figure 3.2: Animation scene layout with female agent

The pedagogical agents were modified from the free Luna Rig provided by Aiden Dendra (Dendra, 2019) for the female agent and from the free Malcolm Rig provided by AnimSchool for the male agent. While the original meshes were used, the skeletal rigs were entirely rebuilt in Autodesk Maya to allow for rig compatibility within the Unity engine. RootMotion's Final IK Unity script was then attached to the agent to allow joint offset adjustments (RootMotion, n.d.). To prevent facial features and facial expressions from being potential confounding variables, the agent's faces were blurred out.

Gesture modifications during the animation were performed by adjusting the joint offset parameters. Figure 3.3 shows the joint local axes that are affected by the offsets. Gesture openness was altered by increasing the horizontal X-axis hand joint offset (red) that is applied to the original animation, with a smaller increment of vertical Y-axis hand

joint offset (green) adjustments to avoid elbow popping for the rig. Body lean was altered by increasing the Z-axis translation offset (blue) from both shoulder joint. Adjusting the body lean and the hand offsets were independent of each meaning, meaning that leaning the body backwards would not drag the hands with the body too.

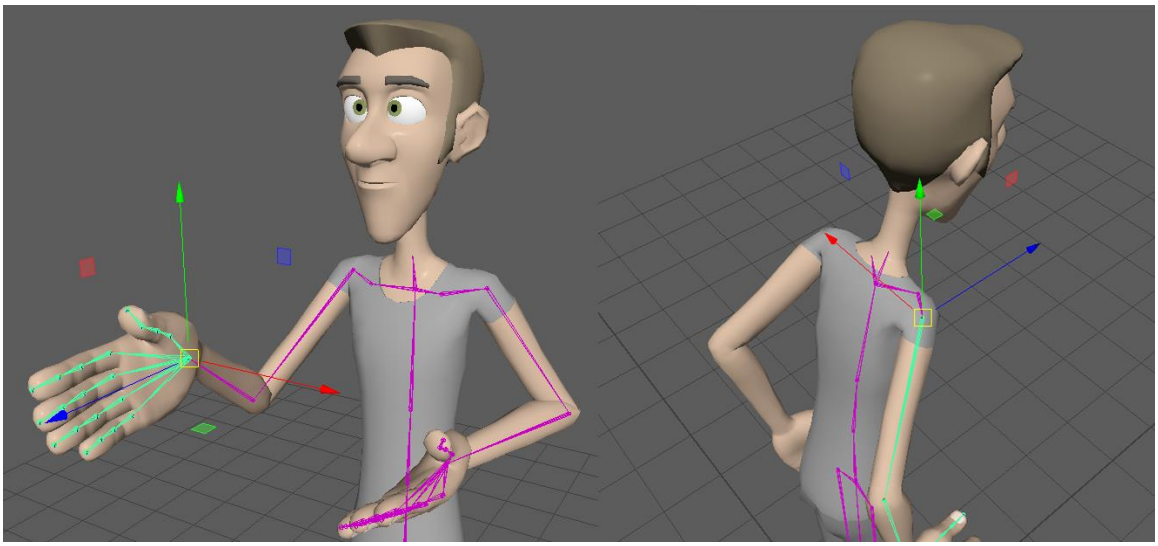

Figure 3.3: Joint local axes that are affected by offsets

Figure 3.4 displays the specific numeric offsets used in the plugin to define the gesture change limits. The right hand was manually shifted slightly back than the left hand to reduce overlapping effects.

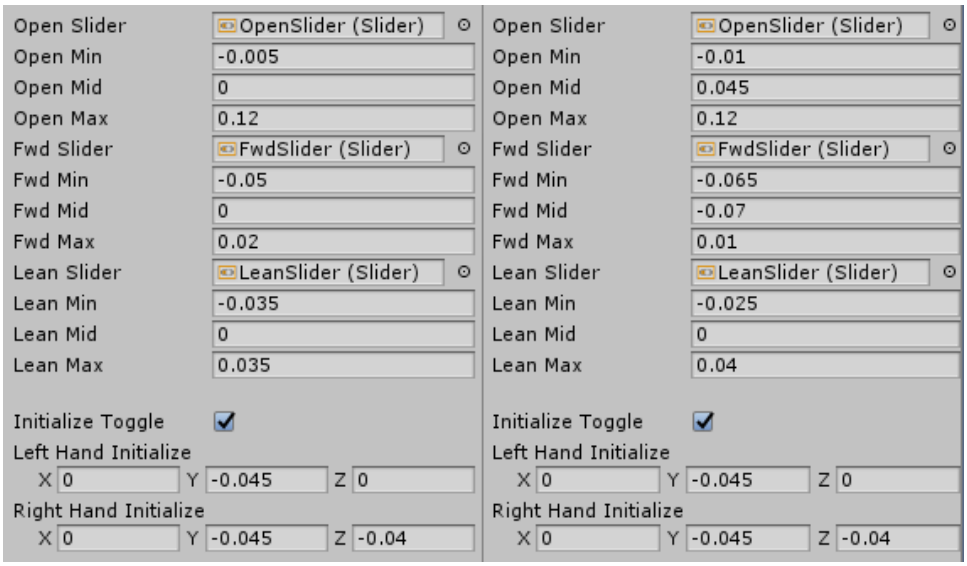

Figure 3.4: Offset settings for Malcolm (left) and Luna (right)

3.1.3 Stimuli Clips

With 4 factors, each one with 2 levels, a full factorial design would have involved 16 different possible combinations, and hence 16 different clips. Since such a high number of clips might have been difficult to rank, a partial factorial design was implemented. Using the JMP Pro 14 statistical software, the minimum number of clip variations needed to identify main effects (OG, FG, BL, and G) and two-way effects (OGxFG, OGxBL, FGxBL) in the study was determined to be 8 Table 3.2 lists the specific combinations used, and Figure 3.5 shows frames extracted from each of the 8 clips. The naming convention used to label the clips was the following: [G]_OG[x]-FG[x]-BL[x], where [G] was replaced by the gender initial of M or F, and [x] was replaced by 1 or 2 to represent level.

Table 3.2: All clip combinations generated by JMP Pro 14

#	Label	OG	FG	BL	G
1	M_OG2-FG1-BL2	2	1	2	M
2	M_OG1-FG1-BL1	1	1	1	M
3	M_OG1-FG2-BL2	1	2	2	M
4	M_OG2-FG2-BL2	2	2	1	M
5	F_OG1-FG1-BL2	1	1	2	F
6	F_OG2-FG2-BL2	2	2	2	F
7	F_OG1-FG2-BL1	1	2	1	F
8	F_OG2-FG1-BL1	2	1	1	F

Figure 3.5: All clip combinations used in study

3.1.4 Survey Design and Delivery

The evaluation instrument was an online survey created in Qualtrics software. At the beginning of the survey, participants were asked to fill in information about their age, gender, and highest level of completed education. Next, participants were taken to the

valence question page. On this page, all eight clips were simultaneously loaded in a randomized order. Participants needed to drag and drop the clips, where the clip with the highest perceived valence would be dragged to the top. Once the participants completed the valence ranking page, they then proceeded to the arousal ranking page which featured re-randomized clips. They followed the same procedure to rank the clips from highest to lowest perceive arousal. The full survey is included in Appendix G.

Considering the possibility that the participants could rush through the surveys, a hidden timer was inserted on the valence and arousal ranking pages. The timer would record how long the participants spent on the survey page. The cut off point for eliminating rushed answers was preset to 22 seconds for each survey page, which was the length of watching two video clips.

The survey was administered through Amazon's Mechanical Turk and anybody 18 years or older was eligible to participate. Due to the distribution platform, both the maximum time limit and maximum number of study participants had to be preset. Based on the time results from a small-scale pilot test, the survey took roughly between 5-10 minutes to complete leading to the survey's maximum allotted time to be 20 minutes. In order to verify the survey results, the last page on the Qualtrics survey page generated a random five-digit number. This number had to be copied to the Mechanical Turk link page field, which was then manually compared and verified. Each participant was paid $1.50 after their survey results were verified.

3.1.5 Data Analysis Methods

After data collection, IBM SPSS was used to conduct all data analysis tests. A 4-way ANOVA was used to test main effects (OG, FG, BL, and G), as well as 2-way interactions (OGxFG, OGxBL, FGxBL). A significance level of $\alpha = 0.05$ was used. In addition, a linear regression model was generated to examine how each factor may influence the mean rankings. A Chi-squared test was also performed to test the independence of the valence and arousal rankings.

Using the demographic collected from the participants, the full dataset was split into smaller subsets based on demographic categories. A 4-way ANOVA, a linear

regression model, and a Chi-squared test would then be applied to all subgroups. This was done to see if there were certain subgroups where some factors may be more significant than others.

3.1.6 Hypothesis

We formulated the hypothesis based on our findings from the literature review. In summary, an engaged agent would portray an emotion with high valence and arousal, meaning that the arms and hands are extended out and towards the viewer while the body is leaning forwards. In contrast, a disengaged agent would portray an emotion with low valence and arousal, meaning that the arms and hands are close to the body while the body is leaning backwards. Figure 3.6 provides a visualization based on above.

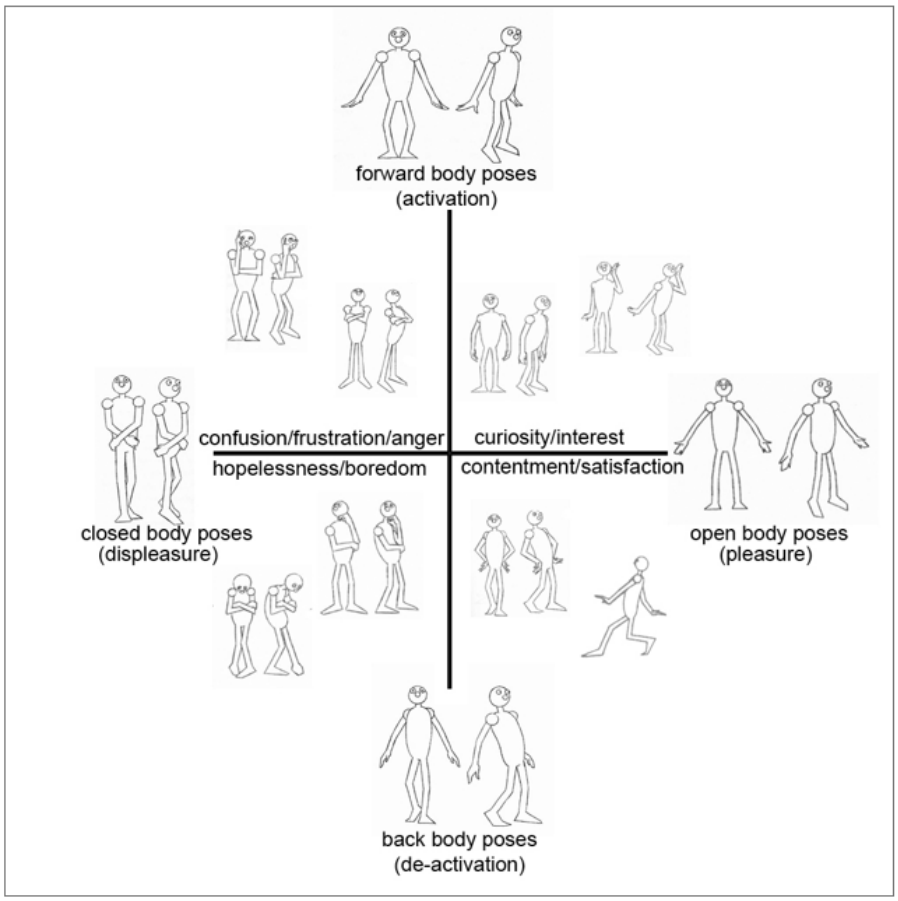

Figure 3.6: The relationship between body gestures with valence and arousal (NSF-Cyberlearning award # 1821894, 2018)

Each main effect parameter and two-way effect parameter had a null and an alternate hypothesis for both valence and arousal rankings.

For valence, the hypotheses of the study were the follow:

- H1val_null: Modifying OG movement range does not affect a clip's mean valence ranking
- H1val_alt: Modifying OG movement range does affect a clip's mean valence ranking
- H2val_null: Modifying FG movement range does not affect a clip's mean valence ranking
- H2val_alt: Modifying FG movement range does affect a clip's mean valence ranking
- H3val_null: Modifying BL movement range does not affect a clip's mean valence ranking
- H3val_alt: Modifying BL movement range does affect a clip's mean valence ranking
- H4val_null: Modifying G movement range does not affect a clip's mean valence ranking
- H4val_alt: Modifying G movement range does not affect a clip's mean valence ranking
- H5val_null: Modifying OGxFG movement range does not affect a clip's mean valence ranking
- H5val_alt: Modifying OGxFG movement range does affect a clip's mean valence ranking
- H6val_null: Modifying OGxBL movement range does not affect a clip's mean valence ranking
- H6val_alt: Modifying OGxBL movement range does affect a clip's mean valence ranking
- H7val_null: Modifying FGxBL movement range does not affect a clip's mean valence ranking

- H7val_alt: Modifying FGxBL movement range does affect a clip's mean valence ranking

For Arousal, the hypotheses of the study were the following:

- H1aro_null: Modifying OG movement range does not affect a clip's mean arousal ranking
- H1aro_alt: Modifying OG movement range does affect a clip's mean arousal ranking
- H2aro_null: Modifying FG movement range does not affect a clip's mean arousal ranking
- H2aro_alt: Modifying FG movement range does affect a clip's mean arousal ranking
- H3aro_null: Modifying BL movement range does not affect a clip's mean arousal ranking
- H3aro_alt: Modifying BL movement range does affect a clip's mean arousal ranking
- H4aro_null: Modifying G movement range does not affect a clip's mean arousal ranking
- H4aro_alt: Modifying G movement range does not affect a clip's mean arousal ranking
- H5aro_null: Modifying OGxFG movement range does not affect a clip's mean arousal ranking
- H5aro_alt: Modifying OGxFG movement range does affect a clip's mean arousal ranking
- H6aro_null: Modifying OGxBL movement range does not affect a clip's mean arousal ranking
- H6aro_alt: Modifying OGxBL movement range does affect a clip's mean arousal ranking
- H7aro_null: Modifying FGxBL movement range does not affect a clip's mean arousal ranking

- H7aro_alt: Modifying FGxBL movement range does affect a clip's mean arousal ranking

We also tested the independence between arousal and valence rankings. The hypotheses were the following:

- HChi_null: The clip's valence and arousal ranking are both independent
- HChi_alt: The clip's valence and arousal ranking are both not independent

CHAPTER 4. DATA COLLECTION AND ANALYSIS

4.1 Data Collection

A total of 120 verified responses were collected from the participants. All responses that showed a completion time under 22 seconds (the time length of watching 2 full clips) for either ranking page were removed from the study. This led to a total number of 103 filtered responses that were considered in the analysis. Appendix B includes the ranking means and standard deviations. The lower the ranking mean for a clip, the higher that clip is rated for valence or arousal.

For valence, clip F_OG2-FG2-BL2 was ranked the highest (M = 3.77, SD = 2.23) while clip M_OG1-FG1-BL1 was ranked the lowest (M = 5.05, SD = 2.16). As for arousal, clip M_OG1-FG2-BL2 had the highest rank (M = 3.97, SD = 2.29), and clip F_OG1-FG2-BL1 had the lowest arousal rank (M= 4.69, SD = 2.23). Figure 4.1 displays the boxplot for the full dataset valence ranking, and Figure 4.2 displays the boxplot for the full dataset arousal ranking.

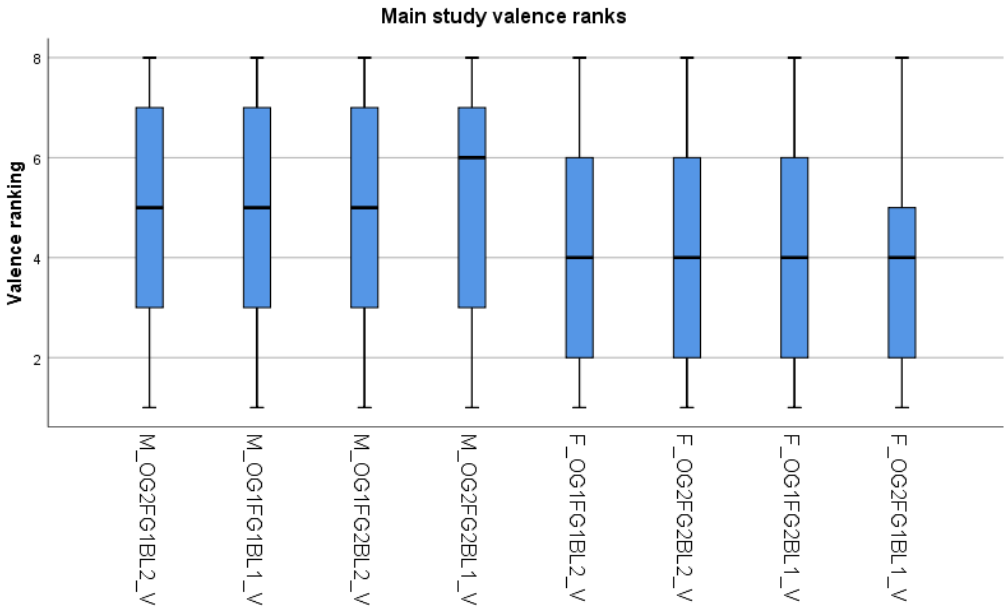

Figure 4.1: Boxplot for main study valence ranking

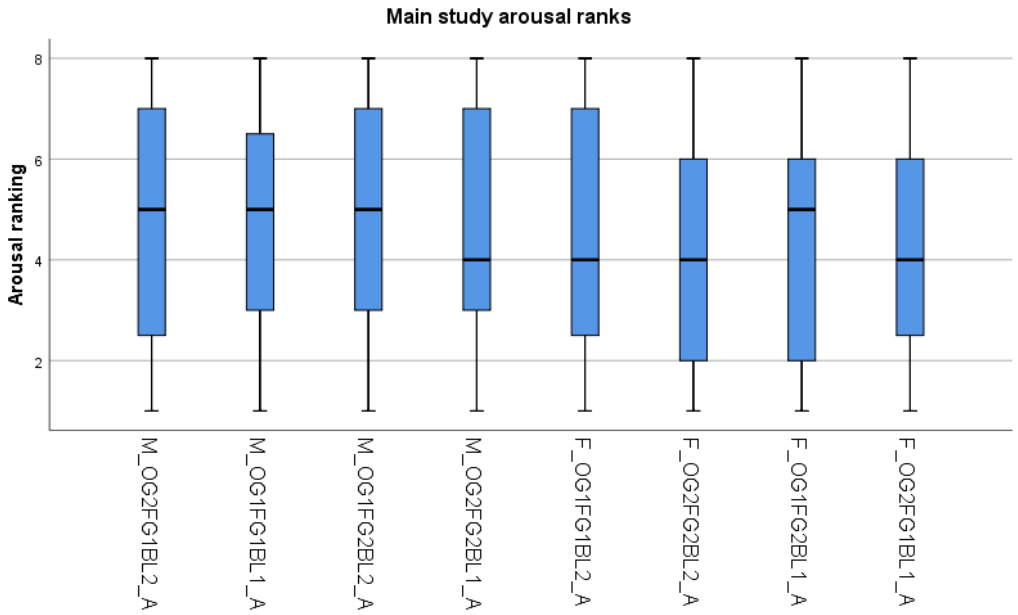

Figure 4.2: Boxplot for main study arousal ranking

4.2 Data Analysis

A 4-way ANOVA was performed to test the effect of each factor variable (main effects) and then the effect of their combination (interaction effects). A Chi-squared test was performed to test valence and arousal ranking independence. Table 4.1 and 4.2 report the results from the ANOVA analysis, Table 4.3 and 4.4 report the results from linear regression analysis, and Table 4.5 report the results from the Chi-squared test.

A linear regression model was implemented to examine how much each factor affects the mean valence or arousal rankings. When performing linear regression for the body gesture main and two-way effects, level 1 was remapped to -1 and level 2 was remapped to 1, i.e., Modifying OG from level 1 to level 2 means Modifying OG from -1 to 1 in the linear regression model. As for mapping G, male has been remapped to -1 and female has been remapped to 1. After the linear regression model was produced, the resulting B value would be multiplied by 2 (2B) to obtain the proper value that indicates rank change.

Table 4.1: Study 1 full dataset valence ANOVA table

Table 4.1

Study 1 Full Dataset Valence ANOVA Table

Predictor	Sum of Squares	df	F	Mean Square	p
OG	4.971	1	4.971	.993	.319
FG	.951	1	.951	.190	.663
BL	.699	1	.699	.140	.709
G	226.485	1	226.485	45.260	.000
FGxBL	7.767	1	7.767	1.552	.213
OGxBL	1.573	1	1.573	.314	.575
OGxFG	.175	1	.175	.035	.852

Notes. Significant at the p<0.05 level

Table 4.2: Study 1 full dataset arousal ANOVA table

Table 4.2

Study 1 Full Dataset Arousal ANOVA Table

Predictor	Sum of Squares	df	F	Mean Square	p
OG	15.772	1	15.772	3.015	.083
FG	.311	1	.311	.059	.808
BL	.044	1	.044	.008	.927
G	31.068	1	31.068	5.938	.015
FGxBL	.393	1	.393	.075	.784
OGxBL	6.291	1	6.291	1.203	.273
OGxFG	3.034	1	3.034	.580	.447

Notes. Significant at the p<0.05 level

Table 4.3: Study 1 full dataset valence regression table

Table 4.3

Study 1 Full Dataset Valence Regression

Predictor	B	SE B	β
OG	-.524	.078	-.229
FG	-.078	.078	-.034
BL	-.034	.078	-.015
G	.029	.078	.013
FGxBL	.015	.078	.006
OGxBL	-.044	.078	-.019
OGxFG	-.097	.078	-.042

Notes. $R^2 = 0.056$.

Table 4.4: Study 1 full dataset arousal ANOVA table

Table 4.4

Study 1 Full Dataset Arousal Regression

Predictor	B	SE B	β
OG	-.194	.080	-.085
FG	-.138	.080	-.060
BL	-.019	.080	-.008
G	-.007	.080	-.003
FGxBL	-.061	.080	-.026
OGxBL	-.087	.080	-.038
OGxFG	-.022	.080	-.010

Notes. $R^2 = 0.013$.

Table 4.5: Study 1 full dataset valence vs arousal Chi-squared table

Table 4.5

Study 1 Full Data Valence vs Arousal Chi-squared

Factor	Value	df	p
Chi-squared	68.117	49	.037

Notes. Significant at the $p<0.05$ level

4.3 Demographics

All the data analysis tests performed for the full dataset were also applied to different subgroups of varying demographics from the sample population. The same analysis procedure was performed on a smaller subset of the collected data based on the participant's age, gender, and highest level of education. Any participants that has marked "Prefer not to answer" for any specific categories would be excluded from the respective category in the analysis.

4.3.1 Age

The split was decided between the "18-30 year old" group and all other groups above the age of 31. This led to having the "18-30 Y/O" group having 45 subjects and the "31+ Y/O" group having 58 subjects.

4.3.2 Highest Level of Education

Most of the responses reported that they at least have a bachelor's degree. The category split was decided between participants that had a degree (Bachelor's or higher), and participants that did not have a degree.

4.3.3 Gender

The group split would logically be between male and female study participants. From the sample population, 66 reported as male and 37 reported as female.

4.3.4 Clip Rankings

For mean valence rankings, most of the subgroups agreed between two clips that were perceived with the highest valence. The female subset, and the 30+ Y/O subset agreed with the main dataset that F_OG2-FG2-BL2 had the highest valence ranking (M = 3.62 and 3.44, SD = 1.96 and 2.39). The male subset, 18-30 Y/O subset, and degree subset all agreed on F_OG2-FG1-BL1 having the highest valence (M = 3.77, 3.56, and 3.75, SD = 1.81, 1.82, 1.87). The no degree subset was the primary exception, stating that F_OG1-FG2-BL1 had the highest valence rank (M = 3.44, SD = 2.05). All subgroups universally ranked male clips with lower valence. The female and the degree subset

agreed with the main dataset that M_OG1-FG1-BL1 had the lowest valence rank (M = 5.22 and 5.14, SD = 2.08 and 2.1) The male subset, 30+ Y/O subset, and no degree subset all agreed that M_OG2-FG2-BL1 had the lowest valence rank (M = 5.35, 5.54 and 5.47, SD = 2.29, 2.28, 2.18). The 18-30 Y/O subset claimed that M_OG1-FG2-BL2 had the lowest valence rank (M = 5.38, SD = 2.33)

As for mean arousal rankings, the male subset, female subset, 18-30 Y/O subset, no degree subset, and degree subset all agreed with the full dataset that M_OG1-FG2-BL2 had the highest valence ranking (M = 3.97, 4.03, 3.86, 3.62, 4.06, and 3.93, SD = 2.25, 2.35, 2.28, 2.36, and 2.25). The 30+ Y/O subset stated that M_OG1-FG1-BL1 had the highest arousal rank (M = 4.16, SD = 2.25). As for the lowest ranked arousal clip, the male subset, 30+ Y/O subset, and the degree subset agreed with the full dataset that F_OG2-FG2-BL2 was the lowest (M = 4.95, 5.05, and 5.06, SD = 2.28, 2.31, 2.36). The 18-30 Y/O subset and the no degree subset stated that F_OG1-FG2-BL1 had the lowest arousal rank (M = 5.04 and 5.5, SD = 2.19, 2.26). The female subset stated that F_OG2-FG1-BL1 had the lowest arousal rank (M = 4.92, SD = 2.26).

4.4 Discussion

Factor variable G showed statistical significance (P = nearly 0.000) for the valence rankings, allowing us to reject H4val_null. G was also the only factor variable that was significant for arousal rankings (P = 0.015), allowing us to reject H4aro_null. OG was close to statistically significance, (P = 0.083) for valence.

According to the linear regression model for valence and arousal, Modifying G from male to female changed the mean valence ranking by nearly a full rank (2B = -1.048), and about four-tenths of an arousal rank (2B = -0.388). Overall, the data supported that Gender was a significant main effect for both valence and arousal rankings; the clips featuring the female agent were ranked significantly higher for valence and arousal than the clips featuring the male agent.

In regard to the demographic subsets, for the valence rankings, Gender was a significant main effect for the 18-30 Y/O subset, the male subset, the female subset, the no-degree subset and the degree subset (P = 0.000, 0.000, 0.001, 0.000, and 0.00) by at

least half a rank (2B ≈ -0.500). This allows us to reject H4val_null, giving evidence that clips with the female agent has a higher perceived valence for the listed categories than the clips with the male agent. Interestingly, the 18-30 Y/O subset also suggests that OG and BL are significant (P = 0.034 and 0.042) for influencing the valance rankings, with OG raising the valence ranking (2B = -0.5) and BL decreasing valence ranking (2B = 0.478) when the factor level changes from level 1 to level 2 for both parameters. We can reject H1val_null and H3val_null and accept H1val_alt and H3val_alt. This suggests that for the 18-30 Y/O group increasing OG from level 1 to level 2 results in higher perceived valence but increasing BL likewise would result in decrease perceived valence.

As for arousal rankings, only the 18-30 Y/O subset and the female subset suggests that G influences the arousal rankings (P = 0.019 and 0.023), allowing us to reject H4aro_null for the two listed categories. According to the linear regression model, Modifying G from male to female for the listed groups would result in higher perceived arousal (2B values of -0.566 and -0.608).

The Chi-squared test that was performed on the main dataset, yielded a P-value of 0.037, hence we could reject HChi_null: the valence and arousal rankings during the survey were not-independent of each other for the full dataset. Another instance where the Chi-squared test has shown significance was for the male subset, in which the P-value was 0.011. This also meant that HChi_null could be rejected for the male subset.
It should be noted that for all the datasets, the reported R-squared values were very low. From the main dataset, the valence R^2 value was 0.056 and the arousal R^2 value was 0.013. The R^2 values from the subsets all did not exceed 0.150. The low R^2 suggests that even if the data points suggest a relationship between factors and perceived valence/arousal, the exact relationship may differ from the suggest linear model.

CHAPTER 5. STUDY 2

Two factors in the first study might have affected the participant's rankings. First, the order of the valence and arousal ranking pages was not randomized, meaning that study participants would always rank clips for valence first and arousal second. Unfortunately, study participants overall spent less time on the arousal page, with an average time spent on the arousal ranking page being 107.32s compared to valence ranking page average completion time of 232.87s. In the 2nd study the question page ordering was fully randomized.

Second, we suspected that the ranking procedure might have been difficult to perform for some of the participants. Not only might the gesture differences be difficult to spot across all eight main-study clips, but the participants might only have been able to view 2-3 clips on screen at once due to the survey design, further making it difficult to compare eight clips at once. The second study changed the question format so that participants were only rating one clip at a time.

Lastly, we suspected that putting the male and the female agents clips together could help exaggerate expressiveness from one of the agents. Potential reasons why G was the sole significant influential factor from the main study could be because of the different voice performances between male and female actors, the agent's clothing color, or the agent's body proportion (i.e. the male agent has larger hands compared with the female agent). Study 2 used a between subject design and assigned one group of subjects to the female agent clip and one group of subjects to the male agent clip so that gender comparison bias within the same survey would not be introduced.

5.1 Changes in Methodology

Study 2 included two separate surveys which were administered using Amazon's Mechanical Turk; one restriction was added, e.g., study participants had to have a Master Worker rating --participants that have statistically demonstrated a higher degree of

success. Each study participant was paid $1.00 after their survey answers were verified. A time filter of 11 seconds (length of one video clip) was used to remove rushed answers.

Both surveys featured the same body gesture changes, but the agent's gender differed between the surveys. Another partial factorial design was generated using JMP Pro 14. Table 5.1 displays the updated clip set which contains 8 different combinations. Both a male and a female variant of clips were generated, resulting in a total of 16 different video clips. Figure 5.1 includes 16 frames, each one extracted from each clip.

Table 5.1: New clip combinations for follow-up study

#	**Label**	**OG**	**FG**	**BL**
1	M_OG2-FG1-BL2, F_OG2-FG1-BL2	2	1	2
2	M_OG1-FG1-BL2, F_OG1-FG1-BL2	1	1	2
3	M_OG2-FG2-BL2, F_OG2-FG2-BL2	2	2	2
4	M_OG1-FG2-BL2, F_OG1-FG2-BL2	1	2	2
5	M_OG1-FG1-BL1, F_OG1-FG1-BL1	1	1	1
6	M_OG2-FG2-BL1, F_OG2-FG2-BL1	2	2	1
7	M_OG1-FG2-BL1, F_OG1-FG2-BL1	1	2	1
8	M_OG2-FG1-BL1, F_OG2-FG1-BL1	2	1	1

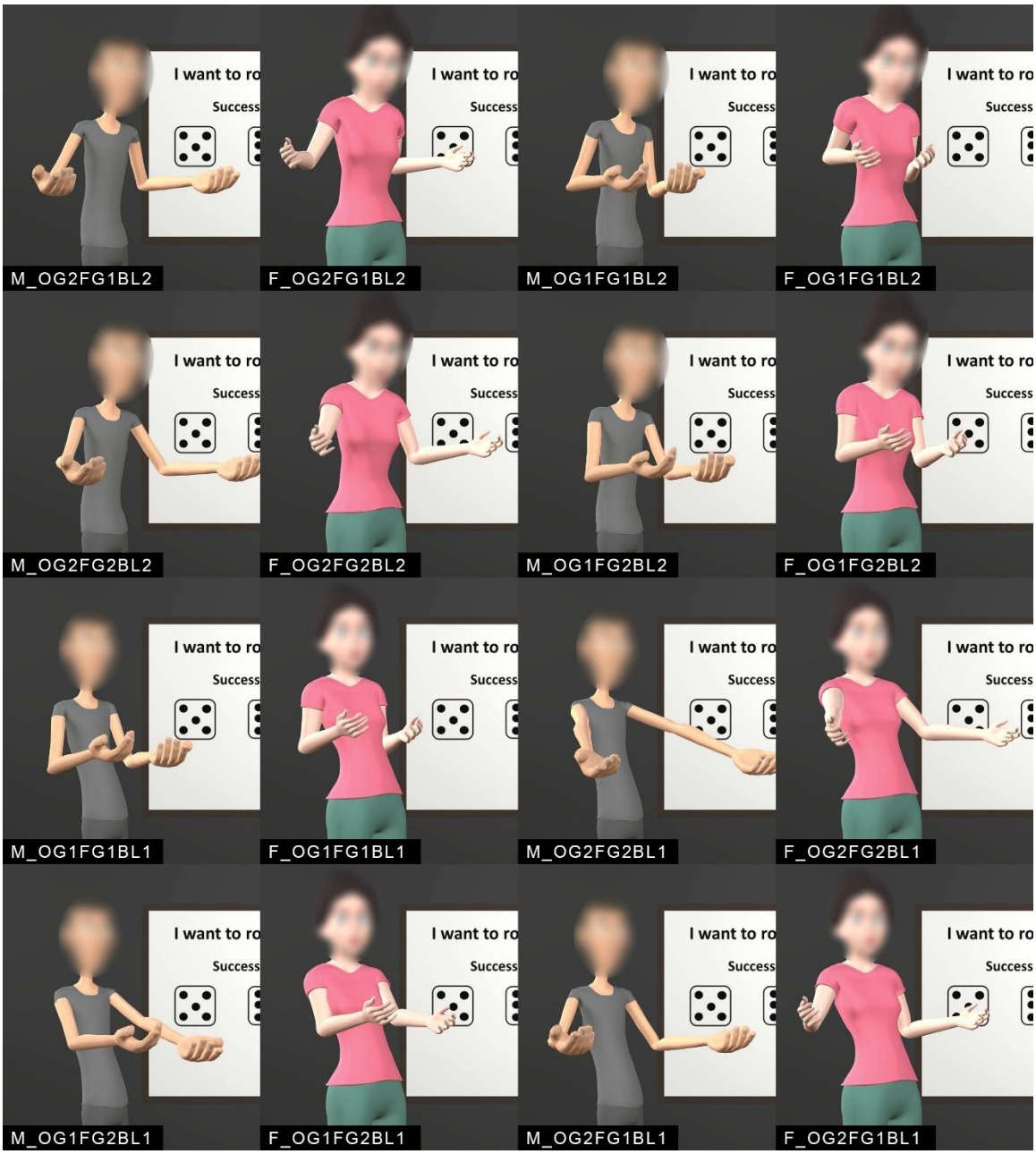

Figure 5.1: All clip combinations used in follow-up study

After viewing each clip, participants were asked to rate the clip's valence and arousal values using a 7-point Likert scale from 10 to 70. In this study for valence, 10 represented negative valence and 70 represented positive valence. As for arousal, 10 represented low arousal and 70 represented high arousal. Participants could re-watch and re-rate any video clip as many times as needed, only the final answers were reported.

5.2 Hypothesis

The null and alternate hypothesis used in the follow-up study would be like the main study, with the main difference being that the dependent variable was the mean valence and arousal rating instead of the mean valence and arousal ranking.

- H1val_null: Modifying OG movement range does not affect a clip's mean valence rating
- H1val_alt: Modifying OG movement range does affect a clip's mean valence rating
- H2val_null: Modifying FG movement range does not affect a clip's mean valence rating
- H2val_alt: Modifying FG movement range does affect a clip's mean valence rating
- H3val_null: Modifying BL movement range does not affect a clip's mean valence rating
- H3val_alt: Modifying BL movement range does affect a clip's mean valence rating
- H4val_null: Modifying G movement range does not affect a clip's mean valence rating
- H4val_alt: Modifying G movement range does not affect a clip's mean valence rating
- H5val_null: Modifying OGxFG movement range does not affect a clip's mean valence rating
- H5val_alt: Modifying OGxFG movement range does affect a clip's mean valence rating
- H6val_null: Modifying OGxBL movement range does not affect a clip's mean valence rating
- H6val_alt: Modifying OGxBL movement range does affect a clip's mean valence rating

- H7val_null: Modifying FGxBL movement range does not affect a clip's mean valence rating
- H7val_alt: Modifying FGxBL movement range does affect a clip's mean valence rating

A similar set of null and alternate hypothesis could be applied for the clip's arousal ranking:

- H1aro_null: Modifying OG movement range does not affect a clip's mean arousal rating
- H1aro_alt: Modifying OG movement range does affect a clip's mean arousal rating
- H2aro_null: Modifying FG movement range does not affect a clip's mean arousal rating
- H2aro_alt: Modifying FG movement range does affect a clip's mean arousal rating
- H3aro_null: Modifying BL movement range does not affect a clip's mean arousal rating
- H3aro_alt: Modifying BL movement range does affect a clip's mean arousal rating
- H4aro_null: Modifying G movement range does not affect a clip's mean arousal rating
- H4aro_alt: Modifying G movement range does not affect a clip's mean arousal rating
- H5aro_null: Modifying OGxFG movement range does not affect a clip's mean arousal rating
- H5aro_alt: Modifying OGxFG movement range does affect a clip's mean arousal rating
- H6aro_null: Modifying OGxBL movement range does not affect a clip's mean arousal rating

- H6aro_alt: Modifying OGxBL movement range does affect a clip's mean arousal rating
- H7aro_null: Modifying FGxBL movement range does not affect a clip's mean arousal rating
- H7aro_alt: Modifying FGxBL movement range does affect a clip's mean arousal rating

5.3 Data Analysis

The data analysis methods were the same as in study 1. A 4-way ANOVA analysis was used to test main and two-way effects for valence and arousal ratings. A linear regression model was fit for each dependent variable to determine how the factors could affect the ratings. Unlike study 1, the Chi-squared test could not be performed as there were too many possible rating values. Table 5.2 and 5.3 report the results from the ANOVA analysis, and Table 5.4 and 5.5 report the results from linear regression analysis.

A linear regression model was also implemented to estimate how much each factor affects the mean valence or arousal ratings. Just like analysis performed in study 1 for the body gesture main and two-way effects, level 1 was remapped to -1 and level 2 was remapped to 1. As for mapping G, male was remapped to -1 and female was remapped to 1. The resulting B value was multiplied by 2 (2B) to obtain the proper value that indicated rank change amount.

Table 5.2: Study 2 Full Dataset Valence ANOVA Table

Table 5.2

Study 2 Full Dataset Valence ANOVA Table

Predictor	Sum of Squares	df	F	Mean Square	p
OG	883.389	1	883.389	8.822	.003
FG	638.627	1	638.627	6.377	.012
BL	527.165	1	527.165	5.264	.022
G	3544.087	1	3544.087	35.391	.000
FGxBL	18.499	1	18.499	.185	.667
OGxBL	85.847	1	85.847	.857	.355
OGxFG	4.132	1	4.132	.041	.839

Notes. Significant at the $p<0.05$ level

Table 5.3: Study 2 Full Dataset Arousal ANOVA Table

Table 5.3

Study 2 Full Dataset Arousal ANOVA Table

Predictor	Sum of Squares	df	F	Mean Square	p
OG	2268.808	1	2268.808	18.317	.000
FG	704.029	1	704.029	5.684	.017
BL	298.930	1	298.930	2.413	.120
G	.911	1	.911	.007	.932
FGxBL	254.815	1	254.815	2.057	.152
OGxBL	33.875	1	33.875	.273	.601
OGxFG	70.359	1	70.359	.568	.451

Notes. Significant at the $p<0.05$ level

Table 5.4: Study 1 full dataset valence regression table

Table 5.4

Study 1 Full Dataset Valence Regression

Predictor	B	SE B	β
OG	.636	.214	.063
FG	.541	.214	.053
BL	-.491	.214	-.049
G	-.043	.214	-.004
FGxBL	-.198	.214	-.020
OGxBL	-.092	.214	-.009
OGxFG	1.274	.214	.126

Notes. $R^2 = 0.160$.

Table 5.5: Study 1 full dataset arousal ANOVA table

Table 5.5

Study 1 Full Dataset Arousal Regression

Predictor	B	SE B	β
OG	1.019	.238	.091
FG	.568	.238	.051
BL	-.370	.238	-.033
G	.179	.238	.016
FGxBL	-.125	.238	-.011
OGxBL	-.342	.238	-.031
OGxFG	-.020	.238	-.002

Notes. $R^2 = 0.115$.

5.4 Results

A total of 300 verified responses was collected, with 150 results collected independently from both the male and female agent survey. After applying the time filter, this reduced the male survey count to 134 filtered responses and the female survey count to 139 filtered responses. The survey's filtered raw data can be found in Appendix D, basic statistics can be found in Appendix E, and all the statistical analyses performed on the full and partial datasets can be found in Appendix F. Figure 5.2 and 5.3 show the boxplot for the valence and arousal ranking, respectively.

From the main dataset, the clip with the highest valence rating was F_OG2-FG2-BL1 (M = 50.6, SD = 9.49), and the clip with highest arousal rating was M_OG2-FG2-BL1 (M = 52.27, SD = 10.31). The clip with the lowest valence rating was M_OG1-FG1-BL1 (M = 45.24, SD = 10.23) and the clip with the lowest arousal rating was F_OG1-FG1-BL1 (M = 47.67, SD = 11.34)

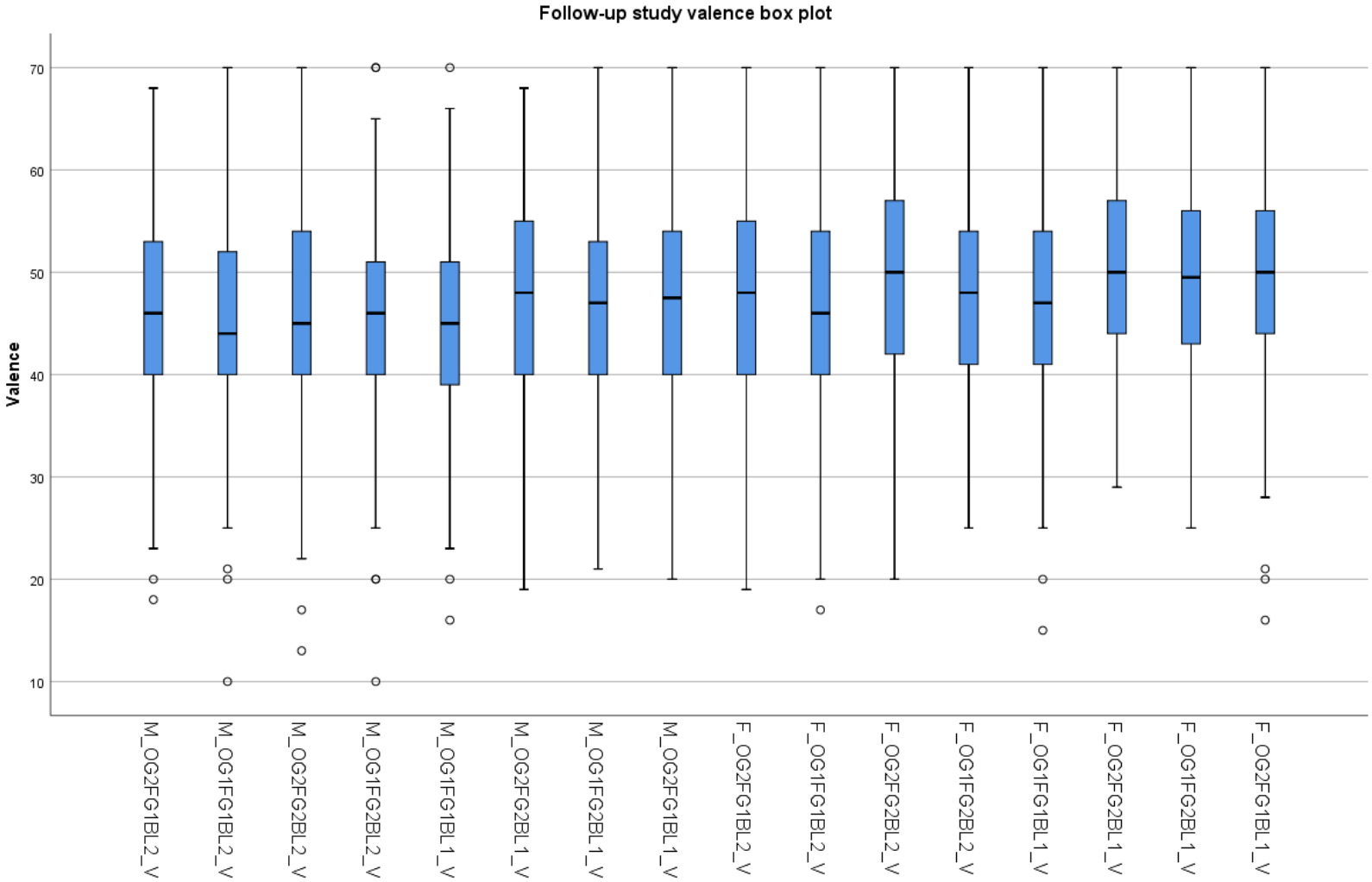

Figure 5.2: Boxplot for follow-up study valence ratings

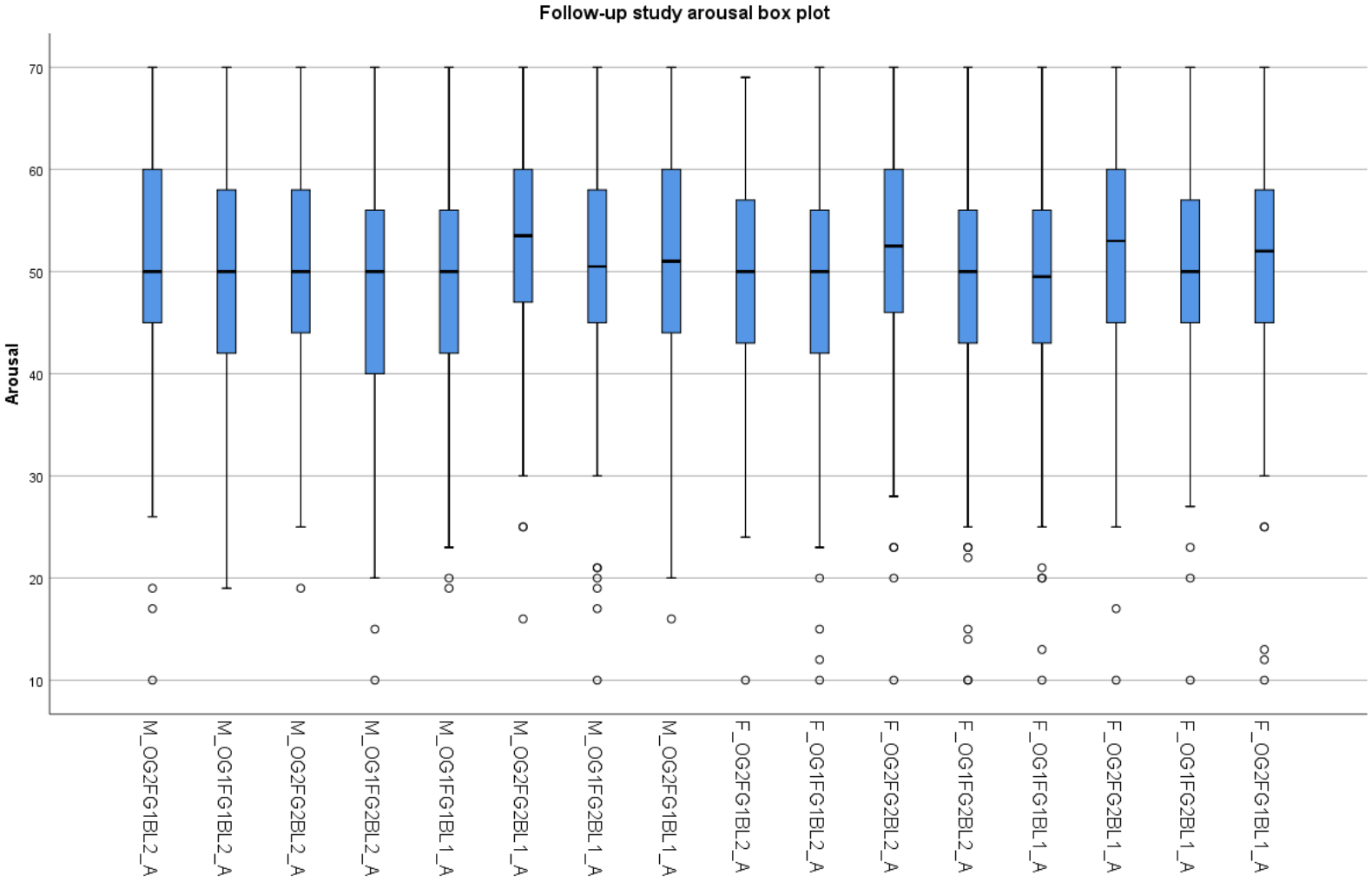

Figure 5.3: Boxplot for follow-up study arousal ratings

5.5 Demographics

The same divisions from the main study were used again for the follow-up. The following tables display the demographic distributions when combining the sample population from both the male and female agent survey. The fields M count and F count represent the separate counts from their respective surveys.

5.5.1 Age

The 18-30 y/o subset has 53 participants, and the 30+ y/o subset has 217 participants. Compared to the main study sample population, there is a smaller proportion number of 18-30 year old participants.

5.5.2 Highest level of education

The no degree subset has 83 participants, and the degree subset has 186 participants. Compared to the main study sample population, there is a smaller proportionate number of participants that do not have a college degree.

5.5.3 Gender

The male subset has 182 participants, and the female subset has 89 participants. Survey participants were still mostly male, making up nearly two-thirds of the follow-up sample population.

5.5.4 Clip Rankings

For gender, the male subgroup agreed with the main dataset in both the highest rated valence clip F_OG2-FG2-BL1 (M = 49.92, SD = 9.63) and the highest rated arousal clip M_OG2-FG2-BL1 (M = 52.58, SD = 9.76). The female subgroup rated F_OG2-FG1-BL1 having the highest valence rating (M = 52.24, SD = 9.29), and F_OG2-FG2-BL2 having the highest arousal rating (M = 53.56, SD = 10.4). The lowest ranked clips for males were M_OG1-FG1-BL2 (valence M = 45.87, SD = 9.65) and F_OG1-FG1-BL1 (arousal M = 46.18, SD = 11.76), and for females were M_OG1-FG1-BL2 (valence M = 43.54, SD = 10.22) and M_OG1-FG2-BL2 (arousal M = 46.76, SD = 13.33).

For age, both subsets rated F_OG2-FG2-BL1 (valence M = 52.48 and 50.14, valence SD = 11.14 and 9.1) and M_OG2-FG2-BL1 (arousal M = 54.97 and 51.7, arousal SD = 8.75 and 10.42) the highest. The lowest ranked clips for 18-30 Y/O subset were M_OG1-FG1-BL2 (valence M = 43.73, SD = 10.78) and F_OG1-FG2-BL2 (valence M = 44.87, SD = 15.1), and for 30+ Y/O subset was M_OG1-FG1-BL1 (valence M = 44.45, valence SD = 9.52, arousal M = 47.15, arousal SD = 10.19)

For highest level of education, both subsets rated F_OG2-FG2-BL1 (valence M = 48.75 and 51.25, valence SD = 9.32 and 9.49) and M_OG2-FG2-BL1 (arousal M = 51.84 and 52.7, arousal SD = 9.78 and 10.39) the highest. The lowest ranked clips for the no-degree subset were M_OG1-FG1-BL2 (valence M = 42.91, SD = 8.16) and F_OG1-FG1-BL1 (arousal M = 46.15, SD = 8.82), and for the degree subset were M_OG1-FG1-BL1 (valence M = 45.73, SD = 10.21) and M_OG1-FG2-BL2 (arousal M = 47.91, SD = 13.21).

5.6 Discussion

Compared with the main study, more factors shown significance after performing a 4-way ANOVA test. For valence, all main factors were significant for affecting the mean valence rating (OG P = 0.003, FG P = 0.012, BL P = 0.022, G P = nearly 0.000). This meant that H1val_null, H2val_null, H3val_null, and H4val_null could all be rejected, leading to H1val_alt, H2val_alt, H3val_alt, and H4val_alt all being accepted. As for valence, OG and FG were tested to be significant (OG P = 0.000, FG P = 0.017. This allowed H1aro_null and H2aro_null to be rejected, allowing H1aro_alt and H2aro_alt to be accepted. Overall, the collected data does support that OG, FG, BL and G does influence the mean valence ratings, and that OG and FG does influence the mean arousal ratings.

After applying the linear regression model to the full follow-up dataset, the model still shows that G is the most influential factor for valence (2B = 2.548) when G is changed from male to female. OG, FG, and BL influence the valence mean by a smaller amount when the parameters are changed from level 1 to level 2 with OG 2B equaling 1.272 and FG 2B equaling 1.082, and especially BL 2B equaling -0.982, meaning that BL

has a negative relationship. As for arousal, OG is the most influential factor when increased from level 1 to level 2 (2B = 2.038). FG also influences the mean with a 2B of 1.136 from level 1 to 2.

When looking at different demographic subsets, some parameters are still significant in agreement with the full dataset data analysis. All subgroups except the 18-30 Y/O group demonstrated that OG is a significant factor for influencing the mean valence rating (30+ Y/O OG P = 0.014, male OG P = 0.037, female OG P = 0.013, no degree OG P = 0.010, degree OG P = 0.039) and for influencing the mean arousal (30+ Y/O OG P = nearly 0.000, male OG P = 0.001, female OG P = 0.004, no degree OG P = 0.006, degree OG P = 0.001). FG was a significant factor for male subset and the degree subset for valence (male FG P = 0.014, degree FG P = 0.041) and was a significant factor for 30+ Y/O subset and No Degree subset for arousal (30+ Y/O P = 0.019, no degree P = 0.040). BL was only significant for the 18-30 Y/O subset and the no degree subset for valence (18-30 Y/O P = 0.001, no degree P = 0.041), and 18-30 Y/O subset only for arousal (18-30 Y/O P = 0.008). G was a significant factor for the 30+ Y/O subset, female subset, no degree subset, and degree subset for valence (30+ Y/O P = 0.000, female P = 0.000, no degree P = 0.045, degree P = 0.000), and just the female subset for arousal (female P = 0.035).

The linear regression models performed on the subsets primarily matched up with the main dataset for many of the factors. Two notable exceptions were the BL parameters for valence ratings for the 18-30 Y/O subset and the G parameter for valence rating for the Female subset. According to the regression model, the Modifying BL from level 1 to level two would result in a 2B equaling -3.34 in comparison to the main study BL's 2B which was just -0.982. As for the female subset, Modifying the G from male to female results in an 2B equaling 5.084 compared to the main study G's 2B of 2.548.

Overall, the R-squared values have been low. The full dataset's R^2 was 0.025 for valence and 0.013 for arousal. The largest R^2 value when looking at the data subset was 0.073, which was still very low. Just like Study 1, the low R^2 suggests that even if the data points suggest a relationship between factors and perceived valence/arousal, the exact relationship may differ from the suggest linear model.

CHAPTER 6. CONCLUSION

The findings from the 2 studies were consistent with results of prior experiments reported in the literature review. They provided evidence that a positive-valence, high arousal pedagogical agent would need to open out the arms and hands more outwards, as OG was tested to be significant in affecting both perceived valence and arousal. The linear regression models stated that there was a positive relationship between the arms opening out and the viewer's perceived valence and arousal. Both OG2-FG2-BL1 clips in study 2 were perceived for having either the highest valence or arousal, where the arms were spread out in both those clips. The study's overall findings also provided evidence that a positive-valence, high arousal pedagogical agent would also need to physical reach out to the viewer more with arms and hands, as FG had a statistically significant main effect for both perceived valence and arousal. The linear regression models showed a positive relationship between stretching the arms forward and the perceived valence and arousal. The clips with the highest perceived valence or arousal were also the OG2-FG2-BL1 clips as mentioned above.

The studies did not support prior research findings according to which engaging pedagogical agents would tend to lean forward more. While BL was tested to be significant in study 2 (both valence and arousal from the 18/30+ Y/O subset and just valence from the full dataset), the linear regression model suggested that rotating the body forwards decreased the viewer's perceived valence and arousal of the agent. One possible explanation was that modifying BL via the custom script would modify the agent's body lean independently from the hand locations. For example, if BL was adjusted backwards, the hands and arms would not be dragged with the body too. As of a result, the backwards leaning motion of the agent could have been perceived more as a balancing action than an intentional action of the agent trying to reach out towards the viewer. This was further demonstrated in study 2 as the clips with the highest mean valence and arousal rating were both M_OG2-FG2-BL1 and F_OG2-FG2-BL1 clips; in these clips the agent's hands were spread wide open and towards the viewer while the agent's body was leaned backwards.

Gender surprisingly played the most important role for valence and arousal perception compared to body gesture adjustments. The main study only showed that G was the most significant factor for influencing valence rankings. G was also shown to be significant during the follow-up study for valence, with the linear regression model stating that G influenced the valence and arousal ratings more than any of the body gesture factors.

Some of the gender factors discussed in the literature review were backed up by this study's overall findings. Female agents appear to be more supportive; findings from both studies reveal that the female agent clips had higher perceived valence. This meant that these clips had more perceived positivity. According to the linear model regression from both studies, Modifying G from male to female resulted in a higher valence ranking or ratings. Only female clips had the highest perceived mean valence rankings or ratings in both studies. As for male agents being perceived to be more active (high arousal), both studies' findings were not able to statistically support this claim, despite that the clips with the highest perceived arousal were all male clips. Prior findings that suggest that participants find agents of opposite gender more engaging were not supported by our studies. Study 2 suggested that for female subset not only was G significant, but also female clips had higher perceived arousal.

While the study also attempted to determine if two-way factor interactions OGxFG, OGxBL, and FGxBL were significant, data analysis from both the first and second study were unable to confirm if these factors influenced valence or arousal perception. Only main effects OG, FG, BL and G had significance. The main study also claimed that valence and arousal ratings may not be independent of each other, but this would need further work to further detail their relationship.

6.1 Future Work

Despite the statistical claims in the study that G overall was a significant factor, we still had reservations if this truly was the case. Gender was not the only variable that differentiated the male agent from the female one, other possibly confounding variables such as agent's design, voice line delivery, and animation clip timings might have

affected subjects' ratings and rankings. Further studies would need to be performed to determine which of these factors might have affected the results the most. Further physical modifications on the agent could be tested for other possible factors based on the agent's appearance, such as the agent's race and gender.

While the study only focused on body gesture factors, animation factors could also affect the viewer's emotional perception of the agent. Two possible factors that could influence the agent's acting includes animation clip playback speeds and animation clip transition interpolation methods.

Overall, this study provided the basis for parameterizing pedagogical agent gesture adjustments in emotion studies. It provided a basis for further studies that investigate how the agent's attributes can be modified for the agent to better connect with the viewers.

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APPENDIX A. STUDY 1 DATA

The following tables list the raw data that was collected from the main online survey study. Columns C1 to C8 represents the given clip rank, from 1 being the highest to 8 being the lowest. The specific factor combinations for the 8 clips are listed in following table. The Time column on the furthest right represents the time the participant taken from page load to page submit.

Clip	**Valence Table Name**	**Arousal Table Name**
M_OG2FG1BL2	C1_V	C1_A
M_OG1FG1BL1	C2_V	C2_A
M_OG1FG2BL2	C3_V	C3_A
M_OG2FG2BL2	C4_V	C4_A
F_OG1FG1BL2	C5_V	C5_A
F_OG2FG2BL2	C6_V	C6_A
F_OG1FG2BL1	C7_V	C7_A
F_OG2FG1BL1	C8_V	C8_A

DEMOGRAPHIC DATA

Age Group	Count	Percentage
18-30 years old	45	43.69%
31-43 years old	38	36.89%
43-55 years old	17	16.50%
55-67 years old	2	1.94%
Prefer not to answer	1	0.97%
68 years old or older	0	0.00%

Highest Level of Education	Count	Percentage
Did not finish high school	0	0.00%
High school graduate	6	5.83%
Some college, no degree	26	25.24%
Bachelor's Degree	50	48.54%
Master's Degree or equivalent	20	19.42%
PhD or equivalent	1	0.97%
Prefer not to answer	0	0.00%

Gender	Count	Percentage
Male	66	64.08%
Female	37	35.92%
Prefer not to answer	0	0.00%

VALENCE DATA

Age	Gender	Education	C1_V	C2_V	C3_V	C4_V	C5_V	C6_V	C7_V	C8_V	V_Time (S)
31-43 years old	Male	Some college, no degree	3	6	5	7	8	4	1	2	144.328
43-55 years old	Female	Some college, no degree	8	6	3	7	1	2	4	5	130.886
18-30 years old	Male	Bachelor's Degree	5	6	3	8	7	1	4	2	233.044
18-30 years old	Male	Masters Degree or equivalent	2	1	7	3	8	5	6	4	144.319
18-30 years old	Female	Masters Degree or equivalent	3	2	6	4	7	5	8	1	75.681
31-43 years old	Female	Bachelor's Degree	5	4	7	1	8	6	3	2	412.144
31-43 years old	Male	Some college, no degree	6	3	2	4	5	1	7	8	64.968
18-30 years old	Male	Bachelor's Degree	7	6	5	8	2	1	4	3	156.501
18-30 years old	Female	Bachelor's Degree	1	5	4	7	8	2	3	6	59.56
31-43 years old	Female	Bachelor's Degree	4	7	5	8	6	1	3	2	126.232
31-43 years old	Female	Bachelor's Degree	5	1	7	6	4	3	8	2	252.578
31-43 years old	Male	Some college, no degree	6	3	5	4	8	1	2	7	115.195
43-55 years old	Male	Masters Degree or equivalent	5	6	7	8	4	1	3	2	101.224
43-55 years old	Male	Bachelor's Degree	8	2	5	7	6	1	4	3	554.832
43-55 years old	Female	Bachelor's Degree	4	6	3	5	7	1	8	2	138.368
43-55 years old	Male	Bachelor's Degree	6	3	2	4	8	5	1	7	125.631
18-30 years old	Male	Bachelor's Degree	7	5	1	4	2	3	8	6	638.09
18-30 years old	Male	Masters Degree or equivalent	1	4	5	8	6	3	7	2	214.579
31-43 years old	Male	Some college, no degree	6	5	3	7	1	8	4	2	135.179
43-55 years old	Female	Bachelor's Degree	7	5	2	6	1	4	3	8	228.407
18-30 years old	Female	Masters Degree or equivalent	6	2	7	1	3	5	8	4	299.423
18-30 years old	Female	Bachelor's Degree	7	8	6	5	2	3	1	4	275.769

18-30 years old	Female	Masters Degree or equivalent	6	8	5	7	2	3	1	4	148.613
18-30 years old	Female	Masters Degree or equivalent	6	8	7	5	3	1	2	4	110.64
55-67 years old	Male	Bachelor's Degree	5	6	3	1	7	8	2	4	698.678
43-55 years old	Male	Some college, no degree	6	8	5	7	4	2	3	1	315.693
31-43 years old	Female	Bachelor's Degree	5	1	6	8	3	2	7	4	192.143
18-30 years old	Male	Bachelor's Degree	8	5	7	1	3	6	2	4	133.26
31-43 years old	Female	Masters Degree or equivalent	4	6	2	8	5	1	7	3	41.237
18-30 years old	Male	Bachelor's Degree	2	5	7	6	3	1	8	4	76.149
31-43 years old	Male	Some college, no degree	3	8	4	7	5	1	2	6	72.671
31-43 years old	Male	Bachelor's Degree	7	5	3	6	8	1	2	4	66.077
31-43 years old	Male	Bachelor's Degree	1	2	6	8	4	7	5	3	76.129
18-30 years old	Male	Some college, no degree	8	4	5	7	3	6	1	2	224.886
18-30 years old	Male	Masters Degree or equivalent	3	4	8	1	7	6	2	5	60.7
18-30 years old	Male	Bachelor's Degree	7	4	3	6	5	1	2	8	54.352
18-30 years old	Male	Masters Degree or equivalent	3	1	4	7	8	6	2	5	229.083
31-43 years old	Female	Bachelor's Degree	3	7	2	6	5	8	1	4	205.509
31-43 years old	Female	Bachelor's Degree	8	7	1	6	3	4	5	2	28.032
18-30 years old	Female	Bachelor's Degree	5	4	2	1	8	6	7	3	411.65
Prefer not to answer	Male	Bachelor's Degree	4	6	3	8	5	7	1	2	41.035
31-43 years old	Male	Some college, no degree	3	4	5	8	1	6	2	7	172.205
31-43 years old	Female	Some college, no degree	5	8	7	2	6	4	1	3	104.503
31-43 years old	Male	Bachelor's Degree	4	3	8	7	2	6	5	1	574.409
18-30 years old	Female	Bachelor's Degree	5	6	8	2	3	4	7	1	197.981

43-55 years old	Male	Some college, no degree	7	1	2	8	5	3	6	4	194.596
43-55 years old	Male	High School graduate	7	2	5	3	6	8	1	4	380.29
31-43 years old	Male	Bachelor's Degree	6	3	7	8	1	2	5	4	116.501
18-30 years old	Male	Bachelor's Degree	4	7	1	3	5	2	8	6	683.358
31-43 years old	Female	Some college, no degree	2	5	3	7	1	6	4	8	316.358
31-43 years old	Female	Some college, no degree	7	5	6	8	2	1	3	4	276.072
43-55 years old	Male	Bachelor's Degree	1	7	8	4	6	2	5	3	213.344
18-30 years old	Female	Bachelor's Degree	5	3	7	6	8	1	4	2	163.919
31-43 years old	Male	Bachelor's Degree	5	4	3	7	1	6	8	2	275.168
31-43 years old	Male	Bachelor's Degree	5	6	7	8	3	4	2	1	115.972
18-30 years old	Female	Bachelor's Degree	6	4	3	1	8	7	2	5	45.431
18-30 years old	Male	Masters Degree or equivalent	7	3	6	4	8	5	1	2	144.317
31-43 years old	Female	High School graduate	6	8	5	7	3	1	4	2	128.311
31-43 years old	Male	Masters Degree or equivalent	1	4	2	8	7	3	6	5	388.034
18-30 years old	Female	Some college, no degree	5	4	8	3	2	6	7	1	182.914
43-55 years old	Female	Bachelor's Degree	8	7	1	4	3	2	5	6	288.729
18-30 years old	Male	Masters Degree or equivalent	3	6	2	1	8	5	7	4	205.549
18-30 years old	Female	Bachelor's Degree	8	1	5	3	2	6	7	4	624.313
18-30 years old	Male	Masters Degree or equivalent	4	7	6	2	1	5	8	3	175.471
55-67 years old	Male	Some college, no degree	8	5	6	7	4	2	1	3	547.063
31-43 years old	Male	PhD or equivalent	2	3	5	4	1	8	7	6	248.851
31-43 years old	Male	Bachelor's Degree	8	4	6	7	2	1	5	3	474.042
43-55 years old	Male	Bachelor's Degree	8	7	6	5	4	1	3	2	670.948
18-30 years old	Female	Bachelor's Degree	8	5	2	6	7	4	3	1	92.807

43-55 years old	Female	Masters Degree or equivalent	7	4	6	3	2	5	1	8	307.289
18-30 years old	Male	Bachelor's Degree	7	5	8	6	4	2	1	3	199.251
18-30 years old	Male	Bachelor's Degree	6	7	1	5	2	8	3	4	262.559
31-43 years old	Male	Some college, no degree	7	5	4	6	8	3	2	1	161.372
43-55 years old	Male	Some college, no degree	5	8	6	2	1	4	3	7	265.373
31-43 years old	Male	Bachelor's Degree	8	2	4	6	1	7	3	5	310.121
18-30 years old	Male	Some college, no degree	6	7	8	5	4	3	1	2	266.194
31-43 years old	Male	Bachelor's Degree	3	2	7	8	6	1	5	4	338.355
18-30 years old	Male	Masters Degree or equivalent	6	2	7	5	1	8	3	4	406.958
31-43 years old	Female	High School graduate	1	3	4	2	5	7	6	8	344.625
43-55 years old	Female	Some college, no degree	1	2	8	6	5	4	3	7	282.521
31-43 years old	Male	Some college, no degree	6	8	5	7	1	2	4	3	166.261
18-30 years old	Male	Masters Degree or equivalent	4	8	3	6	7	2	1	5	152.806
18-30 years old	Male	Some college, no degree	6	4	8	7	2	1	3	5	525.47
18-30 years old	Female	Bachelor's Degree	5	8	6	3	1	4	7	2	491.909
31-43 years old	Male	High School graduate	4	8	6	2	1	7	3	5	293.535
18-30 years old	Male	Bachelor's Degree	8	4	6	1	7	3	5	2	164.236
18-30 years old	Male	Bachelor's Degree	3	8	7	2	1	6	5	4	98.668
31-43 years old	Male	Some college, no degree	1	3	2	8	6	4	7	5	53.724
18-30 years old	Female	Bachelor's Degree	7	6	1	3	5	4	2	8	213.552
18-30 years old	Female	Bachelor's Degree	7	8	6	5	4	2	3	1	232.612
18-30 years old	Male	Bachelor's Degree	7	5	8	6	1	2	3	4	115.363
18-30 years old	Female	Masters Degree or equivalent	7	5	8	1	6	3	2	4	67.23
31-43 years old	Male	Bachelor's Degree	3	8	2	5	1	7	6	4	149.693
31-43 years old	Male	High School graduate	7	5	8	6	2	3	1	4	122.351

43-55 years old	Male	Some college, no degree	4	3	7	1	6	2	8	5	397.664
18-30 years old	Male	High School graduate	6	7	8	5	3	2	4	1	88. 472
18-30 years old	Male	Some college, no degree	3	6	8	7	5	4	2	1	140.1
31-43 years old	Male	Bachelor's Degree	4	7	8	3	1	5	6	2	77.074
43-55 years old	Male	Some college, no degree	1	8	5	6	7	2	4	3	277.17
31-43 years old	Male	Masters Degree or equivalent	2	5	8	1	6	7	4	3	244.486
18-30 years old	Male	Masters Degree or equivalent	8	3	2	6	1	4	5	7	305.128
18-30 years old	Female	Some college, no degree	1	5	7	2	8	4	6	3	268.126
31-43 years old	Female	Bachelor's Degree	5	7	3	1	6	2	4	8	87.813

AROUSAL DATA

Age	Gender	Education	C1_A	C2_A	C3_A	C4_A	C5_A	C6_A	C7_A	C8_A	A_Time (S)
31-43 years old	Male	Some college, no degree	3	5	8	7	2	6	4	1	82.956
43-55 years old	Female	Some college, no degree	8	6	4	7	5	1	2	3	78.053
18-30 years old	Male	Bachelor's Degree	7	8	5	2	6	4	3	1	191.711
18-30 years old	Male	Masters Degree or equivalent	1	5	7	6	8	4	2	3	74.188
18-30 years old	Female	Masters Degree or equivalent	3	5	7	6	4	1	8	2	94.613
31-43 years old	Female	Bachelor's Degree	2	6	8	3	7	1	5	4	84.417
31-43 years old	Male	Some college, no degree	4	7	5	2	3	8	6	1	203.301
18-30 years old	Male	Bachelor's Degree	7	5	6	8	2	3	1	4	57.216
18-30 years old	Female	Bachelor's Degree	7	3	2	8	4	1	6	5	40.712
31-43 years old	Female	Bachelor's Degree	3	6	8	7	5	2	4	1	44.179
31-43 years old	Female	Bachelor's Degree	5	2	8	1	7	4	6	3	41.466
31-43 years old	Male	Some college, no degree	4	7	6	2	8	1	5	3	69.535
43-55 years old	Male	Masters Degree or equivalent	1	6	7	4	3	5	8	2	82.202
43-55 years old	Male	Bachelor's Degree	4	5	6	3	2	7	8	1	47.671
43-55 years old	Female	Bachelor's Degree	7	4	2	8	1	5	6	3	67.621
43-55 years old	Male	Bachelor's Degree	8	1	3	5	6	4	7	2	60.9
18-30 years old	Male	Bachelor's Degree	6	3	1	4	2	7	8	5	73.717
18-30 years old	Male	Masters Degree or equivalent	6	2	5	4	1	3	7	8	50.064
31-43 years old	Male	Some college, no degree	3	6	1	8	7	2	4	5	204.292

43-55 years old	Female	Bachelor's Degree	5	7	4	2	3	6	1	8	113.794
18-30 years old	Female	Masters Degree or equivalent	6	3	5	8	7	1	2	4	80.781
18-30 years old	Female	Bachelor's Degree	3	8	6	7	2	5	1	4	30.742
18-30 years old	Female	Masters Degree or equivalent	4	7	6	8	2	5	1	3	41.903
18-30 years old	Female	Masters Degree or equivalent	8	1	4	3	6	5	7	2	31.48
55-67 years old	Male	Bachelor's Degree	8	1	7	5	4	3	6	2	125.268
43-55 years old	Male	Some college, no degree	1	2	4	3	6	8	5	7	101.501
31-43 years old	Female	Bachelor's Degree	7	4	2	5	8	6	3	1	134.225
18-30 years old	Male	Bachelor's Degree	3	1	7	2	6	4	8	5	40.805
31-43 years old	Female	Masters Degree or equivalent	4	1	8	3	7	2	5	6	62.412
18-30 years old	Male	Bachelor's Degree	4	7	8	2	1	3	6	5	26.1
31-43 years old	Male	Some college, no degree	7	2	5	4	3	8	1	6	37.389
31-43 years old	Male	Bachelor's Degree	4	3	2	8	7	1	5	6	26.346
31-43 years old	Male	Bachelor's Degree	1	5	2	7	8	6	3	4	69.214
18-30 years old	Male	Some college, no degree	4	6	5	1	2	3	7	8	35.119
18-30 years old	Male	Masters Degree or equivalent	1	3	8	7	4	5	2	6	32.277
18-30 years old	Male	Bachelor's Degree	2	3	4	5	6	1	7	8	26.314
18-30 years old	Male	Masters Degree or equivalent	5	3	2	8	7	4	6	1	447.927
31-43 years old	Female	Bachelor's Degree	8	2	5	7	1	6	3	4	74.605
31-43 years old	Female	Bachelor's Degree	2	3	1	4	7	5	8	6	45.98
18-30 years old	Female	Bachelor's Degree	1	4	8	3	5	2	6	7	268.112

Prefer not to answer	Male	Bachelor's Degree	6	4	1	8	3	5	2	7	23.947
31-43 years old	Male	Some college, no degree	1	6	3	5	4	8	7	2	60.719
31-43 years old	Female	Some college, no degree	7	8	5	3	2	6	1	4	100.053
31-43 years old	Male	Bachelor's Degree	4	1	7	3	6	2	8	5	146.877
18-30 years old	Female	Bachelor's Degree	5	7	3	2	4	8	1	6	83.571
43-55 years old	Male	Some college, no degree	7	3	6	1	4	2	5	8	146.535
43-55 years old	Male	High School graduate	6	5	3	8	4	2	1	7	203.887
31-43 years old	Male	Bachelor's Degree	1	8	7	5	4	2	3	6	48.13
18-30 years old	Male	Bachelor's Degree	8	4	6	7	1	2	3	5	81.228
31-43 years old	Female	Some college, no degree	8	2	7	1	5	3	4	6	101.796
31-43 years old	Female	Some college, no degree	7	6	8	5	4	1	2	3	198.362
43-55 years old	Male	Bachelor's Degree	7	3	8	5	2	4	1	6	112.03
18-30 years old	Female	Bachelor's Degree	2	1	4	7	6	3	8	5	122.084
31-43 years old	Male	Bachelor's Degree	7	5	8	3	4	1	6	2	332.713
31-43 years old	Male	Bachelor's Degree	7	5	6	8	2	3	1	4	133.648
18-30 years old	Female	Bachelor's Degree	6	3	5	4	1	8	2	7	64.946
18-30 years old	Male	Masters Degree or equivalent	4	8	5	2	1	3	7	6	103.636
31-43 years old	Female	High School graduate	7	8	5	6	4	3	2	1	22.04
31-43 years old	Male	Masters Degree or equivalent	6	1	2	4	8	7	5	3	148.627
18-30 years old	Female	Some college, no degree	4	8	5	3	7	2	6	1	131.497
43-55 years old	Female	Bachelor's Degree	4	6	5	1	2	8	7	3	82.587

18-30 years old	Male	Masters Degree or equivalent	7	5	3	8	4	1	2	6	307.854
18-30 years old	Female	Bachelor's Degree	1	5	3	2	8	6	7	4	119.813
18-30 years old	Male	Masters Degree or equivalent	6	7	8	1	4	2	5	3	113.765
55-67 years old	Male	Some college, no degree	1	8	2	5	3	7	4	6	247.341
31-43 years old	Male	PhD or equivalent	2	4	1	3	7	8	6	5	127.452
31-43 years old	Male	Bachelor's Degree	3	4	8	7	5	1	2	6	115.773
43-55 years old	Male	Bachelor's Degree	8	4	7	3	6	5	2	1	339.149
18-30 years old	Female	Bachelor's Degree	1	6	8	3	7	2	4	5	66.202
43-55 years old	Female	Masters Degree or equivalent	6	2	1	8	4	5	7	3	209.777
18-30 years old	Male	Bachelor's Degree	5	2	3	1	8	7	4	6	77.791
18-30 years old	Male	Bachelor's Degree	5	6	1	2	4	7	3	8	28.84
31-43 years old	Male	Some college, no degree	7	6	4	8	3	5	2	1	167.499
43-55 years old	Male	Some college, no degree	2	7	4	8	5	3	6	1	199.012
31-43 years old	Male	Bachelor's Degree	1	5	8	7	6	3	2	4	205.217
18-30 years old	Male	Some college, no degree	3	6	2	1	8	5	7	4	121.008
31-43 years old	Male	Bachelor's Degree	5	1	7	3	8	2	4	6	104.888
18-30 years old	Male	Masters Degree or equivalent	4	8	5	2	6	7	1	3	101.278
31-43 years old	Female	High School graduate	4	1	3	2	6	7	8	5	67.171
43-55 years old	Female	Some college, no degree	2	8	3	6	1	4	5	7	121.249
31-43 years old	Male	Some college, no degree	5	8	7	6	1	4	3	2	139.717
18-30 years old	Male	Masters Degree or equivalent	6	7	2	5	1	8	3	4	209.689

18-30 years old	Male	Some college, no degree	7	4	6	8	1	5	3	2	98.382
18-30 years old	Female	Bachelor's Degree	7	6	3	4	1	8	5	2	88.729
31-43 years old	Male	High School graduate	5	7	3	2	4	1	8	6	243.821
18-30 years old	Male	Bachelor's Degree	6	3	5	2	8	1	4	7	255.381
18-30 years old	Male	Bachelor's Degree	8	2	7	4	3	1	6	5	30.596
31-43 years old	Male	Some college, no degree	1	2	3	4	8	5	6	7	38.473
18-30 years old	Female	Bachelor's Degree	6	4	2	8	3	1	5	7	34.517
18-30 years old	Female	Bachelor's Degree	6	8	7	5	4	1	2	3	119.072
18-30 years old	Male	Bachelor's Degree	5	8	6	7	1	3	2	4	65.195
18-30 years old	Female	Masters Degree or equivalent	8	5	3	4	6	1	7	2	31.419
31-43 years old	Male	Bachelor's Degree	2	4	6	1	7	5	8	3	124.783
31-43 years old	Male	High School graduate	7	6	8	5	1	2	3	4	138.058
43-55 years old	Male	Some college, no degree	1	3	4	2	7	5	6	8	314.792
18-30 years old	Male	High School graduate	6	7	5	8	3	1	2	4	58.605
18-30 years old	Male	Some college, no degree	1	7	5	3	4	2	6	8	125.479
31-43 years old	Male	Bachelor's Degree	2	5	7	3	8	6	4	1	43.768
43-55 years old	Male	Some college, no degree	3	1	5	4	2	7	6	8	197.666
31-43 years old	Male	Masters Degree or equivalent	5	4	3	6	8	2	1	7	222.497
18-30 years old	Male	Masters Degree or equivalent	1	5	6	8	7	4	3	2	224.19
18-30 years old	Female	Some college, no degree	2	8	5	4	7	3	6	1	171.368
31-43 years old	Female	Bachelor's Degree	6	4	8	2	3	5	1	7	79.449

VALENCE RANKING COUNTS

Clip	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5	Rank 6	Rank 7	Rank 8
M_OG2FG1BL2	10	5	12	11	16	17	18	14
M_OG1FG1BL1	6	9	12	15	18	14	13	16
M_OG1FG2BL2	6	13	13	6	16	16	17	16
M_OG2FG2BL2	13	8	9	9	10	18	19	17
F_OG1FG1BL2	20	13	12	9	12	12	10	15
F_OG2FG2BL2	21	18	12	15	9	13	8	7
F_OG1FG2BL1	16	16	18	13	11	7	12	10
F_OG2FG1BL1	11	21	15	25	11	6	6	8

AROUSAL RANKING COUNTS

Clip	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5	Rank 6	Rank 7	Rank 8
M_OG1FG1BL2	16	10	9	14	11	15	18	10
M_OG1FG1BL1	11	10	13	13	15	15	12	14
M_OG1FG2BL2	7	11	14	9	19	12	14	17
M_OG2FG2BL2	9	16	16	13	12	6	12	19
F_OG1FG1BL2	14	12	11	19	6	13	15	13
F_OG2FG2BL2	19	16	14	10	17	8	9	10
F_OG1FG2BL1	13	16	12	10	11	18	12	11
F_OG2FG1BL1	14	12	14	15	12	16	11	9

APPENDIX B. STUDY 1 BASIC STATISTICS

MAIN DATASET VALENCE RANKINGS

Clip	Min	Max	Mean	Std. Dev	Variance	Count
M_OG1-FG1-BL1	1	8	5.05	2.16	4.65	103
M_OG1-FG1-BL1	1	8	4.98	2.09	4.37	103
M_OG1-FG2-BL2	1	8	5.03	2.2	4.84	103
M_OG2-FG2-BL1	1	8	5.04	2.36	5.55	103
F_OG1-FG1-BL2	1	8	4.27	2.47	6.08	103
F_OG2-FG2-BL2	1	8	3.77	2.23	4.97	103
F_OG1-FG2-BL1	1	8	4.03	2.27	5.17	103
F_OG2-FG1-BL1	1	8	3.83	2	4	103

MAIN DATASET AROUSAL RANKINGS

Clip	Min	Max	Mean	Std. Dev	Variance	Count
M_OG1-FG1-BL1	1	8	4.32	2.2	4.82	103
M_OG1-FG1-BL1	1	8	4.43	2.29	5.25	103
M_OG1-FG2-BL2	1	8	3.97	2.29	5.23	103
M_OG2-FG2-BL1	1	8	4.5	2.33	5.43	103
F_OG1-FG1-BL2	1	8	4.59	2.36	5.56	103
F_OG2-FG2-BL2	1	8	4.93	2.2	4.82	103
F_OG1-FG2-BL1	1	8	4.69	2.23	4.95	103
F_OG2-FG1-BL1	1	8	4.56	2.32	5.37	103

MALE DATASET VALENCE RANKINGS

Clip	Min	Max	Mean	Std. Dev	Variance	Count
M_OG1-FG1-BL1	1	8	4.95	2.19	4.8	66
M_OG1-FG1-BL1	1	8	4.88	2.03	4.14	66
M_OG1-FG2-BL2	1	8	5.14	2.17	4.72	66
M_OG2-FG2-BL1	1	8	5.35	2.29	5.26	66
F_OG1-FG1-BL2	1	8	4.2	2.52	6.37	66
F_OG2-FG2-BL2	1	8	3.85	2.36	5.58	66
F_OG1-FG2-BL1	1	8	3.86	2.22	4.94	66
F_OG2-FG1-BL1	1	8	3.77	1.81	3.27	66

MALE DATASET AROUSAL RANKINGS

Clip	Min	Max	Mean	Std. Dev	Variance	Count
M_OG1-FG1-BL1	1	8	4.5	2.27	5.16	66
M_OG1-FG1-BL1	1	8	4.42	2.24	5	66
M_OG1-FG2-BL2	1	8	4.03	2.25	5.06	66
M_OG2-FG2-BL1	1	8	4.52	2.4	5.76	66
F_OG1-FG1-BL2	1	8	4.59	2.39	5.7	66
F_OG2-FG2-BL2	1	8	4.95	2.18	4.77	66
F_OG1-FG2-BL1	1	8	4.62	2.16	4.66	66
F_OG2-FG1-BL1	1	8	4.36	2.33	5.41	66

FEMALE DATASET VALENCE RANKINGS

Clip	Min	Max	Mean	Std. Dev	Variance	Count
M_OG1-FG1-BL1	1	8	5.22	2.08	4.33	37
M_OG1-FG1-BL1	1	8	5.16	2.17	4.73	37
M_OG1-FG2-BL2	1	8	4.84	2.24	5	37
M_OG2-FG2-BL1	1	8	4.49	2.37	5.6	37
F_OG1-FG1-BL2	1	8	4.41	2.35	5.54	37
F_OG2-FG2-BL2	1	8	3.62	1.96	3.86	37
F_OG1-FG2-BL1	1	8	4.32	2.34	5.46	37
F_OG2-FG1-BL1	1	8	3.95	2.3	5.29	37

FEMALE DATASET AROUSAL RANKINGS

Clip	Min	Max	Mean	Std. Dev	Variance	Count
M_OG1-FG1-BL1	1	8	4	2.01	4.05	37
M_OG1-FG1-BL1	1	8	4.43	2.39	5.7	37
M_OG1-FG2-BL2	1	8	3.86	2.35	5.52	37
M_OG2-FG2-BL1	1	8	4.49	2.2	4.84	37
F_OG1-FG1-BL2	1	8	4.59	2.31	5.32	37
F_OG2-FG2-BL2	1	8	4.89	2.22	4.91	37
F_OG1-FG2-BL1	1	8	4.81	2.33	5.45	37
F_OG2-FG1-BL1	1	8	4.92	2.26	5.1	37

18-30 Y/O DATASET VALENCE RANKINGS

Clip	Min	Max	Mean	Std. Dev	Variance	Count
M_OG1-FG1-BL1	1	8	5.31	2.06	4.26	45
M_OG1-FG1-BL1	1	8	5.02	2.03	4.11	45
M_OG1-FG2-BL2	1	8	5.38	2.33	5.44	45
M_OG2-FG2-BL1	1	8	4.33	2.26	5.11	45
F_OG1-FG1-BL2	1	8	4.47	2.55	6.52	45
F_OG2-FG2-BL2	1	8	3.8	1.97	3.89	45
F_OG1-FG2-BL1	1	8	4.13	2.47	6.12	45
F_OG2-FG1-BL1	1	8	3.56	1.82	3.31	45

18-30 Y/O DATASET AROUSAL RANKINGS

Clip	Min	Max	Mean	Std. Dev	Variance	Count
M_OG1-FG1-BL1	1	8	4.47	2.1	4.43	45
M_OG1-FG1-BL1	1	8	4.49	2.32	5.41	45
M_OG1-FG2-BL2	1	8	3.62	2.28	5.21	45
M_OG2-FG2-BL1	1	8	4.29	2.42	5.85	45
F_OG1-FG1-BL2	1	8	4.6	2.48	6.15	45
F_OG2-FG2-BL2	1	8	4.87	1.97	3.89	45
F_OG1-FG2-BL1	1	8	5.04	2.19	4.8	45
F_OG2-FG1-BL1	1	8	4.62	2.23	4.99	45

30+ Y/O MALE DATASET VALENCE RANKINGS

Clip	Min	Max	Mean	Std. Dev	Variance	Count
M_OG1-FG1-BL1	1	8	4.86	2.22	4.93	57
M_OG1-FG1-BL1	1	8	4.93	2.15	4.63	57
M_OG1-FG2-BL2	1	8	4.79	2.06	4.24	57
M_OG2-FG2-BL1	1	8	5.54	2.28	5.2	57
F_OG1-FG1-BL2	1	8	4.11	2.4	5.78	57
F_OG2-FG2-BL2	1	8	3.68	2.39	5.72	57
F_OG1-FG2-BL1	1	8	4	2.09	4.35	57
F_OG2-FG1-BL1	1	8	4.09	2.1	4.43	57

30+ Y/O MALE DATASET AROUSAL RANKINGS

Clip	Min	Max	Mean	Std. Dev	Variance	Count
M_OG1-FG1-BL1	1	8	4.16	2.25	5.05	57
M_OG1-FG1-BL1	1	8	4.42	2.26	5.12	57
M_OG1-FG2-BL2	1	8	4.23	2.27	5.16	57
M_OG2-FG2-BL1	1	8	4.7	2.26	5.09	57
F_OG1-FG1-BL2	1	8	4.53	2.23	4.99	57
F_OG2-FG2-BL2	1	8	5.05	2.31	5.35	57
F_OG1-FG2-BL1	1	8	4.42	2.23	4.98	57
F_OG2-FG1-BL1	1	8	4.49	2.39	5.72	57

NO DEGREE DATASET VALENCE RANKINGS

Clip	Min	Max	Mean	Std. Dev	Variance	Count
M_OG1-FG1-BL1	1	8	4.84	2.25	5.07	32
M_OG1-FG1-BL1	1	8	5.22	2.09	4.36	32
M_OG1-FG2-BL2	2	8	5.41	1.9	3.62	32
M_OG2-FG2-BL1	1	8	5.47	2.18	4.75	32
F_OG1-FG1-BL2	1	8	4.03	2.35	5.53	32
F_OG2-FG2-BL2	1	8	3.56	2.14	4.56	32
F_OG1-FG2-BL1	1	8	3.44	2.05	4.18	32
F_OG2-FG1-BL1	1	8	4.03	2.26	5.09	32

NO DEGREE DATASET AROUSAL RANKINGS

Clip	Min	Max	Mean	Std. Dev	Variance	Count
M_OG1-FG1-BL1	1	8	4.38	2.55	6.48	32
M_OG1-FG1-BL1	1	8	4.47	2.08	4.31	32
M_OG1-FG2-BL2	1	8	4.06	2.36	5.56	32
M_OG2-FG2-BL1	1	8	4.19	2.17	4.71	32
F_OG1-FG1-BL2	1	8	4.44	2.4	5.75	32
F_OG2-FG2-BL2	1	8	4.66	1.74	3.04	32
F_OG1-FG2-BL1	1	8	5.5	2.26	5.13	32
F_OG2-FG1-BL1	1	8	4.31	2.38	5.65	32

DEGREE DATASET VALENCE RANKINGS

Clip	Min	Max	Mean	Std. Dev	Variance	Count
M_OG1-FG1-BL1	1	8	5.14	2.1	4.43	71
M_OG1-FG1-BL1	1	8	4.87	2.08	4.34	71
M_OG1-FG2-BL2	1	8	4.86	2.3	5.3	71
M_OG2-FG2-BL1	1	8	4.85	2.41	5.79	71
F_OG1-FG1-BL2	1	8	4.38	2.51	6.29	71
F_OG2-FG2-BL2	1	8	3.86	2.27	5.14	71
F_OG1-FG2-BL1	1	8	4.3	2.32	5.39	71
F_OG2-FG1-BL1	1	8	3.75	1.87	3.49	71

DEGREE DATASET AROUSAL RANKINGS

Clip	Min	Max	Mean	Std. Dev	Variance	Count
M_OG1-FG1-BL1	1	8	4.3	2.02	4.07	71
M_OG1-FG1-BL1	1	8	4.41	2.38	5.68	71
M_OG1-FG2-BL2	1	8	3.93	2.25	5.08	71
M_OG2-FG2-BL1	1	8	4.65	2.39	5.69	71
F_OG1-FG1-BL2	1	8	4.66	2.34	5.46	71
F_OG2-FG2-BL2	1	8	5.06	2.36	5.57	71
F_OG1-FG2-BL1	1	8	4.32	2.11	4.44	71
F_OG2-FG1-BL1	1	8	4.68	2.28	5.2	71

APPENDIX C. STUDY 1 ANALYSIS

FULL DATASET

Full Dataset ANOVA (Valence)

Dependent Variable: Valence

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	242.621[a]	7	34.660	6.926	.000
Intercept	16686.000	1	16686.000	3334.439	.000
OG	4.971	1	4.971	.993	.319
FG	.951	1	.951	.190	.663
BL	.699	1	.699	.140	.709
G	226.485	1	226.485	45.260	.000
FG * BL	7.767	1	7.767	1.552	.213
OG * BL	1.573	1	1.573	.314	.575
OG * FG	.175	1	.175	.035	.852
Error	4083.379	816	5.004		
Total	21012.000	824			
Corrected Total	4326.000	823			

Full Dataset ANOVA (Arousal)

Dependent Variable: Arousal

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	56.913[a]	7	8.130	1.554	.146
Intercept	16686.000	1	16686.000	3189.388	.000
OG	15.772	1	15.772	3.015	.083
FG	.311	1	.311	.059	.808
BL	.044	1	.044	.008	.927
G	31.068	1	31.068	5.938	.015
FG * BL	.393	1	.393	.075	.784
OG * BL	6.291	1	6.291	1.203	.273
OG * FG	3.034	1	3.034	.580	.447
Error	4269.087	816	5.232		
Total	21012.000	824			
Corrected Total	4326.000	823			

Regression R-Square (Valence)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics		
					R Square Change	F Change	df1
1	.237[a]	.056	.048	2.237	.056	6.926	7

Regression Coefficients (Valence)

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	4.500	.078		57.745	.000
	G_Code	-.524	.078	-.229	-6.728	.000
	OG_CODE	-.078	.078	-.034	-.997	.319
	FG_CODE	-.034	.078	-.015	-.436	.663
	BL_CODE	.029	.078	.013	.374	.709
	OG_FG	.015	.078	.006	.187	.852
	OG_BL	-.044	.078	-.019	-.561	.575
	FG_BL	-.097	.078	-.042	-1.246	.213

Regression R-Square (Arousal)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics		
					R Square Change	F Change	df1
1	.115[a]	.013	.005	2.287	.013	1.554	7

Regression Coefficients (Arousal)

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	4.500	.080		56.475	.000
	G_Code	-.194	.080	-.085	-2.437	.015
	OG_CODE	-.138	.080	-.060	-1.736	.083
	FG_CODE	-.019	.080	-.008	-.244	.808
	BL_CODE	-.007	.080	-.003	-.091	.927
	OG_FG	-.061	.080	-.026	-.762	.447
	OG_BL	-.087	.080	-.038	-1.097	.273
	FG_BL	-.022	.080	-.010	-.274	.784

Full Dataset Chi-squared (Valence vs Arousal)

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-squared	68.117[a]	49	.037
Likelihood Ratio	71.094	49	.021
Linear-by-Linear Association	18.013	1	.000
N of Valid Cases	824		

AGE SUBSET DATA ANALYSIS (18-30 YEAR OLD)

18-30 Y/O Dataset ANOVA (Valence)

Dependent Variable: Valence

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	146.089[a]	7	20.870	4.212	.000
Intercept	7290.000	1	7290.000	1471.451	.000
OG	22.500	1	22.500	4.542	.034
FG	2.844	1	2.844	.574	.449
BL	20.544	1	20.544	4.147	.042
G	94.044	1	94.044	18.982	.000
FG * BL	1.344	1	1.344	.271	.603
OG * BL	1.600	1	1.600	.323	.570
OG * FG	3.211	1	3.211	.648	.421
Error	1743.911	352	4.954		
Total	9180.000	360			
Corrected Total	1890.000	359			

18-30 Y/O Dataset ANOVA (Arousal)

Dependent Variable: Arousal

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	57.244[a]	7	8.178	1.571	.143
Intercept	7290.000	1	7290.000	1400.121	.000
OG	10.678	1	10.678	2.051	.153
FG	4.011	1	4.011	.770	.381
BL	8.100	1	8.100	1.556	.213
G	28.900	1	28.900	5.551	.019
FG * BL	.000	1	.000	.000	1.000
OG * BL	1.111	1	1.111	.213	.644
OG * FG	4.444	1	4.444	.854	.356
Error	1832.756	352	5.207		
Total	9180.000	360			
Corrected Total	1890.000	359			

18-30 Y/O R-Square (Valence)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics: R Square Change	Change Statistics: F Change	Change Statistics: df1
1	.278[a]	.077	.059	2.226	.077	4.212	7

18-30 Y/O Coefficients (Valence)

Model		Unstandardized Coefficients: B	Unstandardized Coefficients: Std. Error	Standardized Coefficients: Beta	t	Sig.
1	(Constant)	4.500	.117		38.359	.000
	G_C	-.511	.117	-.223	-4.357	.000
	OG_C	-.250	.117	-.109	-2.131	.034
	FG_C	-.089	.117	-.039	-.758	.449
	BL_C	.239	.117	.104	2.036	.042
	OG_FG	-.094	.117	-.041	-.805	.421
	OG_BL	.067	.117	.029	.568	.570
	FG_BL	-.061	.117	-.027	-.521	.603

18-30 Y/O R-Square (Arousal)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics: R Square Change	Change Statistics: F Change	Change Statistics: df1
1	.174[a]	.030	.011	2.282	.030	1.571	7

18-30 Y/O Coefficients (Arousal)

Model		Unstandardized Coefficients: B	Unstandardized Coefficients: Std. Error	Standardized Coefficients: Beta	t	Sig.
1	(Constant)	4.500	.120		37.418	.000
	G_C	-.283	.120	-.124	-2.356	.019
	OG_C	-.172	.120	-.075	-1.432	.153
	FG_C	-.106	.120	-.046	-.878	.381
	BL_C	-.150	.120	-.065	-1.247	.213
	OG_FG	-.111	.120	-.048	-.924	.356
	OG_BL	-.056	.120	-.024	-.462	.644
	FG_BL	.000	.120	.000	.000	1.000

18-30 Y/O Chi-squared (Valence vs Arousal)

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-squared	58.807[a]	49	.159
Likelihood Ratio	59.885	49	.137
Linear-by-Linear Association	8.334	1	.004
N of Valid Cases	456		

AGE SUBSET DATA ANALYSIS (30+ YEAR OLD)

30+ Y/O Dataset ANOVA (Valence)

Dependent Variable: Valence

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	155.544[a]	7	22.221	4.447	.000
Intercept	9234.000	1	9234.000	1848.074	.000
OG	.877	1	.877	.176	.675
FG	.009	1	.009	.002	.967
BL	8.982	1	8.982	1.798	.181
G	128.430	1	128.430	25.704	.000
FG * BL	7.377	1	7.377	1.476	.225
OG * BL	7.895	1	7.895	1.580	.209
OG * FG	1.974	1	1.974	.395	.530
Error	2238.456	448	4.997		
Total	11628.000	456			
Corrected Total	2394.000	455			

30+ Y/O Dataset ANOVA (Arousal)

Dependent Variable: Arousal

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	31.368[a]	7	4.481	.850	.547
Intercept	9234.000	1	9234.000	1750.942	.000
OG	10.140	1	10.140	1.923	.166
FG	1.482	1	1.482	.281	.596
BL	6.395	1	6.395	1.213	.271
G	6.877	1	6.877	1.304	.254
FG * BL	.561	1	.561	.106	.744
OG * BL	5.482	1	5.482	1.040	.308
OG * FG	.430	1	.430	.082	.775
Error	2362.632	448	5.274		
Total	11628.000	456			
Corrected Total	2394.000	455			

30+ Y/O R-Square (Valence)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics: R Square Change	Change Statistics: F Change	Change Statistics: df1
1	.255[a]	.065	.050	2.235	.065	4.447	7

30+ Y/O Coefficients (Valence)

Model		Unstandardized Coefficients: B	Unstandardized Coefficients: Std. Error	Standardized Coefficients: Beta	t	Sig.
1	(Constant)	4.500	.105		42.989	.000
	G_C	-.531	.105	-.232	-5.070	.000
	OG_C	.044	.105	.019	.419	.675
	FG_C	.004	.105	.002	.042	.967
	BL_C	-.140	.105	-.061	-1.341	.181
	OG_FG	.066	.105	.029	.628	.530
	OG_BL	-.132	.105	-.057	-1.257	.209
	FG_BL	-.127	.105	-.056	-1.215	.225

30+ Y/O R-Square (Arousal)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics: R Square Change	Change Statistics: F Change	Change Statistics: df1
1	.114[a]	.013	-.002	2.296	.013	.850	7

30+ Y/O Coefficients (Arousal)

Model		Unstandardized Coefficients: B	Unstandardized Coefficients: Std. Error	Standardized Coefficients: Beta	t	Sig.
1	(Constant)	4.500	.108		41.844	.000
	G_C	-.123	.108	-.054	-1.142	.254
	OG_C	-.149	.108	-.065	-1.387	.166
	FG_C	.057	.108	.025	.530	.596
	BL_C	.118	.108	.052	1.101	.271
	OG_FG	-.031	.108	-.013	-.285	.775
	OG_BL	-.110	.108	-.048	-1.020	.308
	FG_BL	-.035	.108	-.015	-.326	.744

30+ Y/O Chi-squared (Valence vs Arousal)

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-squared	52.444[a]	49	.342
Likelihood Ratio	58.378	49	.169
Linear-by-Linear Association	8.865	1	.003
N of Valid Cases	360		

GENDER SUBSET DATA ANALYSIS (MALE)

Male Dataset ANOVA (Valence)

Dependent Variable: Valence

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	193.061[a]	7	27.580	5.561	.000
Intercept	10692.000	1	10692.000	2155.863	.000
OG	.189	1	.189	.038	.845
FG	1.280	1	1.280	.258	.612
BL	.614	1	.614	.124	.725
G	177.341	1	177.341	35.758	.000
FG * BL	4.364	1	4.364	.880	.349
OG * BL	6.818	1	6.818	1.375	.242
OG * FG	2.455	1	2.455	.495	.482
Error	2578.939	520	4.959		
Total	13464.000	528			
Corrected Total	2772.000	527			

Male Dataset ANOVA (Arousal)

Dependent Variable: Arousal

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	31.333[a]	7	4.476	.849	.547
Intercept	10692.000	1	10692.000	2028.645	.000
OG	8.758	1	8.758	1.662	.198
FG	.000	1	.000	.000	1.000
BL	.614	1	.614	.116	.733
G	9.280	1	9.280	1.761	.185
FG * BL	.371	1	.371	.070	.791
OG * BL	10.371	1	10.371	1.968	.161
OG * FG	1.939	1	1.939	.368	.544
Error	2740.667	520	5.271		
Total	13464.000	528			
Corrected Total	2772.000	527			

Male R-Square (Valence)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics: R Square Change	Change Statistics: F Change	Change Statistics: df1
1	.264[a]	.070	.057	2.227	.070	5.561	7

Male Coefficients (Valence)

Model		Unstandardized Coefficients: B	Unstandardized Coefficients: Std. Error	Standardized Coefficients: Beta	t	Sig.
1	(Constant)	4.500	.097		46.431	.000
	G_C	-.580	.097	-.253	-5.980	.000
	OG_C	-.019	.097	-.008	-.195	.845
	FG_C	.049	.097	.021	.508	.612
	BL_C	.034	.097	.015	.352	.725
	OG_FG	.068	.097	.030	.704	.482
	OG_BL	-.114	.097	-.050	-1.173	.242
	FG_BL	-.091	.097	-.040	-.938	.349

Male R-Square (Arousal)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics: R Square Change	Change Statistics: F Change	Change Statistics: df1
1	.106[a]	.011	-.002	2.296	.011	.849	7

Male Coefficients (Arousal)

Model		Unstandardized Coefficients: B	Unstandardized Coefficients: Std. Error	Standardized Coefficients: Beta	t	Sig.
1	(Constant)	4.500	.100		45.040	.000
	G_C	-.133	.100	-.058	-1.327	.185
	OG_C	-.129	.100	-.056	-1.289	.198
	FG_C	.000	.100	.000	.000	1.000
	BL_C	-.034	.100	-.015	-.341	.733
	OG_FG	-.061	.100	-.026	-.607	.544
	OG_BL	-.140	.100	-.061	-1.403	.161
	FG_BL	.027	.100	.012	.265	.791

Male Chi-squared (Valence vs Arousal)

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-squared	74.667[a]	49	.011
Likelihood Ratio	77.847	49	.005
Linear-by-Linear Association	5.969	1	.015
N of Valid Cases	528		

GENDER SUBSET DATA ANALYSIS (FEMALE)

Female Dataset ANOVA (Valence)

Dependent Variable: Valence

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	80.811[a]	7	11.544	2.257	.030
Intercept	5994.000	1	5994.000	1171.792	.000
OG	9.851	1	9.851	1.926	.166
FG	9.851	1	9.851	1.926	.166
BL	.122	1	.122	.024	.878
G	53.635	1	53.635	10.485	.001
FG * BL	3.459	1	3.459	.676	.412
OG * BL	1.946	1	1.946	.380	.538
OG * FG	1.946	1	1.946	.380	.538
Error	1473.189	288	5.115		
Total	7548.000	296			
Corrected Total	1554.000	295			

Female Dataset ANOVA (Arousal)

Dependent Variable: Arousal

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	40.432[a]	7	5.776	1.099	.364
Intercept	5994.000	1	5994.000	1140.532	.000
OG	7.149	1	7.149	1.360	.244
FG	.865	1	.865	.165	.685
BL	.486	1	.486	.093	.761
G	27.365	1	27.365	5.207	.023
FG * BL	3.459	1	3.459	.658	.418
OG * BL	.014	1	.014	.003	.960
OG * FG	1.095	1	1.095	.208	.648
Error	1513.568	288	5.255		
Total	7548.000	296			
Corrected Total	1554.000	295			

Female R-Square (Valence)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics: R Square Change	Change Statistics: F Change	Change Statistics: df1
1	.228[a]	.052	.029	2.262	.052	2.257	7

Female Coefficients (Valence)

Model		Unstandardized Coefficients: B	Unstandardized Coefficients: Std. Error	Standardized Coefficients: Beta	t	Sig.
1	(Constant)	4.500	.131		34.231	.000
	G_C	-.426	.131	-.186	-3.238	.001
	OG_C	-.182	.131	-.080	-1.388	.166
	FG_C	-.182	.131	-.080	-1.388	.166
	BL_C	.020	.131	.009	.154	.878
	OG_FG	-.081	.131	-.035	-.617	.538
	OG_BL	.081	.131	.035	.617	.538
	FG_BL	-.108	.131	-.047	-.822	.412

Female R-Square (Arousal)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics: R Square Change	Change Statistics: F Change	Change Statistics: df1
1	.161[a]	.026	.002	2.292	.026	1.099	7

Female Coefficients (Arousal)

Model		Unstandardized Coefficients: B	Unstandardized Coefficients: Std. Error	Standardized Coefficients: Beta	t	Sig.
1	(Constant)	4.500	.133		33.772	.000
	G_C	-.304	.133	-.133	-2.282	.023
	OG_C	-.155	.133	-.068	-1.166	.244
	FG_C	-.054	.133	-.024	-.406	.685
	BL_C	.041	.133	.018	.304	.761
	OG_FG	-.061	.133	-.027	-.456	.648
	OG_BL	.007	.133	.003	.051	.960
	FG_BL	-.108	.133	-.047	-.811	.418

Female Chi-squared (Valence vs Arousal)

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-squared	56.865[a]	49	.206
Likelihood Ratio	62.511	49	.093
Linear-by-Linear Association	14.540	1	.000
N of Valid Cases	296		

HIGHEST LEVEL OF EDUCATION SUBSET DATA ANALYSIS (NO DEGREE)

No Degree Subset ANOVA (Valence)

Dependent Variable: Valence

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	154.938[a]	7	22.134	4.616	.000
Intercept	5184.000	1	5184.000	1081.215	.000
OG	.141	1	.141	.029	.864
FG	.250	1	.250	.052	.820
BL	.391	1	.391	.081	.776
G	138.063	1	138.063	28.795	.000
FG * BL	.766	1	.766	.160	.690
OG * BL	14.063	1	14.063	2.933	.088
OG * FG	1.266	1	1.266	.264	.608
Error	1189.063	248	4.795		
Total	6528.000	256			
Corrected Total	1344.000	255			

No Degree Subset ANOVA (Arousal)

Dependent Variable: Arousal

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	43.813[a]	7	6.259	1.194	.307
Intercept	5184.000	1	5184.000	988.805	.000
OG	10.563	1	10.563	2.015	.157
FG	2.250	1	2.250	.429	.513
BL	9.766	1	9.766	1.863	.174
G	13.141	1	13.141	2.506	.115
FG * BL	5.641	1	5.641	1.076	.301
OG * BL	1.891	1	1.891	.361	.549
OG * FG	.563	1	.563	.107	.744
Error	1300.188	248	5.243		
Total	6528.000	256			
Corrected Total	1344.000	255			

No Degree R-Square (Valence)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics		
					R Square Change	F Change	df1
1	.340[a]	.115	.090	2.190	.115	4.616	7

No Degree Coefficients (Valence)

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	4.500	.137		32.882	.000
	G_C	-.734	.137	-.321	-5.366	.000
	OG_C	-.023	.137	-.010	-.171	.864
	FG_C	-.031	.137	-.014	-.228	.820
	BL_C	-.039	.137	-.017	-.285	.776
	OG_FG	.070	.137	.031	.514	.608
	OG_BL	-.234	.137	-.102	-1.713	.088
	FG_BL	.055	.137	.024	.400	.690

No Degree R-Square (Arousal)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics		
					R Square Change	F Change	df1
1	.181[a]	.033	.005	2.290	.033	1.194	7

No Degree Coefficients (Arousal)

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	4.500	.143		31.445	.000
	G_C	-.227	.143	-.099	-1.583	.115
	OG_C	-.203	.143	-.089	-1.419	.157
	FG_C	-.094	.143	-.041	-.655	.513
	BL_C	-.195	.143	-.085	-1.365	.174
	OG_FG	.047	.143	.020	.328	.744
	OG_BL	.086	.143	.038	.601	.549
	FG_BL	.148	.143	.065	1.037	.301

No Degree Chi-squared (Valence vs Arousal)

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-squared	52.000[a]	49	.358
Likelihood Ratio	56.133	49	.225
Linear-by-Linear Association	5.534	1	.019
N of Valid Cases	256		

HIGHEST LEVEL OF EDUCATION SUBSET DATA ANALYSIS (DEGREE)

Degree Subset ANOVA (Valence)

Dependent Variable: Valence

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	130.113[a]	7	18.588	3.650	.001
Intercept	11502.000	1	11502.000	2258.546	.000
OG	5.923	1	5.923	1.163	.281
FG	.704	1	.704	.138	.710
BL	2.035	1	2.035	.400	.528
G	104.817	1	104.817	20.582	.000
FG * BL	15.556	1	15.556	3.055	.081
OG * BL	1.014	1	1.014	.199	.656
OG * FG	.063	1	.063	.012	.911
Error	2851.887	560	5.093		
Total	14484.000	568			
Corrected Total	2982.000	567			

Degree Subset ANOVA (Arousal)

Dependent Variable: Arousal

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	56.451[a]	7	8.064	1.544	.150
Intercept	11502.000	1	11502.000	2201.679	.000
OG	6.768	1	6.768	1.295	.256
FG	.113	1	.113	.022	.883
BL	3.408	1	3.408	.652	.420
G	18.317	1	18.317	3.506	.062
FG * BL	5.521	1	5.521	1.057	.304
OG * BL	15.556	1	15.556	2.978	.085
OG * FG	6.768	1	6.768	1.295	.256
Error	2925.549	560	5.224		
Total	14484.000	568			
Corrected Total	2982.000	567			

Degree R-Square (Valence)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics: R Square Change	Change Statistics: F Change	Change Statistics: df1
1	.209[a]	.044	.032	2.257	.044	3.650	7

Degree Coefficients (Valence)

Model		Unstandardized Coefficients: B	Unstandardized Coefficients: Std. Error	Standardized Coefficients: Beta	t	Sig.
1	(Constant)	4.500	.095		47.524	.000
	G_C	-.430	.095	-.187	-4.537	.000
	OG_C	-.102	.095	-.045	-1.078	.281
	FG_C	-.035	.095	-.015	-.372	.710
	BL_C	.060	.095	.026	.632	.528
	OG_FG	-.011	.095	-.005	-.112	.911
	OG_BL	.042	.095	.018	.446	.656
	FG_BL	-.165	.095	-.072	-1.748	.081

Degree R-Square (Arousal)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics: R Square Change	Change Statistics: F Change	Change Statistics: df1
1	.138[a]	.019	.007	2.286	.019	1.544	7

Degree Coefficients (Arousal)

Model		Unstandardized Coefficients: B	Unstandardized Coefficients: Std. Error	Standardized Coefficients: Beta	t	Sig.
1	(Constant)	4.500	.096		46.922	.000
	G_C	-.180	.096	-.078	-1.872	.062
	OG_C	-.109	.096	-.048	-1.138	.256
	FG_C	.014	.096	.006	.147	.883
	BL_C	.077	.096	.034	.808	.420
	OG_FG	-.109	.096	-.048	-1.138	.256
	OG_BL	-.165	.096	-.072	-1.726	.085
	FG_BL	-.099	.096	-.043	-1.028	.304

Degree Chi-squared (Valence vs Arousal)

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-squared	57.803[a]	49	.182
Likelihood Ratio	63.191	49	.084
Linear-by-Linear Association	12.457	1	.000
N of Valid Cases	568		

APPENDIX D. STUDY 2 DATA

The following tables list the raw data that was collected from the main online survey study. Columns C1 to C8 represents the given clip rank, from 1 being the highest to 8 being the lowest. The specific factor combinations for the 8 clips are listed in following table. There is both a male and a female variant for each combination.

Clip	**Valence Table Name**	**Arousal Table Name**
M_OG2-FG1-BL2, F_OG2-FG1-BL2	C1_V	C1_A
M_OG1-FG1-BL2, F_OG1-FG1-BL2	C2_V	C2_A
M_OG2-FG2-BL2, F_OG2-FG2-BL2	C3_V	C3_A
M_OG1-FG2-BL2, F_OG1-FG2-BL2	C4_V	C4_A
M_OG1-FG1-BL1, F_OG1-FG1-BL1	C5_V	C5_A
M_OG2-FG2-BL1, F_OG2-FG2-BL1	C6_V	C6_A
M_OG1-FG2-BL1, F_OG1-FG2-BL1	C7_V	C7_A
M_OG2-FG1-BL1, F_OG2-FG1-BL1	C8_V	C8_A

DEMOGRAPHIC DATA

Age Group	M Count	F Count	Total	Percentage
18-30 years old	30	23	53	19.41%
31-43 years old	75	79	154	56.41%
43-55 years old	18	21	39	14.29%
55-67 years old	8	10	18	6.59%
68 years old or order	2	4	6	2.20%
Prefer not to answer	1	2	3	1.10%

Education	M Count	F Count	Total	Percentage
Did not finish high school	0	0	0	0.00%
High school graduate	12	13	25	9.16%
Some college, no degree	31	27	58	21.25%
Bachelor's Degree	68	73	141	51.65%
Master's Degree or equivalent	18	21	39	14.29%
PhD or equivalent	3	3	6	2.20%
Prefer not to answer	2	2	4	1.47%

Gender	M Count	F Count	Total	Percentage
Male	95	87	182	66.67%
Female	37	52	89	31.87%
Prefer not to answer	2	2	4	1.47%

MALE AGENT VALENCE DATA

Age	Gender	Education	C1_V	C2_V	C3_V	C4_V	C5_V	C6_V	C7_V	C8_V
31-43 years old	Male	Bachelor's Degree	24	41	58	32	60	44	33	40
31-43 years old	Male	Bachelor's Degree	50	53	31	49	53	55	53	49
31-43 years old	Male	Bachelor's Degree	52	37	48	46	39	53	54	61
31-43 years old	Male	Masters Degree or equivalent	53	50	62	55	61	65	58	56
43-55 years old	Male	Some college, no degree	36	45	40	44	43	42	40	41
31-43 years old	Male	Bachelor's Degree	35	50	35	30	50	40	30	45
43-55 years old	Male	Bachelor's Degree	50	50	38	50	37	38	47	42
31-43 years old	Female	Some college, no degree	46	61	30	53	54	58	55	60
55-67 years old	Male	Bachelor's Degree	43	42	42	45	42	42	42	39
31-43 years old	Male	Bachelor's Degree	53	40	34	59	38	32	44	42
43-55 years old	Male	Some college, no degree	42	38	53	43	46	52	47	58
55-67 years old	Female	Some college, no degree	62	46	59	45	55	52	53	58
31-43 years old	Male	High School graduate	48	47	48	50	40	46	47	47
31-43 years old	Male	Bachelor's Degree	40	37	45	45	40	42	40	50
31-43 years old	Male	Some college, no degree	40	39	36	40	29	30	35	30
31-43 years old	Male	Some college, no degree	43	39	38	43	47	43	49	49
43-55 years old	Female	Some college, no degree	42	42	39	42	43	42	43	43
18-30 years old	Male	High School graduate	50	40	40	47	63	66	56	57
18-30 years old	Male	Bachelor's Degree	46	58	56	51	59	53	62	53
43-55 years old	Female	High School graduate	50	44	51	47	48	50	50	52
31-43 years old	Male	Bachelor's Degree	41	40	40	40	41	41	41	40
31-43 years old	Male	Bachelor's Degree	55	48	61	51	59	51	55	56
55-67 years old	Male	Some college, no degree	42	48	51	47	51	53	51	59
31-43 years old	Male	Bachelor's Degree	27	41	13	50	16	60	42	34

31-43 years old	Female	Bachelor's Degree	32	25	22	51	44	26	21	45
31-43 years old	Male	Some college, no degree	52	42	45	41	44	42	40	55
31-43 years old	Male	Bachelor's Degree	56	59	55	56	58	57	60	53
31-43 years old	Male	Bachelor's Degree	37	36	35	37	37	35	37	37
31-43 years old	Female	Prefer not to answer	39	41	34	42	50	37	47	38
31-43 years old	Male	Some college, no degree	54	40	33	47	30	41	50	22
31-43 years old	Female	Some college, no degree	41	35	40	40	40	40	35	34
31-43 years old	Male	Bachelor's Degree	54	65	63	65	56	65	59	58
31-43 years old	Female	Masters Degree or equivalent	18	44	40	53	20	29	55	36
31-43 years old	Male	Some college, no degree	60	56	56	60	54	65	56	56
31-43 years old	Male	Bachelor's Degree	42	39	38	47	44	48	40	47
18-30 years old	Female	Some college, no degree	50	21	54	30	31	59	47	54
31-43 years old	Male	Some college, no degree	44	43	57	44	37	56	53	53
18-30 years old	Male	Some college, no degree	45	48	42	40	45	44	49	43
31-43 years old	Female	Some college, no degree	49	48	50	48	45	40	43	54
18-30 years old	Male	Bachelor's Degree	23	10	41	10	40	42	40	53
43-55 years old	Male	High School graduate	44	45	42	45	44	51	43	46
68 years old or older	Male	High School graduate	53	51	46	51	53	59	50	51
31-43 years old	Male	Masters Degree or equivalent	36	37	61	45	36	53	34	44
31-43 years old	Female	Some college, no degree	45	40	35	40	45	30	40	45
55-67 years old	Female	Bachelor's Degree	39	42	47	42	42	50	43	48
31-43 years old	Male	High School graduate	35	30	35	30	45	35	45	40
31-43 years old	Male	High School graduate	57	57	62	62	50	46	57	51
18-30 years old	Male	Bachelor's Degree	42	42	44	40	44	45	45	42

18-30 years old	Male	Some college, no degree	40	40	39	39	40	40	40	40
31-43 years old	Male	Some college, no degree	42	42	42	44	44	39	48	45
Prefer not to answer	Prefer not to answer	Prefer not to answer	31	40	40	25	23	25	35	37
31-43 years old	Male	Bachelor's Degree	39	42	42	41	34	42	33	41
31-43 years old	Male	Bachelor's Degree	52	43	52	50	48	54	47	50
55-67 years old	Female	Bachelor's Degree	41	50	40	51	61	40	61	61
18-30 years old	Male	Bachelor's Degree	55	60	70	64	66	45	67	70
43-55 years old	Male	Some college, no degree	27	33	27	29	32	40	40	39
31-43 years old	Male	Bachelor's Degree	60	50	55	35	30	30	25	35
31-43 years old	Male	Bachelor's Degree	35	35	38	34	34	37	38	37
31-43 years old	Female	High School graduate	51	34	50	54	34	44	51	53
31-43 years old	Female	Bachelor's Degree	51	33	65	20	35	47	44	30
43-55 years old	Female	Masters Degree or equivalent	38	41	38	40	37	54	54	58
31-43 years old	Male	Bachelor's Degree	50	60	50	55	50	50	45	50
18-30 years old	Male	Bachelor's Degree	30	35	34	40	35	33	51	48
55-67 years old	Female	Some college, no degree	46	41	44	46	42	45	44	38
31-43 years old	Female	Some college, no degree	30	43	50	40	35	35	30	35
55-67 years old	Male	Bachelor's Degree	51	51	51	51	51	51	51	51
31-43 years old	Male	Masters Degree or equivalent	60	43	70	57	50	33	51	45
18-30 years old	Male	High School graduate	43	47	44	45	47	49	43	46
31-43 years old	Male	Masters Degree or equivalent	40	40	40	40	40	40	40	40
31-43 years old	Male	Bachelor's Degree	61	61	56	70	50	50	70	66
43-55 years old	Male	Bachelor's Degree	51	50	55	54	44	46	41	48

43-55 years old	Male	Bachelor's Degree	36	51	41	34	32	36	50	36
31-43 years old	Male	Bachelor's Degree	37	38	38	38	31	33	46	37
31-43 years old	Male	Some college, no degree	25	45	30	33	37	60	44	24
18-30 years old	Male	Some college, no degree	54	33	45	47	33	57	35	55
18-30 years old	Female	PhD or equivalent	56	55	33	25	45	60	55	62
31-43 years old	Male	Bachelor's Degree	60	56	55	63	58	54	53	56
31-43 years old	Male	Bachelor's Degree	60	64	55	62	60	60	57	67
43-55 years old	Male	Bachelor's Degree	53	52	51	44	44	42	50	53
31-43 years old	Male	Bachelor's Degree	45	25	45	50	50	60	35	35
18-30 years old	Male	Bachelor's Degree	48	47	51	40	50	61	50	50
43-55 years old	Male	Masters Degree or equivalent	60	50	55	50	45	60	50	50
31-43 years old	Male	Masters Degree or equivalent	50	35	50	20	30	55	50	45
31-43 years old	Female	Masters Degree or equivalent	30	29	30	30	30	29	30	30
31-43 years old	Female	Masters Degree or equivalent	45	49	47	48	43	50	52	52
31-43 years old	Male	Masters Degree or equivalent	36	29	51	51	34	58	42	31
31-43 years old	Male	Masters Degree or equivalent	60	35	45	45	50	65	56	30
31-43 years old	Male	Bachelor's Degree	60	50	50	55	45	50	60	60
18-30 years old	Male	Bachelor's Degree	60	61	61	51	60	61	61	60
31-43 years old	Male	Bachelor's Degree	55	35	40	33	44	42	61	37
31-43 years old	Male	Bachelor's Degree	56	61	51	58	34	48	38	47
43-55 years old	Male	PhD or equivalent	60	55	55	58	57	55	55	56
18-30 years old	Female	Bachelor's Degree	59	49	56	48	38	36	56	48

18-30 years old	Female	Bachelor's Degree	55	55	62	58	56	65	58	57
43-55 years old	Male	Bachelor's Degree	45	55	55	55	65	65	60	45
43-55 years old	Male	Masters Degree or equivalent	41	44	46	40	50	42	48	49
43-55 years old	Prefer not to answer	Bachelor's Degree	40	57	50	40	50	50	50	40
18-30 years old	Male	Some college, no degree	38	47	44	49	60	52	37	30
31-43 years old	Male	Some college, no degree	44	44	61	46	45	67	53	59
31-43 years old	Male	Some college, no degree	50	65	61	60	65	62	45	50
18-30 years old	Male	High School graduate	64	45	45	60	70	68	35	61
18-30 years old	Female	Bachelor's Degree	48	51	54	55	64	54	57	55
18-30 years old	Female	Bachelor's Degree	51	44	44	46	51	41	45	44
43-55 years old	Female	Bachelor's Degree	20	20	17	30	25	19	25	26
31-43 years old	Female	Bachelor's Degree	37	58	48	37	37	59	44	20
18-30 years old	Female	Bachelor's Degree	46	40	51	58	49	60	61	51
31-43 years old	Male	Bachelor's Degree	40	41	44	49	40	45	43	41
18-30 years old	Female	Some college, no degree	30	35	60	53	63	43	45	26
31-43 years old	Female	Bachelor's Degree	42	56	38	43	46	43	40	47
31-43 years old	Male	Bachelor's Degree	59	55	50	48	48	61	57	54
55-67 years old	Male	Bachelor's Degree	41	40	40	40	40	42	40	40
31-43 years old	Male	Bachelor's Degree	48	42	43	45	43	51	48	54
31-43 years old	Male	Bachelor's Degree	49	53	47	49	50	50	57	54
31-43 years old	Male	PhD or equivalent	41	55	45	50	36	30	35	36
43-55 years old	Male	High School graduate	55	55	60	40	45	30	45	50
31-43 years old	Male	Bachelor's Degree	68	70	70	70	60	67	68	69
18-30 years old	Male	Bachelor's Degree	29	40	40	40	40	40	40	40

18-30 years old	Female	Bachelor's Degree	40	40	44	40	40	45	40	40
31-43 years old	Male	Some college, no degree	40	40	40	40	40	40	40	40
18-30 years old	Female	High School graduate	46	31	54	30	25	54	23	32
31-43 years old	Female	Bachelor's Degree	51	54	45	45	45	60	50	45
31-43 years old	Female	Masters Degree or equivalent	52	53	45	50	45	40	42	49
31-43 years old	Male	Bachelor's Degree	50	50	51	50	50	50	50	50
18-30 years old	Male	Some college, no degree	41	40	40	40	40	40	40	40
31-43 years old	Male	Some college, no degree	40	40	40	40	40	40	40	40
18-30 years old	Male	Bachelor's Degree	30	45	30	38	45	55	45	50
18-30 years old	Male	Bachelor's Degree	37	50	44	53	57	21	27	32
18-30 years old	Female	Bachelor's Degree	51	51	56	41	51	51	51	46
68 years old or older	Female	Masters Degree or equivalent	48	50	45	50	53	55	50	50
31-43 years old	Male	Bachelor's Degree	61	57	41	41	56	51	26	70
18-30 years old	Male	Masters Degree or equivalent	47	52	50	48	54	55	54	51
31-43 years old	Female	Masters Degree or equivalent	60	60	60	60	60	60	60	60
31-43 years old	Male	Bachelor's Degree	40	40	39	50	48	42	48	50
31-43 years old	Male	Masters Degree or equivalent	55	56	53	58	55	58	55	54

MALE AGENT AROUSAL DATA

Age	Gender	Education	C1_A	C2_A	C3_A	C4_A	C5_A	C6_A	C7_A	C8_A
31-43 years old	Male	Bachelor's Degree	60	65	58	43	63	46	51	44
31-43 years old	Male	Bachelor's Degree	50	50	47	51	53	54	54	49
31-43 years old	Male	Bachelor's Degree	53	47	45	51	43	62	50	64
31-43 years old	Male	Masters Degree or equivalent	62	58	66	65	68	70	69	66
43-55 years old	Male	Some college, no degree	48	53	53	52	54	54	44	44
31-43 years old	Male	Bachelor's Degree	35	50	35	30	50	40	30	40
43-55 years old	Male	Bachelor's Degree	49	50	44	51	48	50	51	51
31-43 years old	Female	Some college, no degree	45	48	60	55	53	54	51	46
55-67 years old	Male	Bachelor's Degree	62	60	57	60	63	66	63	46
31-43 years old	Male	Bachelor's Degree	60	47	56	60	44	42	54	62
43-55 years old	Male	Some college, no degree	43	43	55	43	49	44	51	57
55-67 years old	Female	Some college, no degree	50	53	62	51	54	54	52	56
31-43 years old	Male	High School graduate	57	57	57	60	51	62	57	57
31-43 years old	Male	Bachelor's Degree	51	36	60	53	50	56	54	63
31-43 years old	Male	Some college, no degree	43	35	39	33	29	30	32	21
31-43 years old	Male	Some college, no degree	45	43	49	47	49	43	51	46
43-55 years old	Female	Some college, no degree	50	48	45	51	54	45	49	52
18-30 years old	Male	High School graduate	65	42	35	54	46	49	53	67
18-30 years old	Male	Bachelor's Degree	46	61	54	53	58	58	65	51
43-55 years old	Female	High School graduate	53	42	54	54	52	52	63	55
31-43 years old	Male	Bachelor's Degree	43	37	44	41	42	43	42	41
31-43 years old	Male	Bachelor's Degree	59	45	56	51	58	47	50	50
55-67 years old	Male	Some college, no degree	29	55	44	44	51	55	45	48
31-43 years old	Male	Bachelor's Degree	45	49	56	60	44	60	41	53

31-43 years old	Female	Bachelor's Degree	31	27	26	47	43	36	21	42
31-43 years old	Male	Some college, no degree	63	53	55	49	54	61	49	62
31-43 years old	Male	Bachelor's Degree	49	54	50	63	49	50	59	51
31-43 years old	Male	Bachelor's Degree	34	39	38	36	38	35	37	41
31-43 years old	Female	Prefer not to answer	48	49	48	52	59	55	57	47
31-43 years old	Male	Some college, no degree	62	51	40	55	33	49	50	27
31-43 years old	Female	Some college, no degree	50	54	50	53	46	50	60	54
31-43 years old	Male	Bachelor's Degree	48	63	67	68	49	60	65	68
31-43 years old	Female	Masters Degree or equivalent	26	56	54	23	27	54	63	52
31-43 years old	Male	Some college, no degree	64	59	62	52	62	66	48	56
31-43 years old	Male	Bachelor's Degree	46	49	38	48	46	56	35	47
18-30 years old	Female	Some college, no degree	35	21	48	24	40	48	33	42
31-43 years old	Male	Some college, no degree	44	38	53	45	44	59	53	47
18-30 years old	Male	Some college, no degree	36	65	35	33	50	57	49	48
31-43 years old	Female	Some college, no degree	54	59	52	50	47	47	49	60
18-30 years old	Male	Bachelor's Degree	10	70	41	10	23	59	10	62
43-55 years old	Male	High School graduate	48	52	43	50	32	53	49	51
68 years old or older	Male	High School graduate	56	56	47	56	59	62	59	57
31-43 years old	Male	Masters Degree or equivalent	50	59	56	57	51	50	45	48
31-43 years old	Female	Some college, no degree	40	40	35	30	35	35	35	35
55-67 years old	Female	Bachelor's Degree	50	50	49	47	47	57	48	50
31-43 years old	Male	High School graduate	55	60	50	60	50	55	55	50
31-43 years old	Male	High School graduate	52	58	59	61	51	49	58	53
18-30 years old	Male	Bachelor's Degree	19	19	25	24	25	36	21	16

18-30 years old	Male	Some college, no degree	51	40	51	45	49	44	50	51
31-43 years old	Male	Some college, no degree	54	38	39	36	33	37	49	35
Prefer not to answer	Prefer not to answer	Prefer not to answer	42	46	40	26	33	30	40	40
31-43 years old	Male	Bachelor's Degree	53	50	47	46	49	53	59	48
31-43 years old	Male	Bachelor's Degree	58	50	57	54	55	60	58	55
55-67 years old	Female	Bachelor's Degree	43	51	41	51	51	41	61	60
18-30 years old	Male	Bachelor's Degree	50	70	58	70	68	60	70	65
43-55 years old	Male	Some college, no degree	35	37	36	36	30	44	43	42
31-43 years old	Male	Bachelor's Degree	55	50	50	30	25	25	20	30
31-43 years old	Male	Bachelor's Degree	28	30	33	30	28	34	35	32
31-43 years old	Female	High School graduate	68	57	66	63	51	68	63	61
31-43 years old	Female	Bachelor's Degree	45	41	65	15	45	55	31	35
43-55 years old	Female	Masters Degree or equivalent	60	55	62	52	57	69	64	65
31-43 years old	Male	Bachelor's Degree	55	60	60	61	60	61	50	60
18-30 years old	Male	Bachelor's Degree	40	37	32	46	42	44	50	56
55-67 years old	Female	Some college, no degree	50	46	49	51	44	49	46	43
31-43 years old	Female	Some college, no degree	50	50	55	45	40	30	35	45
55-67 years old	Male	Bachelor's Degree	62	62	61	61	61	60	61	62
31-43 years old	Male	Masters Degree or equivalent	65	37	70	50	45	37	50	45
18-30 years old	Male	High School graduate	60	66	59	60	60	60	62	56
31-43 years old	Male	Masters Degree or equivalent	40	41	41	40	41	42	41	41
31-43 years old	Male	Bachelor's Degree	61	60	57	70	51	61	70	66
43-55 years old	Male	Bachelor's Degree	47	58	61	59	42	53	41	38

43-55 years old	Male	Bachelor's Degree	47	60	47	38	25	60	58	48
31-43 years old	Male	Bachelor's Degree	34	45	46	36	50	49	53	53
31-43 years old	Male	Some college, no degree	51	25	57	33	46	70	45	62
18-30 years old	Male	Some college, no degree	51	37	45	38	35	50	53	53
18-30 years old	Female	PhD or equivalent	59	61	60	34	46	68	59	68
31-43 years old	Male	Bachelor's Degree	56	61	61	59	61	57	58	60
31-43 years old	Male	Bachelor's Degree	54	55	44	50	50	50	50	60
43-55 years old	Male	Bachelor's Degree	54	36	29	36	39	50	44	45
31-43 years old	Male	Bachelor's Degree	50	35	60	65	50	60	30	60
18-30 years old	Male	Bachelor's Degree	47	46	43	39	50	50	50	50
43-55 years old	Male	Masters Degree or equivalent	50	41	50	41	41	50	46	45
31-43 years old	Male	Masters Degree or equivalent	65	25	45	20	30	60	50	35
31-43 years old	Female	Masters Degree or equivalent	46	41	50	40	50	40	45	45
31-43 years old	Female	Masters Degree or equivalent	50	54	54	53	46	54	55	54
31-43 years old	Male	Masters Degree or equivalent	35	46	59	46	37	62	38	27
31-43 years old	Male	Masters Degree or equivalent	60	50	50	50	60	65	64	20
31-43 years old	Male	Bachelor's Degree	65	55	55	60	50	55	60	65
18-30 years old	Male	Bachelor's Degree	61	61	61	50	60	60	61	61
31-43 years old	Male	Bachelor's Degree	57	43	38	32	61	50	62	35
31-43 years old	Male	Bachelor's Degree	60	64	55	62	31	47	45	52
43-55 years old	Male	PhD or equivalent	61	58	60	59	59	60	58	61
18-30 years old	Female	Bachelor's Degree	53	48	51	60	56	50	47	57

18-30 years old	Female	Bachelor's Degree	63	68	67	67	65	62	65	53
43-55 years old	Male	Bachelor's Degree	40	50	50	45	50	65	45	40
43-55 years old	Male	Masters Degree or equivalent	45	48	49	40	62	44	54	58
43-55 years old	Prefer not to answer	Bachelor's Degree	50	60	40	55	45	55	45	50
18-30 years old	Male	Some college, no degree	28	53	46	54	56	63	31	30
31-43 years old	Male	Some college, no degree	34	54	45	56	49	51	52	46
31-43 years old	Male	Some college, no degree	55	70	60	55	60	65	55	50
18-30 years old	Male	High School graduate	65	48	42	58	61	70	35	65
18-30 years old	Female	Bachelor's Degree	55	55	58	60	55	58	50	61
18-30 years old	Female	Bachelor's Degree	60	54	57	55	58	59	58	63
43-55 years old	Female	Bachelor's Degree	17	19	19	24	19	16	17	30
31-43 years old	Female	Bachelor's Degree	29	41	33	20	42	68	52	26
18-30 years old	Female	Bachelor's Degree	49	41	60	55	45	59	70	54
31-43 years old	Male	Bachelor's Degree	39	48	50	49	47	43	51	43
18-30 years old	Female	Some college, no degree	35	34	61	63	70	36	58	34
31-43 years old	Female	Bachelor's Degree	50	48	44	55	49	53	46	61
31-43 years old	Male	Bachelor's Degree	62	61	61	55	54	65	64	61
55-67 years old	Male	Bachelor's Degree	48	45	45	45	42	48	45	45
31-43 years old	Male	Bachelor's Degree	67	33	35	35	29	52	43	44
31-43 years old	Male	Bachelor's Degree	54	54	50	47	51	49	57	59
31-43 years old	Male	PhD or equivalent	41	50	54	47	45	25	35	44
43-55 years old	Male	High School graduate	45	65	65	60	20	45	55	60
31-43 years old	Male	Bachelor's Degree	67	70	70	67	59	68	65	65
18-30 years old	Male	Bachelor's Degree	60	51	50	41	61	41	56	61

18-30 years old	Female	Bachelor's Degree	60	55	65	50	60	65	55	60
31-43 years old	Male	Some college, no degree	55	50	53	50	50	50	50	53
18-30 years old	Female	High School graduate	35	25	61	24	32	60	35	34
31-43 years old	Female	Bachelor's Degree	60	57	47	38	35	48	44	45
31-43 years old	Female	Masters Degree or equivalent	60	65	49	50	40	55	49	52
31-43 years old	Male	Bachelor's Degree	50	50	51	50	50	50	50	50
18-30 years old	Male	Some college, no degree	60	51	50	51	51	50	41	51
31-43 years old	Male	Some college, no degree	54	54	54	54	54	54	54	54
18-30 years old	Male	Bachelor's Degree	45	30	25	25	52	50	50	35
18-30 years old	Male	Bachelor's Degree	30	37	36	56	58	62	56	51
18-30 years old	Female	Bachelor's Degree	55	55	54	50	61	56	56	50
68 years old or older	Female	Masters Degree or equivalent	55	57	45	58	57	58	60	60
31-43 years old	Male	Bachelor's Degree	61	50	46	33	47	50	19	70
18-30 years old	Male	Masters Degree or equivalent	70	70	70	70	70	65	70	70
31-43 years old	Female	Masters Degree or equivalent	60	60	60	60	60	60	60	60
31-43 years old	Male	Bachelor's Degree	43	39	42	43	42	40	55	50
31-43 years old	Male	Masters Degree or equivalent	58	59	60	62	60	62	58	53

FEMALE AGENT VALENCE DATA

Age	Gender	Education	C1_V	C2_V	C3_V	C4_V	C5_V	C6_V	C7_V	C8_V
31-43 years old	Male	Bachelor's Degree	31	36	52	40	33	47	47	50
31-43 years old	Male	Bachelor's Degree	46	46	42	44	46	48	41	47
31-43 years old	Male	Bachelor's Degree	27	46	57	32	40	43	48	44
18-30 years old	Female	Some college, no degree	33	29	40	37	45	54	50	49
68 years old or older	Female	Masters Degree or equivalent	45	52	48	48	46	45	47	48
31-43 years old	Male	Bachelor's Degree	26	57	34	43	43	36	58	40
31-43 years old	Male	Bachelor's Degree	44	39	38	46	36	53	53	59
31-43 years old	Female	Bachelor's Degree	57	70	70	70	70	57	70	70
31-43 years old	Male	Bachelor's Degree	52	42	46	51	51	48	35	58
43-55 years old	Male	Bachelor's Degree	57	57	57	60	58	62	51	54
31-43 years old	Female	Some college, no degree	51	56	50	61	56	59	56	62
31-43 years old	Female	Prefer not to answer	61	62	56	49	54	62	54	56
55-67 years old	Female	Some college, no degree	44	42	48	44	48	43	47	48
31-43 years old	Female	Some college, no degree	60	45	35	60	40	45	44	51
55-67 years old	Female	Bachelor's Degree	51	49	57	41	48	53	45	55
31-43 years old	Female	Some college, no degree	56	44	43	52	44	49	52	47
31-43 years old	Male	Bachelor's Degree	45	40	50	43	40	48	45	50
31-43 years old	Male	High School graduate	46	46	47	47	46	47	46	47
18-30 years old	Male	High School graduate	49	52	57	56	44	65	56	50
31-43 years old	Male	Bachelor's Degree	43	43	35	47	44	40	42	44
31-43 years old	Female	Bachelor's Degree	65	66	53	65	59	50	58	63
31-43 years old	Male	Some college, no degree	44	42	54	52	46	48	56	48
55-67 years old	Male	Some college, no degree	44	47	46	53	49	53	50	54

68 years old or older	Female	Bachelor's Degree	41	40	40	40	40	40	40	40
31-43 years old	Male	Some college, no degree	51	40	41	42	42	45	42	50
31-43 years old	Male	Bachelor's Degree	50	46	61	50	53	55	44	63
55-67 years old	Female	Bachelor's Degree	37	43	38	42	42	51	43	37
18-30 years old	Male	Bachelor's Degree	51	62	59	59	54	65	61	65
31-43 years old	Female	Bachelor's Degree	58	59	59	48	56	50	66	53
31-43 years old	Male	High School graduate	30	30	20	30	31	35	25	30
43-55 years old	Male	Some college, no degree	46	44	49	45	42	46	51	50
31-43 years old	Female	Some college, no degree	50	61	35	35	40	40	35	49
31-43 years old	Male	Bachelor's Degree	45	34	47	54	56	47	39	38
18-30 years old	Female	Some college, no degree	38	21	65	25	34	67	57	58
18-30 years old	Male	Bachelor's Degree	42	44	42	42	42	42	40	41
31-43 years old	Male	Some college, no degree	58	33	49	61	30	60	49	58
43-55 years old	Female	Some college, no degree	41	42	38	42	42	42	43	42
43-55 years old	Female	High School graduate	57	54	56	56	55	57	56	44
31-43 years old	Male	Some college, no degree	53	63	55	52	62	56	63	58
18-30 years old	Male	Some college, no degree	46	43	45	43	40	44	41	44
31-43 years old	Female	Masters Degree or equivalent	49	35	47	37	51	50	44	29
18-30 years old	Male	Bachelor's Degree	19	45	53	40	47	70	67	70
43-55 years old	Male	High School graduate	44	46	48	49	47	47	51	51
31-43 years old	Male	Bachelor's Degree	51	62	54	52	49	55	53	53
31-43 years old	Male	Bachelor's Degree	52	64	45	40	51	63	40	52
Prefer not to answer	Prefer not to answer	Prefer not to answer	43	53	57	56	61	50	55	46

31-43 years old	Male	Bachelor's Degree	41	31	31	37	41	41	39	45
31-43 years old	Male	Bachelor's Degree	56	59	54	57	48	47	48	46
43-55 years old	Male	Bachelor's Degree	46	47	45	51	45	42	45	53
31-43 years old	Male	Bachelor's Degree	44	45	55	43	45	55	46	52
31-43 years old	Male	High School graduate	45	53	43	51	58	47	60	49
43-55 years old	Male	Bachelor's Degree	50	51	55	50	49	61	55	60
31-43 years old	Male	Bachelor's Degree	66	64	58	55	67	64	53	63
31-43 years old	Male	Some college, no degree	36	38	37	38	46	51	42	52
31-43 years old	Male	Bachelor's Degree	34	34	58	47	28	40	31	42
31-43 years old	Male	Masters Degree or equivalent	47	48	50	46	38	35	39	34
31-43 years old	Female	Masters Degree or equivalent	55	52	56	63	38	59	59	56
31-43 years old	Male	Some college, no degree	40	43	44	37	30	40	34	37
31-43 years old	Male	Bachelor's Degree	65	55	60	50	25	30	55	55
31-43 years old	Male	Some college, no degree	40	45	41	41	51	35	45	42
31-43 years old	Female	High School graduate	55	60	52	45	41	57	57	40
31-43 years old	Female	Bachelor's Degree	46	60	65	25	45	68	33	45
43-55 years old	Female	Masters Degree or equivalent	48	38	54	52	58	63	52	61
31-43 years old	Male	High School graduate	40	40	40	34	32	30	47	28
55-67 years old	Female	Some college, no degree	40	42	42	42	40	43	42	42
18-30 years old	Male	Bachelor's Degree	27	43	43	45	37	55	51	53
31-43 years old	Female	Some college, no degree	35	45	30	35	45	45	49	40
31-43 years old	Male	Bachelor's Degree	40	45	56	50	40	55	61	50
31-43 years old	Male	Bachelor's Degree	70	69	70	70	70	70	70	70

31-43 years old	Male	Masters Degree or equivalent	60	20	50	30	50	70	45	60
18-30 years old	Male	High School graduate	66	62	62	61	52	64	66	66
31-43 years old	Male	Masters Degree or equivalent	40	40	40	40	40	40	40	40
31-43 years old	Male	Bachelor's Degree	47	44	53	47	51	47	46	47
55-67 years old	Female	Some college, no degree	40	50	51	40	40	40	46	40
55-67 years old	Male	Bachelor's Degree	50	51	51	51	50	50	51	51
43-55 years old	Male	Bachelor's Degree	32	17	32	52	30	42	48	21
55-67 years old	Female	High School graduate	63	44	64	54	54	58	56	66
31-43 years old	Male	Bachelor's Degree	42	44	40	57	41	41	40	33
31-43 years old	Male	Bachelor's Degree	48	42	43	45	48	49	43	47
43-55 years old	Male	Masters Degree or equivalent	60	51	45	39	59	61	65	60
31-43 years old	Male	Bachelor's Degree	60	52	57	54	56	52	59	55
31-43 years old	Male	Bachelor's Degree	57	62	61	57	54	51	57	56
18-30 years old	Male	Bachelor's Degree	40	61	50	51	51	51	50	50
31-43 years old	Male	Masters Degree or equivalent	30	30	60	65	15	50	70	20
43-55 years old	Male	Masters Degree or equivalent	60	50	61	50	30	50	35	40
43-55 years old	Male	Bachelor's Degree	50	50	60	55	60	60	60	60
31-43 years old	Female	Masters Degree or equivalent	61	56	61	61	61	61	61	61
55-67 years old	Female	Bachelor's Degree	35	40	35	40	35	40	50	50
31-43 years old	Female	Masters Degree or equivalent	48	51	51	46	51	50	51	53
18-30 years old	Male	Bachelor's Degree	66	45	50	52	56	49	47	43

31-43 years old	Male	Masters Degree or equivalent	45	46	51	34	30	58	48	34
18-30 years old	Female	Bachelor's Degree	50	49	64	61	58	55	48	55
18-30 years old	Female	Bachelor's Degree	56	43	54	50	47	49	47	44
31-43 years old	Male	Bachelor's Degree	61	40	51	51	62	30	30	51
18-30 years old	Male	Masters Degree or equivalent	36	22	26	61	58	50	45	16
43-55 years old	Male	Masters Degree or equivalent	55	53	54	49	50	55	50	50
18-30 years old	Female	Bachelor's Degree	55	57	62	55	45	37	52	62
18-30 years old	Female	Bachelor's Degree	48	69	65	64	67	68	59	52
31-43 years old	Male	Masters Degree or equivalent	42	40	44	48	43	39	50	38
Prefer not to answer	Male	Bachelor's Degree	64	67	65	58	56	61	58	66
31-43 years old	Male	Bachelor's Degree	61	63	65	45	68	43	55	61
43-55 years old	Prefer not to answer	Bachelor's Degree	35	45	25	45	60	55	45	55
18-30 years old	Female	PhD or equivalent	31	29	51	27	49	58	56	59
31-43 years old	Male	Some college, no degree	43	47	48	33	44	56	44	56
31-43 years old	Male	Some college, no degree	40	45	50	50	50	65	45	50
18-30 years old	Male	High School graduate	49	40	44	60	35	50	60	43
43-55 years old	Female	Bachelor's Degree	48	46	55	63	54	46	59	48
31-43 years old	Female	Bachelor's Degree	35	39	59	59	20	39	60	51
43-55 years old	Female	PhD or equivalent	59	51	48	43	55	34	45	56
31-43 years old	Male	Bachelor's Degree	41	42	42	42	41	46	49	49
18-30 years old	Female	Some college, no degree	50	28	62	30	44	29	31	40

31-43 years old	Female	Bachelor's Degree	46	39	52	37	41	45	40	70
31-43 years old	Male	Bachelor's Degree	55	35	50	50	30	48	32	49
55-67 years old	Male	Bachelor's Degree	56	55	55	54	55	55	55	55
31-43 years old	Male	Bachelor's Degree	55	58	36	47	51	46	50	49
31-43 years old	Male	Bachelor's Degree	68	43	46	44	57	67	64	42
43-55 years old	Female	Masters Degree or equivalent	48	53	58	51	59	61	58	63
43-55 years old	Female	Bachelor's Degree	55	46	46	53	53	53	48	52
31-43 years old	Female	Bachelor's Degree	44	48	40	40	51	49	49	40
31-43 years old	Male	PhD or equivalent	51	59	62	45	46	51	33	45
31-43 years old	Female	Masters Degree or equivalent	54	58	53	57	56	58	56	56
31-43 years old	Male	Bachelor's Degree	39	61	63	63	49	66	60	58
31-43 years old	Male	Masters Degree or equivalent	62	70	70	69	62	61	61	61
43-55 years old	Male	High School graduate	40	30	30	65	45	50	60	55
18-30 years old	Male	Bachelor's Degree	20	40	40	40	51	29	50	30
18-30 years old	Female	Bachelor's Degree	40	40	42	40	43	48	40	48
31-43 years old	Male	Some college, no degree	40	40	40	40	40	40	40	40
43-55 years old	Female	Bachelor's Degree	53	50	57	49	55	57	57	55
68 years old or older	Female	Bachelor's Degree	65	60	70	61	63	70	51	62
18-30 years old	Female	High School graduate	61	50	50	29	51	57	41	64
31-43 years old	Female	Bachelor's Degree	44	46	41	43	47	55	50	65
31-43 years old	Male	Bachelor's Degree	54	37	36	34	38	44	41	58
18-30 years old	Male	Some college, no degree	51	50	50	51	51	51	50	50
31-43 years old	Male	Some college, no degree	40	40	40	40	40	40	40	40

31-43 years old	Male	Bachelor's Degree	43	30	54	45	46	48	35	55
31-43 years old	Female	Masters Degree or equivalent	67	64	50	45	42	64	55	65
68 years old or older	Female	Masters Degree or equivalent	45	45	55	50	45	55	50	50
43-55 years old	Male	Bachelor's Degree	45	45	36	40	40	50	55	40
31-43 years old	Male	Bachelor's Degree	43	44	43	46	42	51	43	44

FEMALE AGENT AROUSAL DATA

Age	Gender	Education	C1_A	C2_A	C3_A	C4_A	C5_A	C6_A	C7_A	C8_A
31-43 years old	Male	Bachelor's Degree	29	28	45	29	29	44	41	47
31-43 years old	Male	Bachelor's Degree	50	43	42	44	42	50	44	44
31-43 years old	Male	Bachelor's Degree	25	54	54	39	38	59	51	65
18-30 years old	Female	Some college, no degree	50	58	50	47	51	63	57	58
68 years old or older	Female	Masters Degree or equivalent	61	56	55	57	56	55	59	59
31-43 years old	Male	Bachelor's Degree	54	64	66	62	57	45	50	58
31-43 years old	Male	Bachelor's Degree	51	37	46	42	39	43	50	48
31-43 years old	Female	Bachelor's Degree	61	70	70	70	70	56	70	70
31-43 years old	Male	Bachelor's Degree	58	48	58	52	51	51	44	53
43-55 years old	Male	Bachelor's Degree	52	57	55	59	50	59	56	57
31-43 years old	Female	Some college, no degree	56	60	52	51	62	62	45	54
31-43 years old	Female	Prefer not to answer	65	63	61	53	62	69	51	62
55-67 years old	Female	Some college, no degree	47	45	50	49	48	48	49	51
31-43 years old	Female	Some college, no degree	29	66	55	46	45	60	59	61
55-67 years old	Female	Bachelor's Degree	60	52	55	59	51	58	49	55
31-43 years old	Female	Some college, no degree	58	41	49	51	47	50	47	56
31-43 years old	Male	Bachelor's Degree	53	50	63	55	50	62	60	60
31-43 years old	Male	High School graduate	59	54	59	58	54	57	51	57
18-30 years old	Male	High School graduate	62	64	70	52	48	54	60	41
31-43 years old	Male	Bachelor's Degree	28	34	39	51	37	45	32	47
31-43 years old	Female	Bachelor's Degree	68	59	62	56	68	46	66	55
31-43 years old	Male	Some college, no degree	42	39	49	47	38	38	57	45
55-67 years old	Male	Some college, no degree	49	32	36	44	50	57	37	55

68 years old or older	Female	Bachelor's Degree	64	65	65	65	59	61	66	64
31-43 years old	Male	Some college, no degree	62	50	56	50	51	50	45	62
31-43 years old	Male	Bachelor's Degree	53	32	46	57	56	56	36	66
55-67 years old	Female	Bachelor's Degree	45	48	43	50	43	44	43	46
18-30 years old	Male	Bachelor's Degree	54	60	59	59	55	58	63	64
31-43 years old	Female	Bachelor's Degree	52	40	46	50	41	41	60	48
31-43 years old	Male	High School graduate	50	45	55	45	51	60	50	51
43-55 years old	Male	Some college, no degree	48	42	52	47	43	50	50	52
31-43 years old	Female	Some college, no degree	35	49	30	30	30	30	30	35
31-43 years old	Male	Bachelor's Degree	62	46	60	61	65	62	54	45
18-30 years old	Female	Some college, no degree	42	40	50	23	48	60	23	42
18-30 years old	Male	Bachelor's Degree	24	23	23	14	13	17	20	13
31-43 years old	Male	Some college, no degree	52	42	57	54	25	51	44	52
43-55 years old	Female	Some college, no degree	44	49	41	52	48	51	50	47
43-55 years old	Female	High School graduate	58	56	61	51	56	52	59	45
31-43 years old	Male	Some college, no degree	61	56	62	58	57	63	56	57
18-30 years old	Male	Some college, no degree	55	43	37	44	43	49	43	39
31-43 years old	Female	Masters Degree or equivalent	34	26	32	33	33	32	29	56
18-30 years old	Male	Bachelor's Degree	32	42	64	10	44	70	69	70
43-55 years old	Male	High School graduate	42	54	54	51	51	45	56	55
31-43 years old	Male	Bachelor's Degree	54	59	62	50	56	49	60	61
31-43 years old	Male	Bachelor's Degree	51	62	52	41	51	61	41	51
Prefer not to answer	Prefer not to answer	Prefer not to answer	42	48	53	48	56	45	43	44

31-43 years old	Male	Bachelor's Degree	42	46	50	46	43	42	41	45
31-43 years old	Male	Bachelor's Degree	58	57	48	55	50	48	50	48
43-55 years old	Male	Bachelor's Degree	45	52	37	44	38	43	46	48
31-43 years old	Male	Bachelor's Degree	47	48	50	50	48	53	50	48
31-43 years old	Male	High School graduate	46	57	45	50	58	47	59	51
43-55 years old	Male	Bachelor's Degree	54	51	52	50	49	53	55	60
31-43 years old	Male	Bachelor's Degree	56	69	55	52	63	68	48	67
31-43 years old	Male	Some college, no degree	39	42	43	37	46	53	48	52
31-43 years old	Male	Bachelor's Degree	36	45	64	41	47	42	31	43
31-43 years old	Male	Masters Degree or equivalent	55	54	60	52	48	49	46	43
31-43 years old	Female	Masters Degree or equivalent	49	59	50	70	46	62	51	41
31-43 years old	Male	Some college, no degree	45	55	52	48	29	33	27	30
31-43 years old	Male	Bachelor's Degree	60	30	50	25	20	25	50	45
31-43 years old	Male	Some college, no degree	37	52	47	43	46	34	55	42
31-43 years old	Female	High School graduate	62	64	60	52	51	66	63	52
31-43 years old	Female	Bachelor's Degree	45	55	60	15	46	67	41	51
43-55 years old	Female	Masters Degree or equivalent	51	56	51	49	58	68	47	64
31-43 years old	Male	High School graduate	46	28	60	39	32	43	42	30
55-67 years old	Female	Some college, no degree	42	42	44	45	43	47	43	43
18-30 years old	Male	Bachelor's Degree	30	56	46	45	37	60	46	62
31-43 years old	Female	Some college, no degree	35	35	20	40	40	25	45	25
31-43 years old	Male	Bachelor's Degree	50	55	61	65	45	65	65	61
31-43 years old	Male	Bachelor's Degree	60	59	61	59	63	59	54	61

31-43 years old	Male	Masters Degree or equivalent	57	15	50	29	45	70	45	65
18-30 years old	Male	High School graduate	50	51	51	48	45	54	56	47
31-43 years old	Male	Masters Degree or equivalent	41	43	41	41	41	42	43	41
31-43 years old	Male	Bachelor's Degree	52	48	59	47	57	55	46	59
55-67 years old	Female	Some college, no degree	43	58	56	51	44	51	52	51
55-67 years old	Male	Bachelor's Degree	51	51	51	51	51	50	50	51
43-55 years old	Male	Bachelor's Degree	38	38	28	60	25	46	42	38
55-67 years old	Female	High School graduate	63	46	63	57	55	60	56	66
31-43 years old	Male	Bachelor's Degree	46	58	41	66	40	42	47	42
31-43 years old	Male	Bachelor's Degree	59	39	43	46	46	55	50	57
43-55 years old	Male	Masters Degree or equivalent	61	61	53	51	52	63	65	51
31-43 years old	Male	Bachelor's Degree	57	54	59	58	54	58	56	58
31-43 years old	Male	Bachelor's Degree	60	57	56	51	54	50	56	41
18-30 years old	Male	Bachelor's Degree	51	59	50	50	62	51	51	51
31-43 years old	Male	Masters Degree or equivalent	35	45	65	70	20	50	70	25
43-55 years old	Male	Masters Degree or equivalent	41	30	45	40	45	40	46	50
43-55 years old	Male	Bachelor's Degree	40	45	60	50	55	60	60	55
31-43 years old	Female	Masters Degree or equivalent	50	41	69	55	51	45	45	51
55-67 years old	Female	Bachelor's Degree	30	35	40	40	45	45	51	40
31-43 years old	Female	Masters Degree or equivalent	48	46	48	52	50	56	50	50
18-30 years old	Male	Bachelor's Degree	50	50	50	45	57	48	49	48

31-43 years old	Male	Masters Degree or equivalent	43	37	47	32	33	62	45	36
18-30 years old	Female	Bachelor's Degree	53	54	62	36	54	56	53	47
18-30 years old	Female	Bachelor's Degree	62	52	57	59	55	55	54	55
31-43 years old	Male	Bachelor's Degree	51	41	50	51	61	30	30	51
18-30 years old	Male	Masters Degree or equivalent	45	12	23	63	47	45	36	12
43-55 years old	Male	Masters Degree or equivalent	60	55	58	50	52	56	55	55
18-30 years old	Female	Bachelor's Degree	36	49	55	51	46	33	51	52
18-30 years old	Female	Bachelor's Degree	63	63	67	68	63	64	65	60
31-43 years old	Male	Masters Degree or equivalent	47	41	48	59	48	46	59	36
Prefer not to answer	Male	Bachelor's Degree	61	70	67	51	67	66	70	67
31-43 years old	Male	Bachelor's Degree	59	64	64	48	69	44	61	60
43-55 years old	Prefer not to answer	Bachelor's Degree	30	50	30	45	65	60	45	45
18-30 years old	Female	PhD or equivalent	34	56	44	30	60	66	68	52
31-43 years old	Male	Some college, no degree	51	51	55	43	56	52	48	46
31-43 years old	Male	Some college, no degree	40	30	40	40	45	60	45	40
18-30 years old	Male	High School graduate	51	35	45	65	25	52	60	45
43-55 years old	Female	Bachelor's Degree	45	59	61	49	58	53	51	55
31-43 years old	Female	Bachelor's Degree	27	29	60	43	34	46	64	39
43-55 years old	Female	PhD or equivalent	65	57	44	49	51	28	61	52
31-43 years old	Male	Bachelor's Degree	45	55	43	46	46	52	50	56
18-30 years old	Female	Some college, no degree	52	31	67	36	49	29	32	45

31-43 years old	Female	Bachelor's Degree	44	20	63	22	21	36	36	55
31-43 years old	Male	Bachelor's Degree	61	55	61	70	61	56	46	55
55-67 years old	Male	Bachelor's Degree	56	56	60	60	55	56	54	55
31-43 years old	Male	Bachelor's Degree	48	56	31	34	57	33	50	52
31-43 years old	Male	Bachelor's Degree	69	51	68	64	64	70	68	56
43-55 years old	Female	Masters Degree or equivalent	51	57	62	59	57	64	60	61
43-55 years old	Female	Bachelor's Degree	48	44	44	53	25	58	46	55
31-43 years old	Female	Bachelor's Degree	51	52	55	41	41	60	59	52
31-43 years old	Male	PhD or equivalent	46	50	51	50	48	55	28	51
31-43 years old	Female	Masters Degree or equivalent	48	64	55	57	56	56	59	52
31-43 years old	Male	Bachelor's Degree	35	60	64	65	30	67	57	62
31-43 years old	Male	Masters Degree or equivalent	10	10	10	10	10	10	10	10
43-55 years old	Male	High School graduate	60	50	60	55	35	45	70	65
18-30 years old	Male	Bachelor's Degree	50	29	51	61	52	61	60	59
18-30 years old	Female	Bachelor's Degree	50	35	55	40	56	60	50	60
31-43 years old	Male	Some college, no degree	50	45	50	50	50	50	50	45
43-55 years old	Female	Bachelor's Degree	53	51	62	60	62	58	56	55
68 years old or older	Female	Bachelor's Degree	62	49	68	58	60	70	52	61
18-30 years old	Female	High School graduate	66	53	58	35	56	62	57	61
31-43 years old	Female	Bachelor's Degree	47	42	38	41	41	61	55	64
31-43 years old	Male	Bachelor's Degree	53	25	32	23	38	45	37	45
18-30 years old	Male	Some college, no degree	52	51	51	51	41	62	61	41
31-43 years old	Male	Some college, no degree	54	54	54	54	54	55	55	54

31-43 years old	Male	Bachelor's Degree	35	33	56	48	46	34	27	46
31-43 years old	Female	Masters Degree or equivalent	65	60	55	50	45	60	60	60
68 years old or older	Female	Masters Degree or equivalent	60	60	58	55	50	55	63	62
43-55 years old	Male	Bachelor's Degree	60	55	50	51	35	66	60	45
31-43 years old	Male	Bachelor's Degree	41	41	42	43	38	44	42	39

APPENDIX E. STUDY 2 BASIC STATISTICS

FOLLOW-UP FULL DATASET VALENCE

Clip	Min	Max	Mean	Std. Dev	Variance	Count
M_OG2-FG1-BL2	23	68	46.4	9.95	99.04	95
M_OG1-FG1-BL2	10	70	45.87	9.65	93.04	95
M_OG2-FG2-BL2	13	70	46.71	9.99	99.89	95
M_OG1-FG2-BL2	10	70	46.48	9.95	98.94	95
M_OG1-FG1-BL1	16	70	45.92	9.94	98.71	95
M_OG2-FG2-BL1	21	68	48.34	10.37	107.44	95
M_OG1-FG2-BL1	25	70	46.77	9.24	85.38	95
M_OG2-FG1-BL1	22	70	47.24	9.83	96.67	95
F_OG2-FG1-BL2	19	70	46.97	10.7	114.4	87
F_OG1-FG1-BL2	17	70	46.23	10.79	116.52	87
F_OG2-FG2-BL2	20	70	48.61	9.72	94.54	87
F_OG1-FG2-BL2	30	70	48.1	8.62	74.32	87
F_OG1-FG1-BL1	15	70	45.92	10.13	102.67	87
F_OG2-FG2-BL1	29	70	49.92	9.63	92.72	87
F_OG1-FG2-BL1	25	70	48.74	9.52	90.65	87
F_OG2-FG1-BL1	16	70	48.66	10.56	111.44	87

FOLLOW-UP FULL DATASET AROUSAL

Clip	Min	Max	Mean	Std. Dev	Variance	Count
M_OG2-FG1-BL2	10	70	50.41	11.2	125.38	95
M_OG1-FG1-BL2	19	70	49.97	10.99	120.83	95
M_OG2-FG2-BL2	25	70	49.95	9.93	98.62	95
M_OG1-FG2-BL2	10	70	48.68	11.81	139.52	95
M_OG1-FG1-BL1	20	70	48.24	11.01	121.3	95
M_OG2-FG2-BL1	25	70	52.58	9.76	95.21	95
M_OG1-FG2-BL1	10	70	49.78	11.32	128.17	95
M_OG2-FG1-BL1	16	70	50.38	11.42	130.49	95
F_OG2-FG1-BL2	10	69	48.74	10.28	105.62	87
F_OG1-FG1-BL2	10	70	46.8	12.23	149.67	87
F_OG2-FG2-BL2	10	70	50.98	10.72	114.9	87
F_OG1-FG2-BL2	10	70	48.46	11.68	136.32	87
F_OG1-FG1-BL1	10	69	46.18	11.76	138.2	87
F_OG2-FG2-BL1	10	70	50.92	11.03	121.61	87
F_OG1-FG2-BL1	10	70	49.41	11.12	123.67	87

F_OG2-FG1-BL1	10	70	49.59	11.51	132.45	87

FOLLOW-UP MALE DATASET VALENCE

Clip	Min	Max	Mean	Std. Dev	Variance	Count
M_OG2-FG1-BL2	23	68	46.4	9.95	99.04	95
M_OG1-FG1-BL2	10	70	45.87	9.65	93.04	95
M_OG2-FG2-BL2	13	70	46.71	9.99	99.89	95
M_OG1-FG2-BL2	10	70	46.48	9.95	98.94	95
M_OG1-FG1-BL1	16	70	45.92	9.94	98.71	95
M_OG2-FG2-BL1	21	68	48.34	10.37	107.44	95
M_OG1-FG2-BL1	25	70	46.77	9.24	85.38	95
M_OG2-FG1-BL1	22	70	47.24	9.83	96.67	95
F_OG2-FG1-BL2	19	70	46.97	10.7	114.4	87
F_OG1-FG1-BL2	17	70	46.23	10.79	116.52	87
F_OG2-FG2-BL2	20	70	48.61	9.72	94.54	87
F_OG1-FG2-BL2	30	70	48.1	8.62	74.32	87
F_OG1-FG1-BL1	15	70	45.92	10.13	102.67	87
F_OG2-FG2-BL1	29	70	49.92	9.63	92.72	87
F_OG1-FG2-BL1	25	70	48.74	9.52	90.65	87
F_OG2-FG1-BL1	16	70	48.66	10.56	111.44	87

FOLLOW-UP MALE DATASET AROUSAL

Clip	Min	Max	Mean	Std. Dev	Variance	Count
M_OG2-FG1-BL2	10	70	50.41	11.2	125.38	95
M_OG1-FG1-BL2	19	70	49.97	10.99	120.83	95
M_OG2-FG2-BL2	25	70	49.95	9.93	98.62	95
M_OG1-FG2-BL2	10	70	48.68	11.81	139.52	95
M_OG1-FG1-BL1	20	70	48.24	11.01	121.3	95
M_OG2-FG2-BL1	25	70	52.58	9.76	95.21	95
M_OG1-FG2-BL1	10	70	49.78	11.32	128.17	95
M_OG2-FG1-BL1	16	70	50.38	11.42	130.49	95
F_OG2-FG1-BL2	10	69	48.74	10.28	105.62	87
F_OG1-FG1-BL2	10	70	46.8	12.23	149.67	87
F_OG2-FG2-BL2	10	70	50.98	10.72	114.9	87
F_OG1-FG2-BL2	10	70	48.46	11.68	136.32	87
F_OG1-FG1-BL1	10	69	46.18	11.76	138.2	87
F_OG2-FG2-BL1	10	70	50.92	11.03	121.61	87
F_OG1-FG2-BL1	10	70	49.41	11.12	123.67	87
F_OG2-FG1-BL1	10	70	49.59	11.51	132.45	87

FOLLOW-UP FEMALE DATASET VALENCE

Clip	Min	Max	Mean	Std. Dev	Variance	Count
M_OG2-FG1-BL2	18	62	44.24	9.98	99.59	37
M_OG1-FG1-BL2	20	61	43.54	10.22	104.52	37
M_OG2-FG2-BL2	17	65	45.32	10.81	116.76	37
M_OG1-FG2-BL2	20	60	44.08	9.33	87.05	37
M_OG1-FG1-BL1	20	64	43.97	10.45	109.11	37
M_OG2-FG2-BL1	19	65	46	11.01	121.19	37
M_OG1-FG2-BL1	21	61	45.95	10.26	105.29	37
M_OG2-FG1-BL1	20	62	45.46	10.89	118.63	37
F_OG2-FG1-BL2	31	67	49.48	9.07	82.21	50
F_OG1-FG1-BL2	21	70	48.36	10.54	111.07	50
F_OG2-FG2-BL2	30	70	51.46	9.66	93.41	50
F_OG1-FG2-BL2	25	70	47.24	11.09	122.94	50
F_OG1-FG1-BL1	20	70	48.46	9.01	81.25	50
F_OG2-FG2-BL1	29	70	51.7	9.3	86.49	50
F_OG1-FG2-BL1	31	70	50.3	8.02	64.37	50
F_OG2-FG1-BL1	29	70	52.24	9.29	86.34	50

FOLLOW-UP FEMALE DATASET AROUSAL

Clip	Min	Max	Mean	Std. Dev	Variance	Count
M_OG2-FG1-BL2	17	68	48.62	11.12	123.64	37
M_OG1-FG1-BL2	19	68	48.24	11.4	130.02	37
M_OG2-FG2-BL2	19	67	51.78	10.72	114.93	37
M_OG1-FG2-BL2	15	67	46.76	13.33	177.64	37
M_OG1-FG1-BL1	19	70	48.41	10.44	109	37
M_OG2-FG2-BL1	16	69	52	11.24	126.43	37
M_OG1-FG2-BL1	17	70	50.32	12.15	147.62	37
M_OG2-FG1-BL1	26	68	50.46	10.35	107.22	37
F_OG2-FG1-BL2	27	68	50.58	10.7	114.44	50
F_OG1-FG1-BL2	20	70	50.34	11.07	122.5	50
F_OG2-FG2-BL2	20	70	53.56	10.4	108.25	50
F_OG1-FG2-BL2	15	70	48.22	11.73	137.49	50
F_OG1-FG1-BL1	21	70	49.74	10.06	101.27	50
F_OG2-FG2-BL1	25	70	53.2	11.49	132.12	50
F_OG1-FG2-BL1	23	70	52.16	10.2	104.01	50
F_OG2-FG1-BL1	25	70	53.06	8.53	72.74	50

FOLLOW-UP 18-30 Y/O DATASET VALENCE

Clip	Min	Max	Mean	Std. Dev	Variance	Count
M_OG2-FG1-BL2	23	64	45.13	9.9	97.92	30
M_OG1-FG1-BL2	10	61	43.73	10.78	116.2	30
M_OG2-FG2-BL2	30	70	47.6	9.18	84.24	30
M_OG1-FG2-BL2	10	64	44.2	10.95	119.96	30
M_OG1-FG1-BL1	25	70	48.7	11.24	126.28	30
M_OG2-FG2-BL1	21	68	49.83	10.65	113.47	30
M_OG1-FG2-BL1	23	67	47.17	10.32	106.61	30
M_OG2-FG1-BL1	26	70	47.87	10.04	100.85	30
F_OG2-FG1-BL2	19	66	44.52	12.63	159.64	23
F_OG1-FG1-BL2	21	69	44.52	12.61	159.03	23
F_OG2-FG2-BL2	26	65	51.13	9.82	96.46	23
F_OG1-FG2-BL2	25	64	46.91	11.78	138.69	23
F_OG1-FG1-BL1	34	67	47.87	7.74	59.85	23
F_OG2-FG2-BL1	29	70	52.48	11.14	124.16	23
F_OG1-FG2-BL1	31	67	50.65	8.68	75.36	23
F_OG2-FG1-BL1	16	70	50.09	12.01	144.17	23

FOLLOW-UP 18-30 Y/O DATASET AROUSAL

Clip	Min	Max	Mean	Std. Dev	Variance	Count
M_OG2-FG1-BL2	10	70	48.43	14.35	205.85	30
M_OG1-FG1-BL2	19	70	49.03	14.49	210.03	30
M_OG2-FG2-BL2	25	70	50	11.87	140.93	30
M_OG1-FG2-BL2	10	70	47.3	14.96	223.88	30
M_OG1-FG1-BL1	23	70	52.1	11.97	143.29	30
M_OG2-FG2-BL1	36	70	54.97	8.75	76.57	30
M_OG1-FG2-BL1	10	70	50.63	14.02	196.5	30
M_OG2-FG1-BL1	16	70	52.5	12.34	152.38	30
F_OG2-FG1-BL2	24	66	48.43	10.75	115.55	23
F_OG1-FG1-BL2	12	64	46.35	13.26	175.88	23
F_OG2-FG2-BL2	23	70	51.52	11.82	139.81	23
F_OG1-FG2-BL2	10	68	44.87	15.1	227.94	23
F_OG1-FG1-BL1	13	63	48.13	11.25	126.64	23
F_OG2-FG2-BL1	17	70	53.43	12.28	150.85	23
F_OG1-FG2-BL1	20	69	51.48	12.9	166.34	23
F_OG2-FG1-BL1	12	70	48.87	13.9	193.16	23

FOLLOW-UP 30+ Y/O DATASET VALENCE

Clip	Min	Max	Mean	Std. Dev	Variance	Count
M_OG2-FG1-BL2	18	68	45.93	10	99.99	103
M_OG1-FG1-BL2	20	70	45.77	9.56	91.32	103
M_OG2-FG2-BL2	13	70	45.98	10.47	109.57	103
M_OG1-FG2-BL2	20	70	46.22	9.41	88.48	103
M_OG1-FG1-BL1	16	65	44.45	9.52	90.56	103
M_OG2-FG2-BL1	19	67	47.08	10.46	109.33	103
M_OG1-FG2-BL1	21	70	46.39	9.26	85.67	103
M_OG2-FG1-BL1	20	70	46.35	10.16	103.14	103
F_OG2-FG1-BL2	26	70	48.31	9.47	89.63	114
F_OG1-FG1-BL2	17	70	47.32	10.1	102.01	114
F_OG2-FG2-BL2	20	70	49	9.92	98.32	114
F_OG1-FG2-BL2	25	70	47.85	9.05	81.86	114
F_OG1-FG1-BL1	15	70	46.68	10.21	104.25	114
F_OG2-FG2-BL1	30	70	50.13	9.1	82.82	114
F_OG1-FG2-BL1	25	70	48.92	9.05	81.88	114
F_OG2-FG1-BL1	20	70	49.84	9.77	95.36	114

FOLLOW-UP 30+ Y/O MALE DATASET AROUSAL

Clip	Min	Max	Mean	Std. Dev	Variance	Count
M_OG2-FG1-BL2	17	68	50.34	10.01	100.11	103
M_OG1-FG1-BL2	19	70	49.72	9.94	98.71	103
M_OG2-FG2-BL2	19	70	50.5	9.65	93.07	103
M_OG1-FG2-BL2	15	70	48.46	11.33	128.4	103
M_OG1-FG1-BL1	19	68	47.15	10.19	103.87	103
M_OG2-FG2-BL1	16	70	51.7	10.42	108.68	103
M_OG1-FG2-BL1	17	70	49.68	10.68	114.12	103
M_OG2-FG1-BL1	20	70	49.79	10.62	112.83	103
F_OG2-FG1-BL2	10	69	49.33	10.51	110.36	114
F_OG1-FG1-BL2	10	70	48.27	11.45	131.13	114
F_OG2-FG2-BL2	10	70	51.68	10.53	110.94	114
F_OG1-FG2-BL2	10	70	49.03	10.75	115.5	114
F_OG1-FG1-BL1	10	70	47.33	11.27	127.1	114
F_OG2-FG2-BL1	10	70	51.36	10.95	119.86	114
F_OG1-FG2-BL1	10	70	49.98	10.25	105.02	114
F_OG2-FG1-BL1	10	70	51.06	9.72	94.55	114

FOLLOW-UP NO DEGREE DATASET VALENCE

Clip	Min	Max	Mean	Std. Dev	Variance	Count
M_OG2-FG1-BL2	25	64	45.02	8.55	73.05	43
M_OG1-FG1-BL2	21	65	42.91	8.16	66.6	43
M_OG2-FG2-BL2	27	62	45.53	9.13	83.32	43
M_OG1-FG2-BL2	29	62	44.51	7.84	61.46	43
M_OG1-FG1-BL1	25	70	44.63	9.89	97.82	43
M_OG2-FG2-BL1	30	68	47.6	10.13	102.61	43
M_OG1-FG2-BL1	23	57	44.47	7.24	52.48	43
M_OG2-FG1-BL1	22	61	45.6	10.28	105.77	43
F_OG2-FG1-BL2	30	66	46.38	8.38	70.23	40
F_OG1-FG1-BL2	21	63	44.3	9.23	85.26	40
F_OG2-FG2-BL2	20	65	46.02	9.4	88.27	40
F_OG1-FG2-BL2	25	65	45.45	10.16	103.3	40
F_OG1-FG1-BL1	30	62	44.3	7.44	55.31	40
F_OG2-FG2-BL1	29	67	48.75	9.32	86.89	40
F_OG1-FG2-BL1	25	66	48.13	8.82	77.81	40
F_OG2-FG1-BL1	28	66	48.25	8.66	74.99	40

FOLLOW-UP NO DEGREE DATASET AROUSAL

Clip	Min	Max	Mean	Std. Dev	Variance	Count
M_OG2-FG1-BL2	28	68	49.37	9.98	99.63	43
M_OG1-FG1-BL2	21	70	48.49	11.03	121.74	43
M_OG2-FG2-BL2	35	66	50.6	8.44	71.22	43
M_OG1-FG2-BL2	24	63	48.7	10.12	102.49	43
M_OG1-FG1-BL1	20	70	47.35	10.26	105.3	43
M_OG2-FG2-BL1	30	70	51.84	9.78	95.58	43
M_OG1-FG2-BL1	31	63	49	8.41	70.74	43
M_OG2-FG1-BL1	21	67	49.21	10.2	104.12	43
F_OG2-FG1-BL2	29	66	49.63	8.75	76.63	40
F_OG1-FG1-BL2	28	66	47.88	9.52	90.61	40
F_OG2-FG2-BL2	20	70	51.15	9.68	93.73	40
F_OG1-FG2-BL2	23	65	47.23	7.88	62.02	40
F_OG1-FG1-BL1	25	62	46.15	8.82	77.88	40
F_OG2-FG2-BL1	25	66	50.75	9.95	98.99	40
F_OG1-FG2-BL1	23	70	49.8	9.93	98.61	40
F_OG2-FG1-BL1	25	66	48.65	9.3	86.58	40

FOLLOW-UP DEGREE DATASET VALENCE

Clip	Min	Max	Mean	Std. Dev	Variance	Count
M_OG2-FG1-BL2	18	68	46.18	10.61	112.64	89
M_OG1-FG1-BL2	10	70	46.52	10.45	109.31	89
M_OG2-FG2-BL2	13	70	46.88	10.65	113.32	89
M_OG1-FG2-BL2	10	70	46.42	10.62	112.87	89
M_OG1-FG1-BL1	16	66	45.73	10.21	104.2	89
M_OG2-FG2-BL1	19	67	47.87	10.76	115.87	89
M_OG1-FG2-BL1	21	70	47.57	10.33	106.74	89
M_OG2-FG1-BL1	20	70	47.31	10.05	101.05	89
F_OG2-FG1-BL2	19	70	48.24	10.82	116.96	97
F_OG1-FG1-BL2	17	70	47.95	11.04	121.9	97
F_OG2-FG2-BL2	25	70	50.82	9.91	98.25	97
F_OG1-FG2-BL2	25	70	48.71	9.2	84.64	97
F_OG1-FG1-BL1	15	70	47.96	10.52	110.62	97
F_OG2-FG2-BL1	29	70	51.25	9.49	89.98	97
F_OG1-FG2-BL1	30	70	49.7	9.08	82.44	97
F_OG2-FG1-BL1	16	70	50.66	10.77	115.94	97

FOLLOW-UP DEGREE DATASET AROUSAL

Clip	Min	Max	Mean	Std. Dev	Variance	Count
M_OG2-FG1-BL2	10	70	50.19	11.74	137.79	89
M_OG1-FG1-BL2	19	70	50.09	11.2	125.5	89
M_OG2-FG2-BL2	19	70	50.3	10.99	120.77	89
M_OG1-FG2-BL2	10	70	47.91	13.21	174.53	89
M_OG1-FG1-BL1	19	70	48.58	11.06	122.24	89
M_OG2-FG2-BL1	16	70	52.7	10.39	107.87	89
M_OG1-FG2-BL1	10	70	50.25	12.78	163.29	89
M_OG2-FG1-BL1	16	70	51.01	11.51	132.37	89
F_OG2-FG1-BL2	10	69	48.96	11.15	124.39	97
F_OG1-FG1-BL2	10	70	48.05	12.72	161.84	97
F_OG2-FG2-BL2	10	70	51.92	11.24	126.24	97
F_OG1-FG2-BL2	10	70	48.76	12.91	166.78	97
F_OG1-FG1-BL1	10	70	48.06	12.17	148.1	97
F_OG2-FG2-BL1	10	70	52.07	11.63	135.18	97
F_OG1-FG2-BL1	10	70	50.61	11.24	126.44	97
F_OG2-FG1-BL1	10	70	51.59	11	121.07	97

APPENDIX F. STUDY 2 ANALYSIS

FULL DATASET ANALYSIS

Follow-up Full Dataset ANOVA (Valence)

Dependent Variable: Valence

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	5701.746[a]	7	814.535	8.134	.000
Intercept	4896983.142	1	4896983.142	48901.405	.000
OG	883.389	1	883.389	8.822	.003
FG	638.627	1	638.627	6.377	.012
BL	527.165	1	527.165	5.264	.022
FG * BL	18.499	1	18.499	.185	.667
OG * BL	85.847	1	85.847	.857	.355
OG * FG	4.132	1	4.132	.041	.839
G	3544.087	1	3544.087	35.391	.000
Error	217904.481	2176	100.140		
Total	5127061.000	2184			
Corrected Total	223606.227	2183			

Follow-up Full Dataset ANOVA (Arousal)

Dependent Variable: Arousal

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	3631.727[a]	7	518.818	4.189	.000
Intercept	5406987.943	1	5406987.943	43653.713	.000
OG	2268.808	1	2268.808	18.317	.000
FG	704.029	1	704.029	5.684	.017
BL	298.930	1	298.930	2.413	.120
FG * BL	254.815	1	254.815	2.057	.152
OG * BL	33.875	1	33.875	.273	.601
OG * FG	70.359	1	70.359	.568	.451
G	.911	1	.911	.007	.932
Error	269521.304	2176	123.861		
Total	5681874.000	2184			
Corrected Total	273153.031	2183			

Follow-up Full Dataset R-Square (Valence)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.160[a]	.025	.022	10.00699

Follow-up Full Dataset Coefficients (Valence)

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	47.360	.214		221.137	.000
	OG_C	.636	.214	.063	2.970	.003
	FG_C	.541	.214	.053	2.525	.012
	BL_C	-.491	.214	-.049	-2.294	.022
	OGxFG	-.043	.214	-.004	-.203	.839
	OGxBL	-.198	.214	-.020	-.926	.355
	FGxBL	-.092	.214	-.009	-.430	.667
	G_C	1.274	.214	.126	5.949	.000

Follow-up Full Dataset R-Square (Arousal)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.115[a]	.013	.010	11.12928

Follow-up Full Dataset Coefficients (Arousal)

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	49.765	.238		208.935	.000
	OG_C	1.019	.238	.091	4.280	.000
	FG_C	.568	.238	.051	2.384	.017
	BL_C	-.370	.238	-.033	-1.554	.120
	OGxFG	.179	.238	.016	.754	.451
	OGxBL	-.125	.238	-.011	-.523	.601
	FGxBL	-.342	.238	-.031	-1.434	.152
	G_C	-.020	.238	-.002	-.086	.932

AGE SUBSET DATA ANALYSIS (18-30 YEARS OLD)

Follow-up 18-30 Y/O Dataset ANOVA (Valence)

Dependent Variable: Valence

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	2522.765[a]	7	360.395	3.106	.003
Intercept	945926.223	1	945926.223	8152.052	.000
OG	356.889	1	356.889	3.076	.080
FG	430.021	1	430.021	3.706	.055
BL	1185.568	1	1185.568	10.217	.001
G	316.260	1	316.260	2.726	.100
FG * BL	62.663	1	62.663	.540	.463
OG * BL	20.399	1	20.399	.176	.675
OG * FG	150.965	1	150.965	1.301	.255
Error	48270.704	416	116.035		
Total	1008869.000	424			
Corrected Total	50793.469	423			

Follow-up 18-30 Y/O Dataset ANOVA (Arousal)

Dependent Variable: Arousal

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	2449.382[a]	7	349.912	2.059	.047
Intercept	1036447.674	1	1036447.674	6099.305	.000
OG	516.566	1	516.566	3.040	.082
FG	140.415	1	140.415	.826	.364
BL	1188.915	1	1188.915	6.997	.008
G	229.665	1	229.665	1.352	.246
FG * BL	76.415	1	76.415	.450	.503
OG * BL	8.491	1	8.491	.050	.823
OG * FG	288.915	1	288.915	1.700	.193
Error	70690.382	416	169.929		
Total	1132140.000	424			
Corrected Total	73139.764	423			

Follow-up 18-30 Y/O R-Square (Valence)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.223[a]	.050	.034	10.77197

Follow-up 18-30 Y/O Coefficients (Valence)

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	47.650	.528		90.289	.000
	OG_C	.917	.523	.084	1.754	.080
	FG_C	1.007	.523	.092	1.925	.055
	BL_C	-1.672	.523	-.153	-3.196	.001
	OGxFG	.597	.523	.055	1.141	.255
	OGxBL	.219	.523	.020	.419	.675
	FGxBL	.384	.523	.035	.735	.463
	G_C	.871	.528	.079	1.651	.100

Follow-up 18-30 Y/O R-Square (Arousal)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.183[a]	.033	.017	13.03567

Follow-up 18-30 Y/O Coefficients (Arousal)

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	49.878	.639		78.098	.000
	OG_C	1.104	.633	.084	1.744	.082
	FG_C	.575	.633	.044	.909	.364
	BL_C	-1.675	.633	-.127	-2.645	.008
	OGxFG	.825	.633	.063	1.304	.193
	OGxBL	.142	.633	.011	.224	.823
	FGxBL	-.425	.633	-.032	-.671	.503
	G_C	-.742	.639	-.056	-1.163	.246

AGE SUBSET DATA ANALYSIS (30+ YEAR OLD)

Follow-up 30+ Y/O Dataset ANOVA (Valence)

Dependent Variable: Valence

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	3989.263[a]	7	569.895	5.994	.000
Intercept	3867906.198	1	3867906.198	40680.059	.000
OG	578.343	1	578.343	6.083	.014
FG	329.226	1	329.226	3.463	.063
BL	87.615	1	87.615	.921	.337
G	2672.841	1	2672.841	28.111	.000
FG * BL	79.714	1	79.714	.838	.360
OG * BL	161.809	1	161.809	1.702	.192
OG * FG	79.714	1	79.714	.838	.360
Error	164300.200	1728	95.081		
Total	4056502.000	1736			
Corrected Total	168289.463	1735			

Follow-up 30+ Y/O Dataset ANOVA (Arousal)

Dependent Variable: Arousal

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	2659.488[a]	7	379.927	3.394	.001
Intercept	4278824.619	1	4278824.619	38227.874	.000
OG	1782.305	1	1782.305	15.923	.000
FG	614.683	1	614.683	5.492	.019
BL	4.770	1	4.770	.043	.836
G	3.540	1	3.540	.032	.859
FG * BL	177.434	1	177.434	1.585	.208
OG * BL	76.743	1	76.743	.686	.408
OG * FG	.014	1	.014	.000	.991
Error	193414.078	1728	111.929		
Total	4486317.000	1736			
Corrected Total	196073.566	1735			

Follow-up 30+ Y/O Dataset R-Square (Valence)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.154[a]	.024	.020	9.75096

Follow-up 30+ Y/O Dataset Coefficients (Valence)

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	47.263	.234		201.693	.000
	OG_C	.577	.234	.059	2.466	.014
	FG_C	.435	.234	.044	1.861	.063
	BL_C	-.225	.234	-.023	-.960	.337
	OGxFG	-.214	.234	-.022	-.916	.360
	OGxBL	-.305	.234	-.031	-1.305	.192
	FGxBL	-.214	.234	-.022	-.916	.360
	G_C	1.242	.234	.126	5.302	.000

Follow-up 30+ Y/O R-Square (Arousal)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.116[a]	.014	.010	10.57967

Follow-up 30+ Y/O Coefficients (Arousal)

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	49.710	.254		195.519	.000
	OG_C	1.013	.254	.095	3.990	.000
	FG_C	.595	.254	.056	2.343	.019
	BL_C	-.052	.254	-.005	-.206	.836
	OGxFG	-.003	.254	.000	-.011	.991
	OGxBL	-.210	.254	-.020	-.828	.408
	FGxBL	-.320	.254	-.030	-1.259	.208
	G_C	.045	.254	.004	.178	.859

FOLLOW-UP GENDER SUBSET DATA ANALYSIS (MALE)

Follow-up Male Dataset ANOVA (Valence)

Dependent Variable: Valence

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	1910.123[a]	7	272.875	2.752	.008
Intercept	3251752.355	1	3251752.355	32797.886	.000
OG	434.083	1	434.083	4.378	.037
FG	597.863	1	597.863	6.030	.014
BL	211.556	1	211.556	2.134	.144
G	502.817	1	502.817	5.072	.024
FG * BL	14.841	1	14.841	.150	.699
OG * BL	131.160	1	131.160	1.323	.250
OG * FG	17.803	1	17.803	.180	.672
Error	143562.222	1448	99.145		
Total	3399959.000	1456			
Corrected Total	145472.345	1455			

Follow-up Male Dataset ANOVA (Arousal)

Dependent Variable: Arousal

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	2841.519[a]	7	405.931	3.253	.002
Intercept	3552313.119	1	3552313.119	28469.336	.000
OG	1434.083	1	1434.083	11.493	.001
FG	587.655	1	587.655	4.710	.030
BL	55.786	1	55.786	.447	.504
G	450.548	1	450.548	3.611	.058
FG * BL	230.248	1	230.248	1.845	.175
OG * BL	82.698	1	82.698	.663	.416
OG * FG	.501	1	.501	.004	.950
Error	180676.832	1448	124.777		
Total	3746233.000	1456			
Corrected Total	183518.351	1455			

Follow-up Male R-Square (Valence)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.115[a]	.013	.008	9.95717

Follow-up Male Coefficients (Valence)

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	47.304	.261		181.102	.000
	OG_C	.546	.261	.055	2.092	.037
	FG_C	.641	.261	.064	2.456	.014
	BL_C	-.381	.261	-.038	-1.461	.144
	OGxFG	-.111	.261	-.011	-.424	.672
	OGxBL	-.300	.261	-.030	-1.150	.250
	FGxBL	-.101	.261	-.010	-.387	.699
	G_C	.588	.261	.059	2.252	.024

Follow-up Male R-Square (Arousal)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.124[a]	.015	.011	11.17035

Follow-up Male Coefficients (Arousal)

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	49.442	.293		168.729	.000
	OG_C	.992	.293	.088	3.390	.001
	FG_C	.635	.293	.057	2.170	.030
	BL_C	-.196	.293	-.017	-.669	.504
	OGxFG	.019	.293	.002	.063	.950
	OGxBL	-.238	.293	-.021	-.814	.416
	FGxBL	-.398	.293	-.035	-1.358	.175
	G_C	-.557	.293	-.050	-1.900	.058

FOLLOW-UP GENDER SUBSET DATA ANALYSIS (FEMALE)

Follow-up Female Dataset ANOVA (Valence)

Dependent Variable: Valence

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	5424.475[a]	7	774.925	7.764	.000
Intercept	1526442.202	1	1526442.202	15293.656	.000
OG	616.415	1	616.415	6.176	.013
FG	97.875	1	97.875	.981	.322
BL	308.001	1	308.001	3.086	.079
G	4397.064	1	4397.064	44.055	.000
FG * BL	4.346	1	4.346	.044	.835
OG * BL	.760	1	.760	.008	.930
OG * FG	.013	1	.013	.000	.991
Error	68668.489	688	99.809		
Total	1660539.000	696			
Corrected Total	74092.964	695			

Follow-up Female Dataset ANOVA (Arousal)

Dependent Variable: Arousal

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	2253.627[a]	7	321.947	2.654	.010
Intercept	1733000.584	1	1733000.584	14284.991	.000
OG	1001.760	1	1001.760	8.257	.004
FG	187.243	1	187.243	1.543	.215
BL	340.760	1	340.760	2.809	.094
G	540.917	1	540.917	4.459	.035
FG * BL	32.760	1	32.760	.270	.603
OG * BL	21.737	1	21.737	.179	.672
OG * FG	128.450	1	128.450	1.059	.304
Error	83465.533	688	121.316		
Total	1867669.000	696			
Corrected Total	85719.159	695			

Follow-up Female R-Square (Valence)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.271[a]	.073	.064	9.99044

Follow-up Female Coefficients (Valence)

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	47.363	.383		123.668	.000
	OG_C	.941	.379	.091	2.485	.013
	FG_C	.375	.379	.036	.990	.322
	BL_C	-.665	.379	-.064	-1.757	.079
	OGxFG	.004	.379	.000	.011	.991
	OGxBL	.033	.379	.003	.087	.930
	FGxBL	-.079	.379	-.008	-.209	.835
	G_C	2.542	.383	.244	6.637	.000

Follow-up Female R-Square (Arousal)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.162[a]	.026	.016	11.01436

Follow-up Female Coefficients (Arousal)

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	50.466	.422		119.520	.000
	OG_C	1.200	.417	.108	2.874	.004
	FG_C	.519	.417	.047	1.242	.215
	BL_C	-.700	.417	-.063	-1.676	.094
	OGxFG	.430	.417	.039	1.029	.304
	OGxBL	.177	.417	.016	.423	.672
	FGxBL	-.217	.417	-.020	-.520	.603
	G_C	.892	.422	.079	2.112	.035

HIGHEST LEVEL OF EDUCATION SUBSET DATA ANALYSIS (NO DEGREE)

Follow-up No Degree Dataset ANOVA (Valence)

Dependent Variable: Valence

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	1507.883[a]	7	215.412	2.638	.011
Intercept	1387424.477	1	1387424.477	16991.413	.000
OG	543.977	1	543.977	6.662	.010
FG	211.785	1	211.785	2.594	.108
BL	342.664	1	342.664	4.197	.041
G	330.525	1	330.525	4.048	.045
FG * BL	25.062	1	25.062	.307	.580
OG * BL	21.327	1	21.327	.261	.609
OG * FG	32.544	1	32.544	.399	.528
Error	53565.320	656	81.654		
Total	1442763.000	664			
Corrected Total	55073.203	663			

Follow-up No Degree Dataset ANOVA (Arousal)

Dependent Variable: Arousal

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	1302.980[a]	7	186.140	2.012	.051
Intercept	1599431.995	1	1599431.995	17289.270	.000
OG	710.797	1	710.797	7.683	.006
FG	393.255	1	393.255	4.251	.040
BL	.182	1	.182	.002	.965
G	28.778	1	28.778	.311	.577
FG * BL	151.339	1	151.339	1.636	.201
OG * BL	.074	1	.074	.001	.977
OG * FG	18.556	1	18.556	.201	.654
Error	60686.621	656	92.510		
Total	1664005.000	664			
Corrected Total	61989.601	663			

Follow-up No Degree R-Square (Valence)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.165[a]	.027	.017	9.03629

Follow-up No Degree Coefficients (Valence)

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	45.741	.351		130.351	.000
	OG_C	.905	.351	.099	2.581	.010
	FG_C	.565	.351	.062	1.610	.108
	BL_C	-.718	.351	-.079	-2.049	.041
	OGxFG	-.221	.351	-.024	-.631	.528
	OGxBL	-.179	.351	-.020	-.511	.609
	FGxBL	-.194	.351	-.021	-.554	.580
	G_C	.706	.351	.077	2.012	.045

Follow-up No Degree R-Square (Arousal)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.145[a]	.021	.011	9.61822

Follow-up No Degree Coefficients (Arousal)

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	49.111	.374		131.489	.000
	OG_C	1.035	.373	.107	2.772	.006
	FG_C	.770	.373	.080	2.062	.040
	BL_C	.017	.373	.002	.044	.965
	OGxFG	.167	.373	.017	.448	.654
	OGxBL	.011	.373	.001	.028	.977
	FGxBL	-.477	.373	-.049	-1.279	.201
	G_C	-.208	.374	-.022	-.558	.577

HIGHEST LEVEL OF EDUCATION SUBSET DATA ANALYSIS (DEGREE)

Follow-up Degree Dataset ANOVA (Valence)

Dependent Variable: Valence

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	3734.025[a]	7	533.432	4.998	.000
Intercept	3437717.080	1	3437717.080	32209.152	.000
OG	455.194	1	455.194	4.265	.039
FG	448.581	1	448.581	4.203	.041
BL	237.920	1	237.920	2.229	.136
G	2514.112	1	2514.112	23.556	.000
FG * BL	2.501	1	2.501	.023	.878
OG * BL	75.420	1	75.420	.707	.401
OG * FG	.296	1	.296	.003	.958
Error	157961.975	1480	106.731		
Total	3613801.000	1488			
Corrected Total	161695.999	1487			

Follow-up Degree Dataset ANOVA (Arousal)

Dependent Variable: Arousal

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	2634.135[a]	7	376.305	2.718	.008
Intercept	3722911.826	1	3722911.826	26889.947	.000
OG	1581.422	1	1581.422	11.422	.001
FG	392.269	1	392.269	2.833	.093
BL	440.927	1	440.927	3.185	.075
G	5.955	1	5.955	.043	.836
FG * BL	118.548	1	118.548	.856	.355
OG * BL	61.293	1	61.293	.443	.506
OG * FG	33.720	1	33.720	.244	.622
Error	204905.927	1480	138.450		
Total	3936946.000	1488			
Corrected Total	207540.062	1487			

Follow-up Degree R-Square (Valence)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.152[a]	.023	.018	10.33107

Follow-up Degree Coefficients (Valence)

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	48.110	.268		179.469	.000
	OG_C	.553	.268	.053	2.065	.039
	FG_C	.549	.268	.053	2.050	.041
	BL_C	-.400	.268	-.038	-1.493	.136
	OGxFG	.014	.268	.001	.053	.958
	OGxBL	-.225	.268	-.022	-.841	.401
	FGxBL	-.041	.268	-.004	-.153	.878
	G_C	1.301	.268	.125	4.853	.000

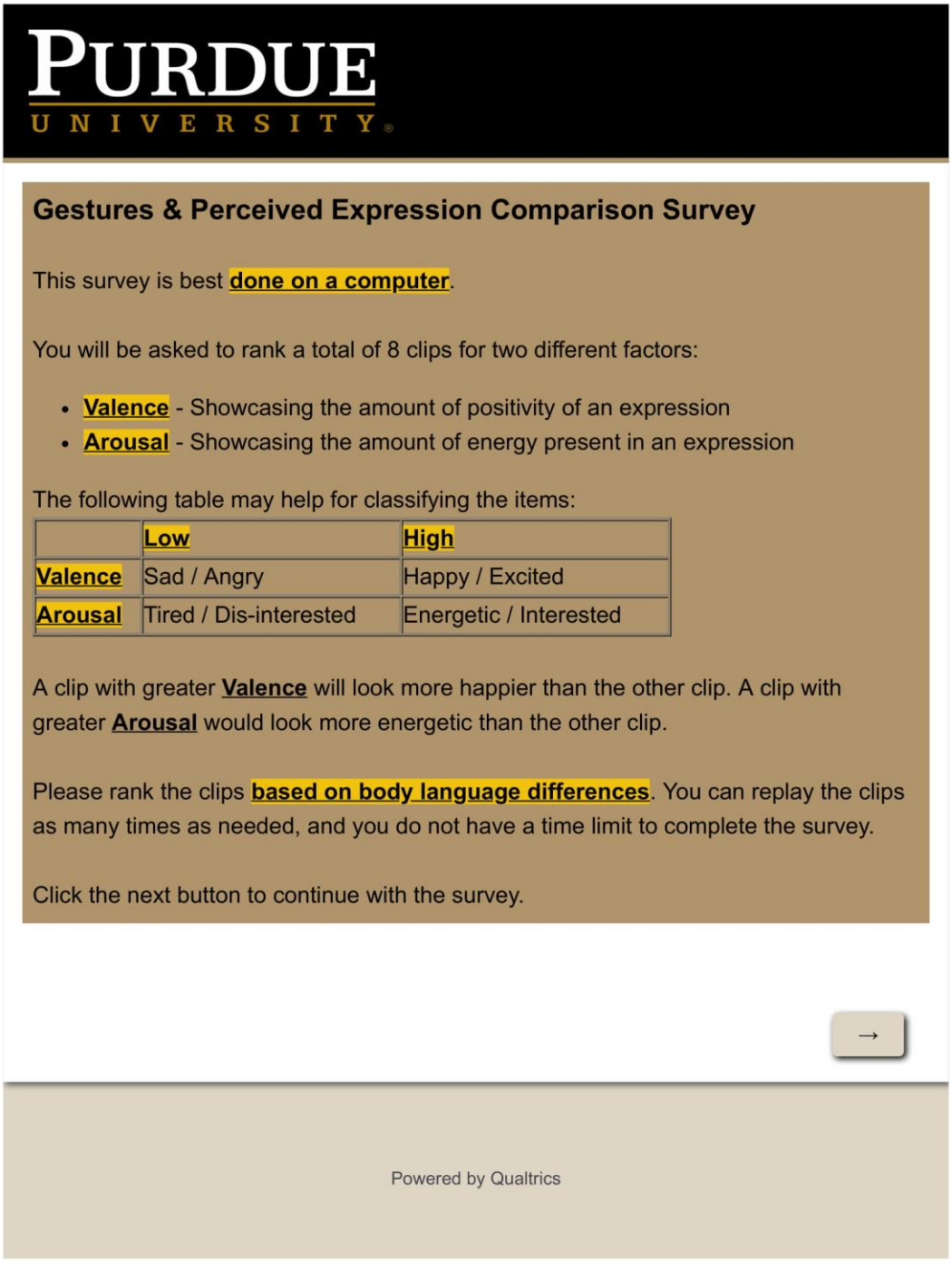
Follow-up Degree R-Square (Arousal)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.113[a]	.013	.008	11.76648

Follow-up Degree Coefficients (Arousal)

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	50.066	.305		163.982	.000
	OG_C	1.031	.305	.087	3.380	.001
	FG_C	.513	.305	.043	1.683	.093
	BL_C	-.544	.305	-.046	-1.785	.075
	OGxFG	.151	.305	.013	.494	.622
	OGxBL	-.203	.305	-.017	-.665	.506
	FGxBL	-.282	.305	-.024	-.925	.355
	G_C	-.063	.305	-.005	-.207	.836

APPENDIX G. STUDY 1 SURVEY FORMAT



PURDUE UNIVERSITY

Gestures & Perceived Expression Comparison Survey

This survey is best **done on a computer**.

You will be asked to rank a total of 8 clips for two different factors:

- **Valence** - Showcasing the amount of positivity of an expression
- **Arousal** - Showcasing the amount of energy present in an expression

The following table may help for classifying the items:

	Low	High
Valence	Sad / Angry	Happy / Excited
Arousal	Tired / Dis-interested	Energetic / Interested

A clip with greater **Valence** will look more happier than the other clip. A clip with greater **Arousal** would look more energetic than the other clip.

Please rank the clips **based on body language differences**. You can replay the clips as many times as needed, and you do not have a time limit to complete the survey.

Click the next button to continue with the survey.

→

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Demographic Information

Please fill out the demographic information below. If you do not wish to answer the question, please select "Prefer not to answer"

What is your age?

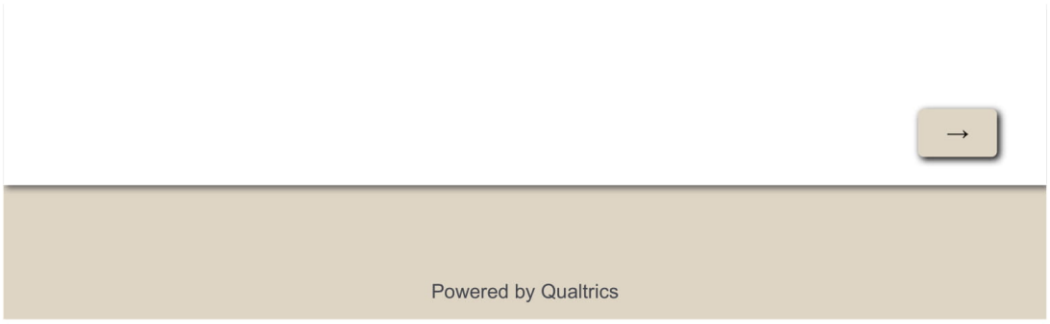
- ○ 18-30 years old
- ○ 31-43 years old
- ○ 43-55 years old
- ○ 55-67 years old
- ○ 68 years old or older
- ● Prefer not to answer

What is your gender?

- ○ Male
- ○ Female
- ● Prefer not to answer

What is your highest completed level of Education?

- ○ Did not finish high school or earlier
- ○ High School graduate
- ○ Some college, no degree
- ○ Bachelor's Degree
- ○ Masters Degree or equivalent
- ○ PhD or equivalent
- ● Prefer not to answer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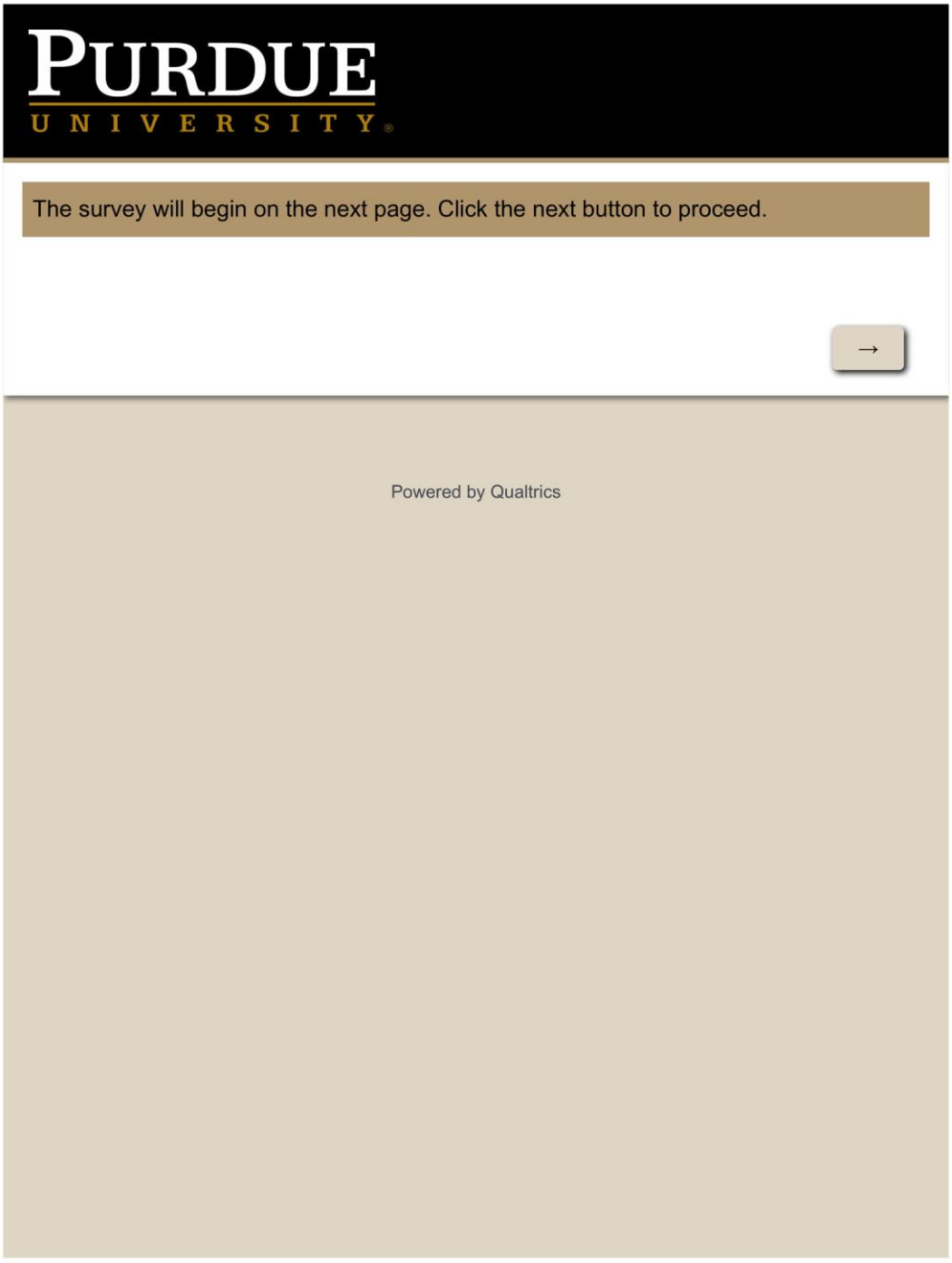
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UNIVERSITY
The survey will begin on the next page. Click the next button to proceed.
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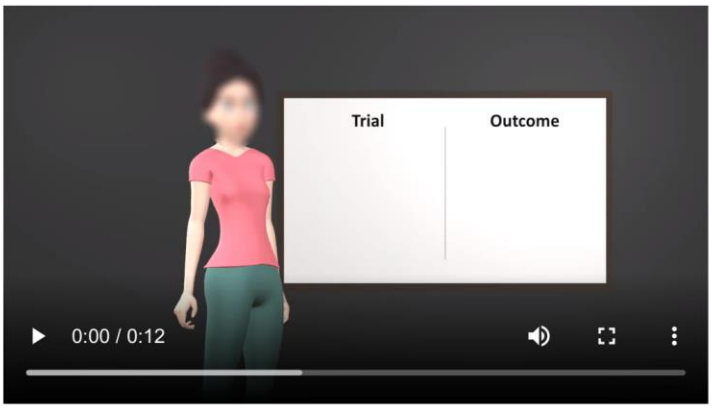
PURDUE UNIVERSITY

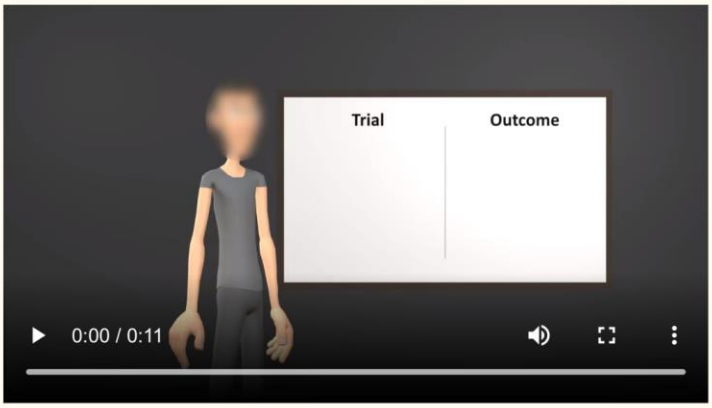
Ranking Valence

Refer to the following table when ranking the clips on this page:

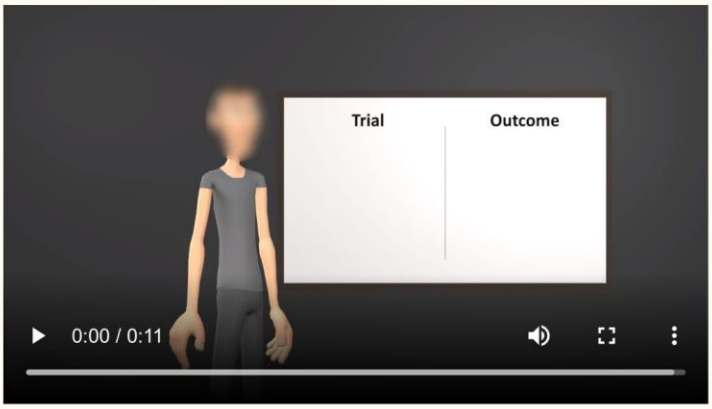
High Valence	Low Valence
Looks happy	Looks sad / angry

Rank the clips from **GREATEST** to **LEAST** amount of **VALENCE** (positivity). The highest ranked clip should be at the top. Drag / drop the answers until you get the desired ranking.




Trial
Outcome
0:00 / 0:11


Trial
Outcome
0:00 / 0:11


Trial
Outcome
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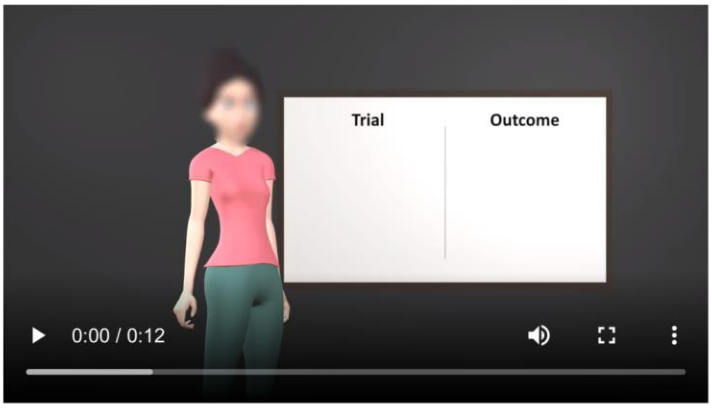
Trial
Outcome
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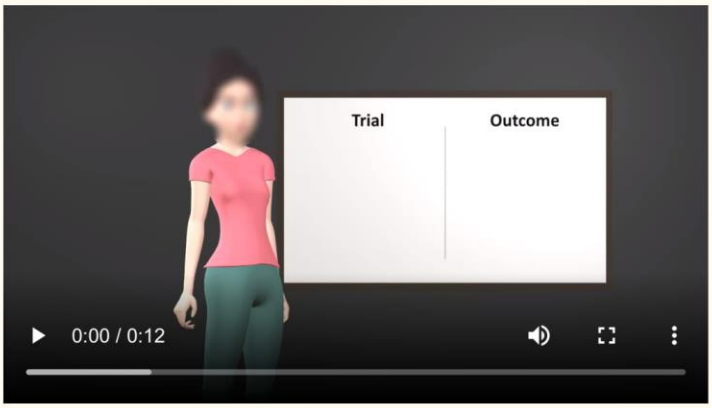
Trial
Outcome
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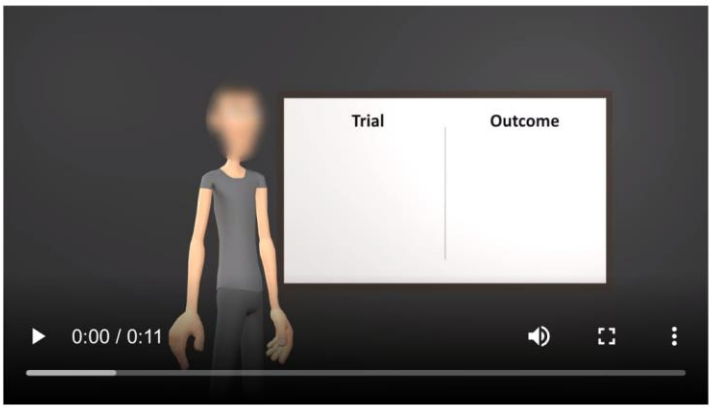
Trial
Outcome
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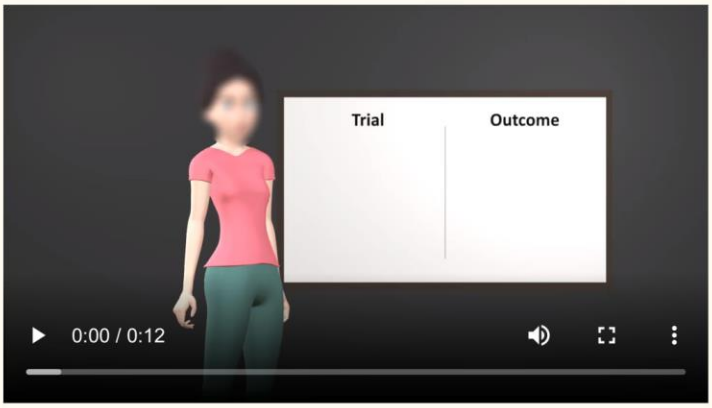

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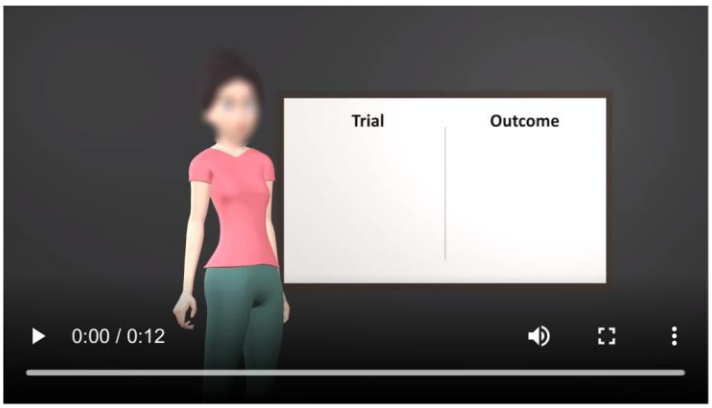
PURDUE UNIVERSITY

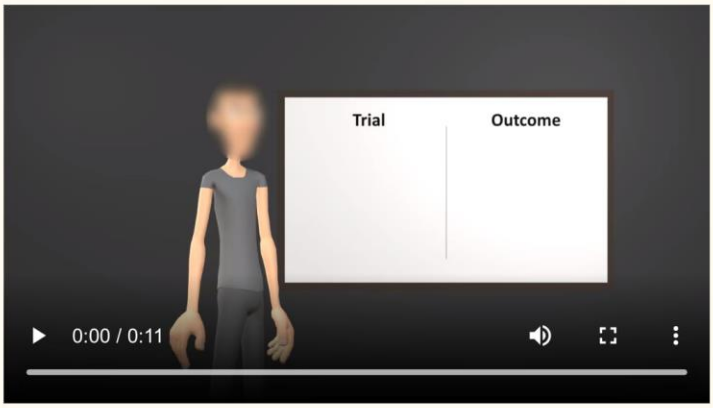
Ranking Arousal

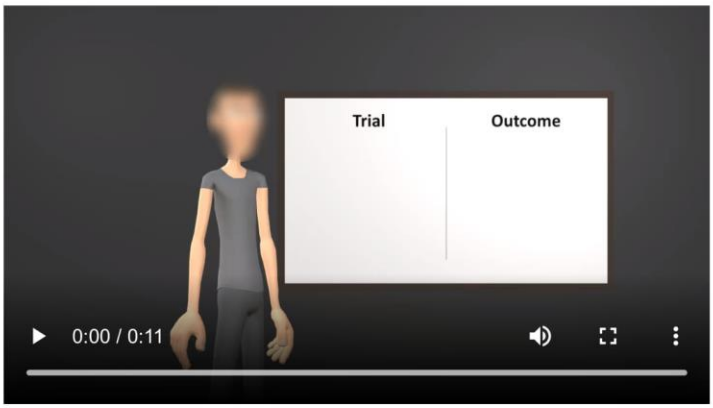
Refer to the following table when ranking the clips on this page:

High Arousal	Low Arousal
Looks interested towards viewer	Looks disinterested / tired

Rank the clips from the **GREATEST** to **LEAST** amount of **AROUSAL** (energy). The highest ranked clip should be at the top. Drag / drop the video clops answers until you get the desired ranking.




Trial
Outcome
0:00 / 0:11


Trial
Outcome
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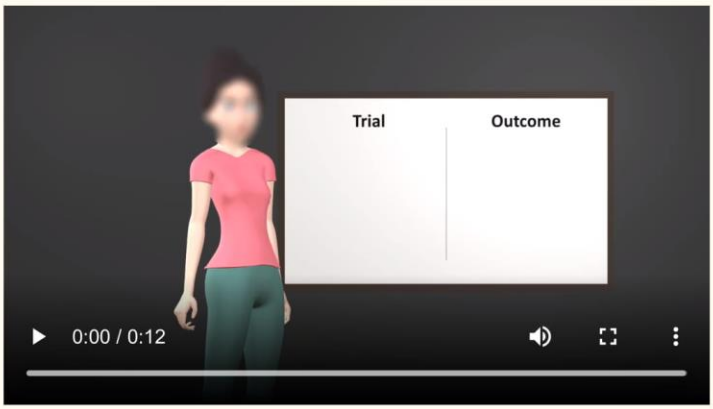
Trial
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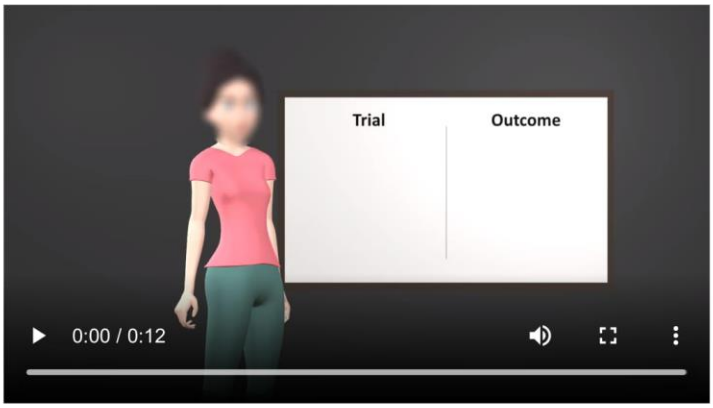
Trial
Outcome
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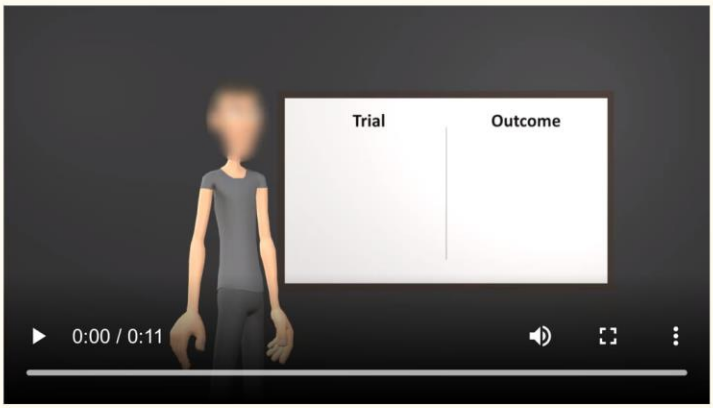
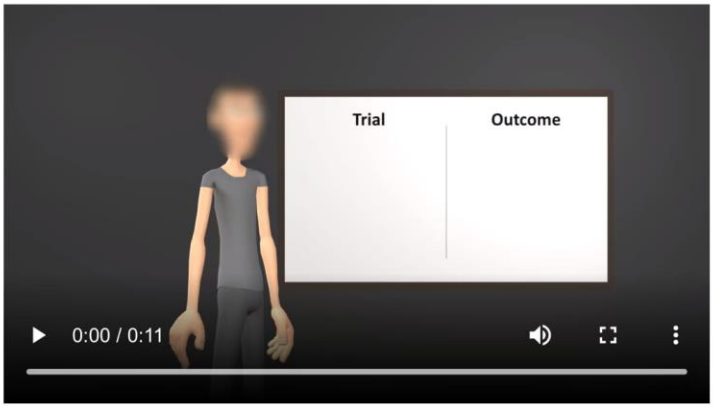
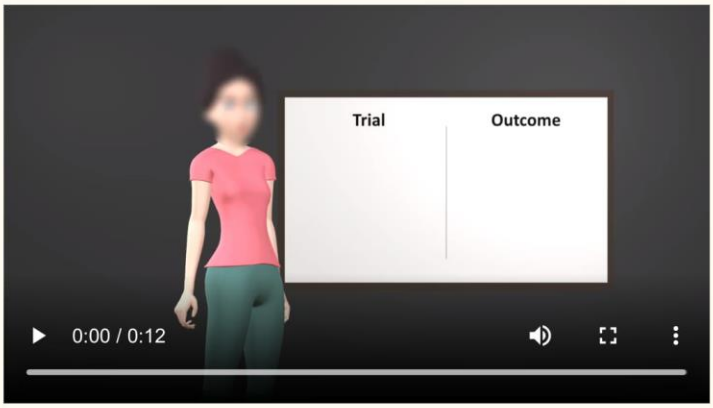

Trial
Outcome
0:00 / 0:11


Trial
Outcome
0:00 / 0:11



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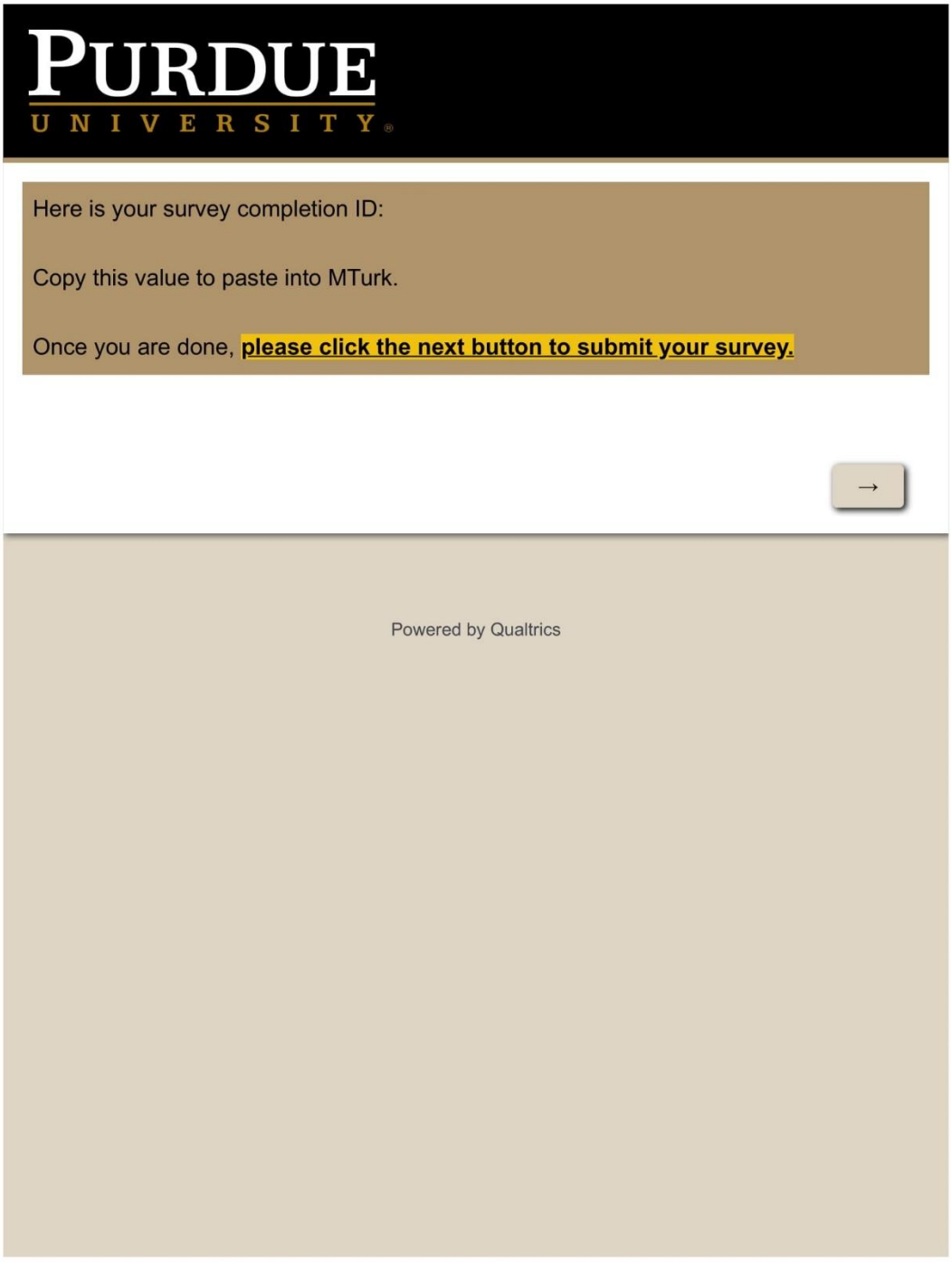
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Here is your survey completion ID:
Copy this value to paste into MTurk.
Once you are done, please click the next button to submit your survey.
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APPENDIX H. STUDY 2 SURVEY FORMAT

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Gestures & Perceived Emotion Comparison Survey (Male Clips)

PLEASE READ CAREFULLY. This survey is best **done on a computer**.

For purposes of our project, we define emotion as a psychological state consisting of the conscious experience or feeling of affect.

We adopt Russell's (2003) model of core affect, in which any particular emotion can be placed along two dimensions--(1) **valence**--ranging from positive (pleasure) to negative (displeasure), and (2) **arousal**--ranging from activation to deactivation. As shown in the Figure below, the **vertical axis (arousal)** ranges from deactivation to activation, and the **horizontal axis (valence)** ranges from displeasure to pleasure. Accordingly, emotions such as **stressed** or **upset** belong in the upper-left quadrant **(negative valence, high arousal)**; **happy** and **excited** belong in the upper-right quadrant **(positive valence, high arousal)**, **content** and **relaxed** belong in the lower-right quadrant **(positive valence, low arousal)**, and **sad** and **depressed** belong in the lower-left quadrant **(negative valence, low arousal)**.

Please watch the animated clips and **pay attention to the emotion displayed by the character** in each clip. For each clip, answer the following 2 rating questions:

- **Valence:** How **pleasant/positive** is the emotion displayed by the character? Rate from 10 to 70 (10 = highly unpleasant/negative; 70 = highly pleasant/positive)
- **Arousal:** How **active/engaged** is the character? Rate from 10 to 70 (10 = highly inactive/not engaged; 70 = highly active/engaged)

You can replay the clips as many times as needed, and you can enlarge the clip to full screen. You can also return to previous clips that you have already watched. Only your final answer will be recorded.

After completing the survey, you will recieve a Random ID number. Please copy and paste this ID number into the ID field on the Mechanical Turk hit page.

Click the next button to continue with the survey.

→

PURDUE UNIVERSITY

Demographic Information

Please fill out the demographic information below. If you do not wish to answer the question, please select "Prefer not to answer"

What is your age?

- ○ 18-30 years old
- ○ 31-43 years old
- ○ 43-55 years old
- ○ 55-67 years old
- ○ 68 years old or older
- ● Prefer not to answer

What is your gender?

- ○ Male
- ○ Female
- ● Prefer not to answer

What is your highest completed level of Education?

- ○ Did not finish high school or earlier
- ○ High School graduate
- ○ Some college, no degree
- ○ Bachelor's Degree
- ○ Masters Degree or equivalent
- ○ PhD or equivalent
- ● Prefer not to answer


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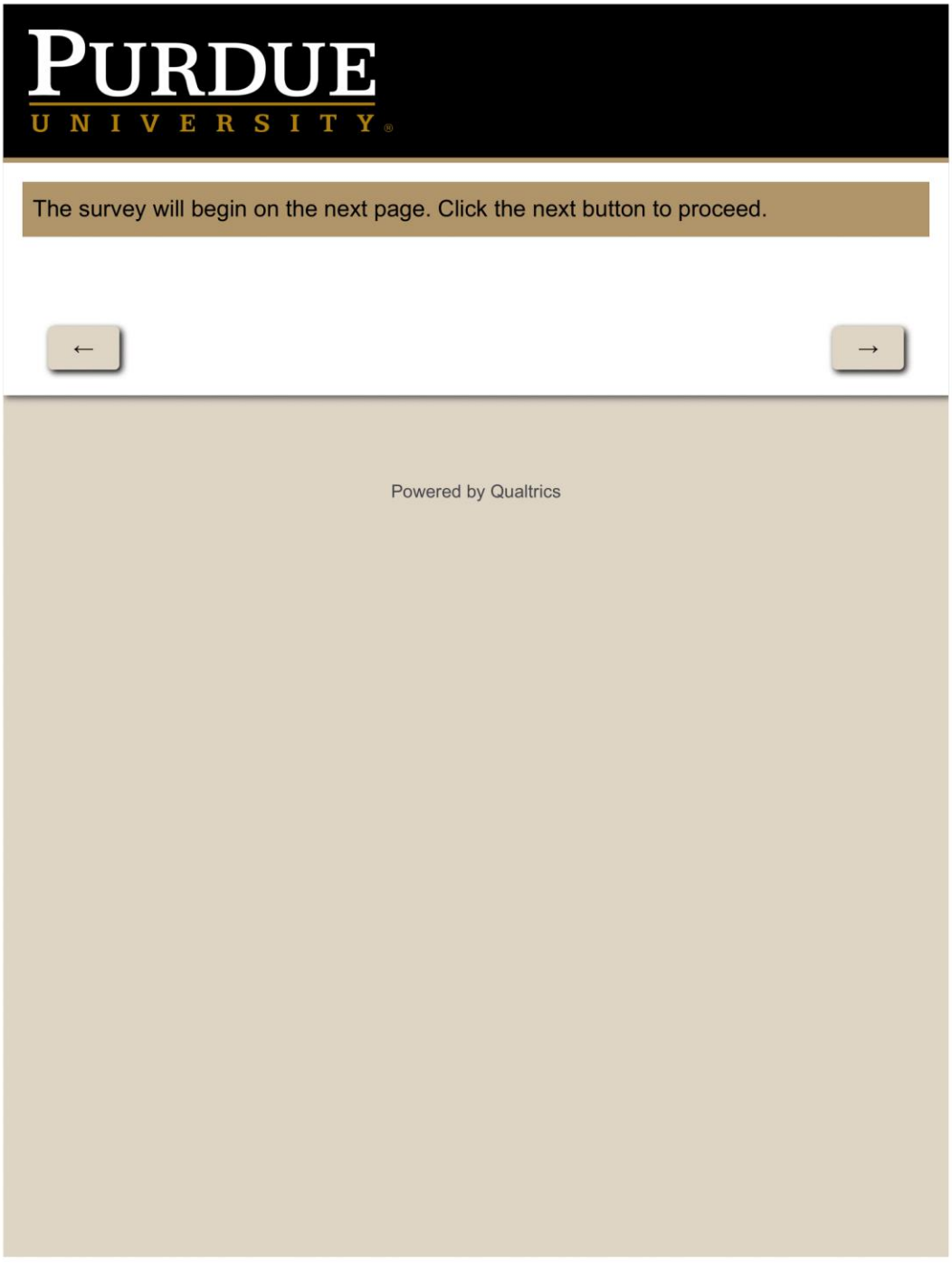
PURDUE
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The survey will begin on the next page. Click the next button to proceed.
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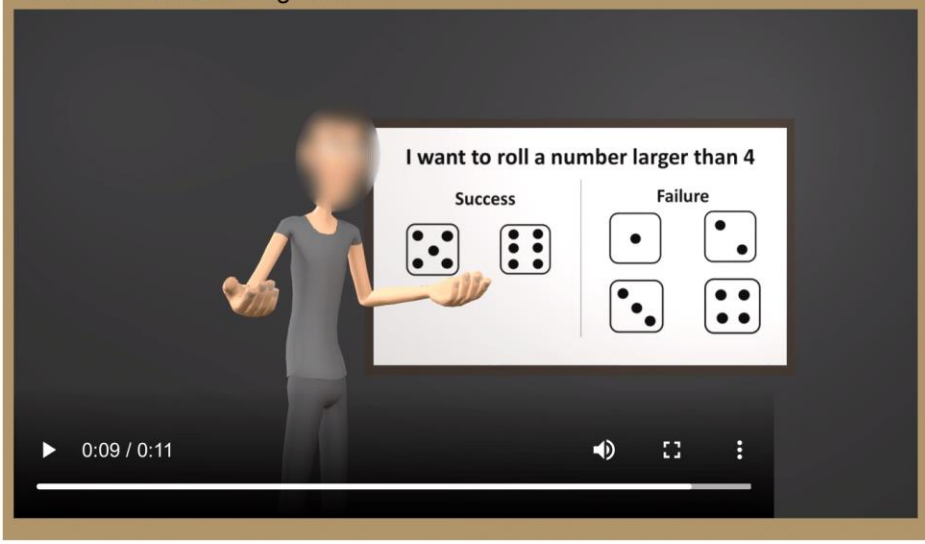
PURDUE UNIVERSITY

Please rate the following video:



Rate how **positive / negative** the agent looks

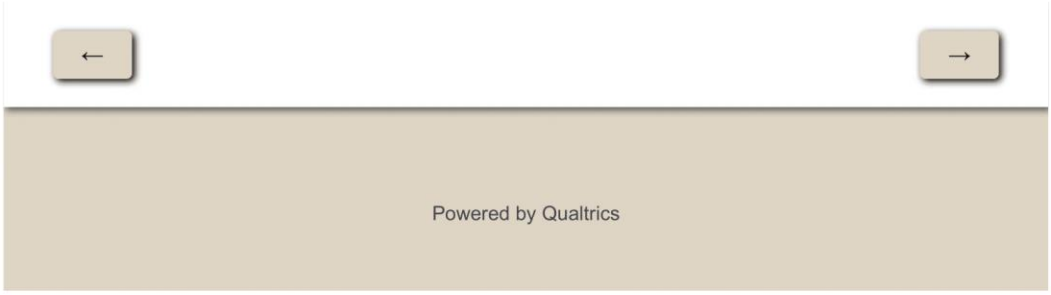
Negative			Neutral			Positive
10	20	30	40	50	60	70

Valence

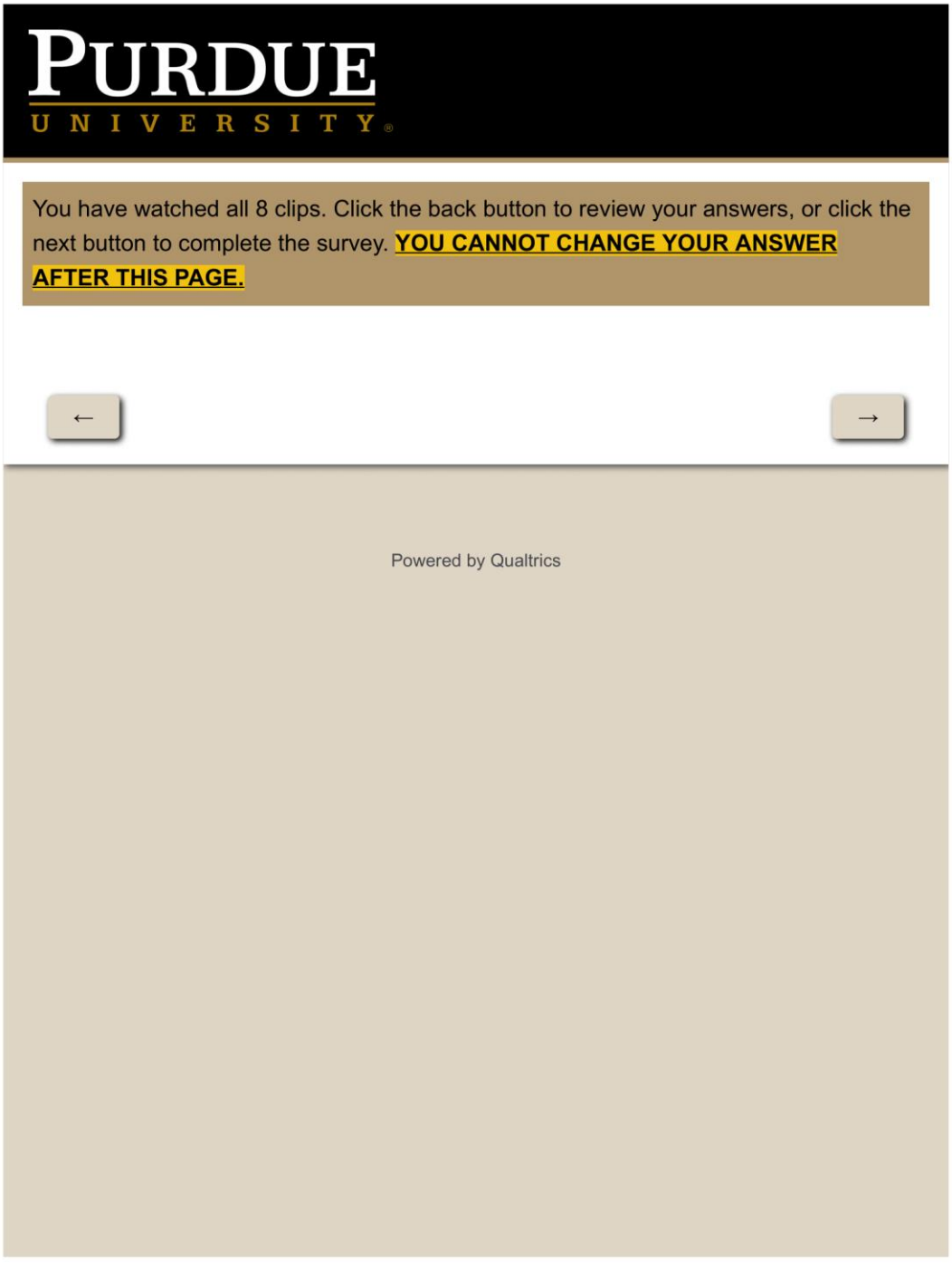
Rate how **active (engaged) / inactive (disengaged)** the agent looks

Inactive (disengaged)			Neutral			Active (engaged)
10	20	30	40	50	60	70

Arousal



This page was repeated for a total of eight times, with each page containing a different combination. The clips shown to viewers were shuffled.


PURDUE
UNIVERSITY
You have watched all 8 clips. Click the back button to review your answers, or click the next button to complete the survey. YOU CANNOT CHANGE YOUR ANSWER AFTER THIS PAGE.
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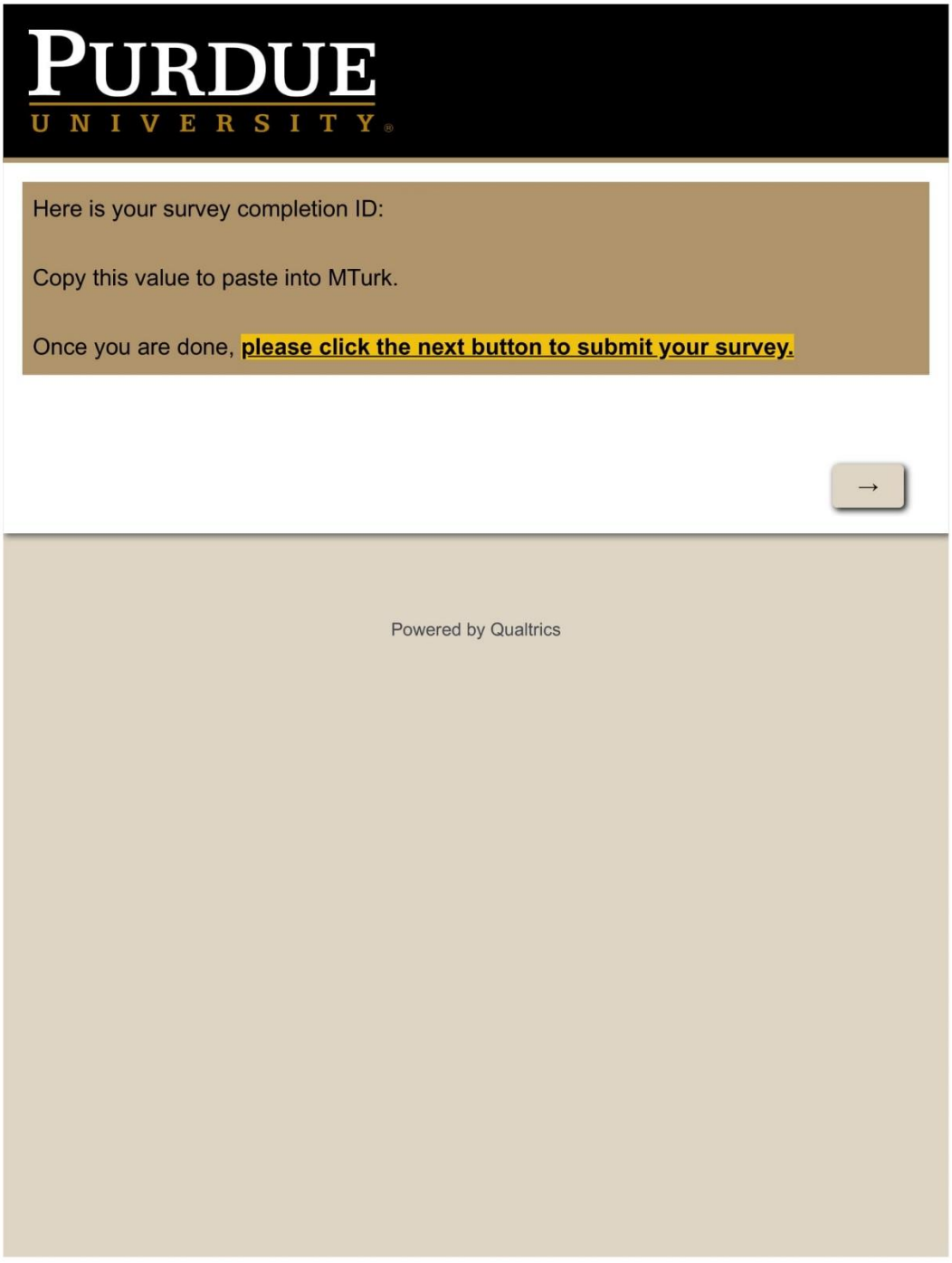
PURDUE
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Here is your survey completion ID:
Copy this value to paste into MTurk.
Once you are done, please click the next button to submit your survey.
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