Re-Examining the Kuleshov Effect

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The purpose of this study was to further explore the Kuleshov effect, originally examined by Soviet filmmaker Lev Kuleshov through a variety of editing experiments in the early 1920's. Concluding that audience members were likely to view a neutral-faced actor's emotions based on the stimuli he was associated with (e.g., a bowl of soup for hunger), this observation became universally accepted. Although the influence of the Kuleshov effect has been well documented in a variety of academic texts (and integrated into empirical research), the study itself has never been fully replicated in its original form. Expanding on the qualitative research of Prince & Hensley (1992), this study aimed to test the strength of Lev Kuleshov's initial experiment through adapted replication, as well as examine the influence gender differences within the target face (actor) may have on the participant's interpretation of facial emotional expression. Adapted replication consisted of utilizing updated video clips, including both male and female actors, and providing regulated questionnaires to all participants (rather than a freeform, post-experiment discussion). It was expected that the Kuleshov effect would be observed, and the gender of the actor would have no effect on the participants' responses. 150 undergraduate students from the University of Pittsburgh were included in this study, with each participant viewing (10) short clips and ranking the degree to which they believe the actor was expressing (8) different emotions (via a Likert-type scale). The results of this study showed the Kuleshov effect being observed in a more nuanced manner, with significant differences existing in specific emotion

conditions for the target face. Future research on this subject could feature the inclusion of different participant populations, incorporate neuroimaging techniques, or examine gender as a primary research question.

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PREFACE

First and foremost, I want to wholeheartedly thank my research mentor, advisor, and thesis committee chair Jeffrey Cohn, PhD. Without his continued help and support, I would not have been able to complete this project. Despite the reservations he must have had when I introduced myself and requested his help with completing a Bachelor of Philosophy project all in one meeting, Dr. Cohn agreed to assist me and has been an incredible example of a dedicated researcher, instructor, and mentor ever since. I would also like to thank my thesis committee members, Kasey Creswell, PhD, Dana Och, PhD, and William Hawthorne, PsyD, for providing continued support and extremely helpful suggestions throughout the duration of this process. I would like to especially acknowledge Dr. Och, who has been acting in a special capacity as a teacher, mentor, advisor, and friend since I began at the University of Pittsburgh four years ago.

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1.0 RE-EXAMINING THE KULESHOV EFFECT

1.1 HISTORICAL CONTEXT

A brief examination of nearly any introductory psychology or film studies textbook will yield information regarding the "Kuleshov effect"— the title given to observations Soviet filmmaker Lev Kuleshov made during his early editing experiments of the 1920's. Working with the famous silent-era actor Mosjoukine, Kuleshov addressed audiences' pre-conceived notions regarding emotion and facial expression by juxtaposing the neutral-faced Mosjoukine with a variety of dynamic images (a plate of soup, a young girl playing with a doll, a woman laid out in a coffin), then questioned audiences regarding what emotion they believed Mosjoukine exhibited. There has been some debate regarding Kuleshov using different versions of his experiment—one such variation may have included images of a woman reclining seductively on a settee, but the three previously stated stimulus have been considered 'core' and utilized when discussing the details of this experiment in academic text. The exact procedure of Kuleshov's experiment has gone largely un-questioned over time and is generally described via the following citation:

> "[Kuleshov] intercut a perfectly neutral close-up of an actor with a shot of a plate of soup; then the same close-up with a dead woman in a coffin; then with a little girl playing with a doll. Audiences raved about the actor's sensitive projection of hunger, grief, and

paternal joy, his subtle shifts of emotion depending on what he waslooking at. Kuleshov proved that the order of shots in a sequence influenced the perception and meaning of any given action." (Giannetti & Eyman, 90).

Kuleshov used this experiment to indicate the usefulness and effectiveness of film editing, as the audience reaction implies that that viewers bring their own emotional reactions to a sequence of images, then attribute those reactions to the actor, investing his neutral face with their own feelings (Kuleshov, 1974). Therefore, the Kuleshov Effect refers to the mental phenomenon by which viewers derive more meaning from the interaction of two sequential shots than from one single shot in isolation (Poland, 1986).

1.2 SOVIET MONTAGE THEORY

Though frequently cited as a basis for the Soviet Montage theory and numerous other film curriculums, Kuleshov's actual editing experiments are largely clouded in mystery and debate. Soviet Montage cinema emerged with strong popularity during the 1920's in Russia—featuring an approach to understanding and creating cinema that relies heavily upon editing, the experiments Kuleshov completed were integral to the development and success of this cinematic movement. Montage, the French term for 'assembly', was functionally utilized in popular Russian cinema by a variety of filmmakers—Sergei Eisenstein, Dziga Vertov, and Vsevolod Pudovkin all expanded on Kuleshov's film editing experiments, incorporating narrative and dramatic acting to create feature length films. While a variety of different forms of montage exist (metric, rhythmic, tonal, associational), intellectual montage is considered the best reflection of the Kuleshov effect being integrated into popular cinema (Joyce, 2003). Utilizing a variety of

shots that, when combined, are meant to convey an intellectual meaning to viewers, Sergei Eisenstein's 1925 Soviet film Stachka (Strike) features a well-known example of intellectual montage in play. During the last portion of the film, aptly entitled 'Extermination', shots of striking factory workers being violently murdered by soldiers are interspersed with shots of the slaughtering of a cow (Eisenstein, 1925). Although not explicitly stated, Eisenstein aimed to draw parallels between the violence and disregard for life occurring in both of these scenes, relying on the audience member's engagement and intellectual participation to make these implied connections.

1.3 LEGACY

Due to the strong political and social statements Soviet Montage cinema was conveying to Russian theatergoers, it came at no surprise that the film movement was heavily suppressed under Joseph Stalin in the 1930's. The original footage of Lev Kuleshov's experiments was destroyed during Stalin's purges, as the cinematic style of Soviet montage was not in line with the official Soviet artistic doctrine of 'Socialist Realism', and Stalin did not want Kuleshov's research to be used in the tutelage of future film students. While some static images have survived (and been restored with varying levels of success) the original dynamic footage Kuleshov created has never been recovered.

The famous American filmmaker Alfred Hitchcock developed a particular interest in Lev Kuleshov and his work, casually replicating some of his original experiments with still photographic images and subbing his own neutral face in for Mozhukin. Citing his film Rear

Window as heavily influenced by the Kuleshov effect, he further commented on one particular scene featuring James Stewart, stating—

> "In the same way, let's take a close-up of Stewart looking out of the window at a little dog that's being lowered in a basket. Back to Stewart, who has a kindly smile. But if in the place of the little dog you show a half-naked girl exercising in front of her open window, and you go back to a smiling Stewart again, this time he's seen as a dirty old man." (Truffaut, 159)

This example offers to illustrate a concrete instance of Kuleshov's findings influencing the development of film theory, as well as demonstrating the strong influence his work has had on several significant directors and filmmakers. Though not based in empirical research, the historical context and legacy of Kuleshov's experiments is important to comment on, as it assisted in bring widespread attention to the phenomenon that he researched and reported.

1.4 CURRENT RESEARCH

While there is no record of Lev Kuleshov's original experiment being fully replicated in any published psychological research, film scholars Prince & Hensley (1992) did simulate Kuleshov's most famous study, placing a large emphasis on more of the technical cinematic aspects (i.e.- lighting, acting, camera angle, etc.). Reporting their findings in qualitative measures and excluding a statistical analysis from their results, Prince & Hensley's conclusions drew attention to literary critic Norman Holland's assertion that the experiment has, "passed into the mythology of film" (Holland, 1992).. While criticism has frequently arisen that the findings from Kuleshov's editing experiments are only 'anecdotal' and outdated, the effect itself has been

widely accepted and integrated into a significant number of studies. A host of empirically supported research supports the influence manipulated emotional context scenarios may have on an individual's emotion perception. As examples, Wallbott (1988) found that contextual framing can lead individuals to infer neutral faces as being mistakenly 'happy' or 'sad, while' Carroll and Russell (1996) recorded the common perception of angry faces being viewed as fearful in different situations. Goldberg (1951) found that contextual framing encourages observers to view screams as joyful, based on manipulated associations and situations.

More recently, Mobbs et al. (2006) utilized the Kuleshov effect to examine the influence of contextual framing on emotional attributions. Using functional neuroimaging (fMRI), the researchers paired emotionally salient stimuli from the International Affective Picture System (Peter et al., 2008) with happy, neutral and fearful faces. Results showed that faces paired with emotional video clips enhanced responses in the bilateral temporal pole and other regions of the brain, offering a neurobiological basis for contextual framing effects on social attributions (95). These examples support the Kuleshov effect's assertion that manipulating context and images can alter an individual's perception of emotional expression.

1.5 EMOTIONAL CONTEXT EFFECTS

Addressing the subject of emotional context, this experiment will work to eliminate many of the overlooked context effects that can occur during emotion perception. Tracy & Robins (2008) comment on the well-accepted belief that there are six "basic" facial emotions that are automatically and universally 'recognized' by individuals, regardless of emotional framing and context. Having extensive practical applications (i.e.- training governmental officials to 'read'

emotions, national security, law enforcement) a significant amount of time and money is regularly invested into researching emotional expressions and interpretations.

Barrett, Mesquita, & Gendron (2011) reviewed work that illustrates various context effects which can occur during emotion perception. They primarily focus on three types of context effects: (1) stimulus-based context, where a face is physically presented with other sensory input that has information value (i.e.- a an angry face being paired with a dark environment and aggressive music); (2) perceiver-based context, situations where processes within the perceiver's brain or body may shape emotion perception (i.e.- if a perceiver is experiencing sadness and thus projects this personal emotion onto a non-related face); and (3) cultural context, where the cultural or social environment affects either the encoding or understanding of facial actions (i.e.- an angry female face being perceived differently based on the cultural environment it's viewed within) (286). For the purposes of this experiment, perceiver-based context effect is likely to be exhibited by participants, as the implication of the Kuleshov effect is that participants bring their own emotional reactions to a sequence of images, and then attribute those reactions to the actor. Thus, a neutral-faced actor is frequently perceived as happy when paired with an emotionally salient image exhibiting enjoyment—the context creates meaning.

Barrett, Lindquist, & Gendron (2007) introduce the idea that when perceivers view emotion in a face, the experience can often make those individuals feel as if they are actually reading words on a page. Words provide a top-down effect when studying emotion perception, as individuals are generally comfortable with utilizing language, and words provide information that extends over and above the structural information that is visually available on a face. The researchers argue that words produce a strong example of perceiver-based context, as they assist

observers in gathering both a larger quantity and better quality of information on the subject in their visual field.

Studies have shown that individuals have a significantly easier time correctly identifying emotion when provided with word 'options' to choose from. Izard (1971) reported that when perceivers were asked to spontaneously provide verbal descriptions for facial expressions, [their] accuracy was reduced to 57.7%. However, when perceivers were provided with a 'word bank' of emotion words to choose from, their accuracy in correctly identifying emotions was raised to 83.4%. Russell (1994) described this same effect in terms of a forced-choice response format, while exacting a massive literature review relating to universal facial recognition across studies. Since this study is specifically interested in the interpretation of a neutral emotion face in regards to various dynamic stimuli, a forced-choice response Likert scale was utilized to allow participants the option of selecting 'neutral' when recording their opinions on the degree of emotion the actor is exhibiting (Parasuraman, Grewal, & Krishnan, 2004).

1.6 STATIC VERSUS DYNAMIC

When Lev Kuleshov developed his original experiment, it is believe that he utilized less than 90 meters of negative film stock to capture the images of his target face (Mosjoukine) and edit together the various clips. Due to the destruction and loss of most of the original material, only static images now remain of the actor and the stimulus images (see Figure 1.) In an article highlighting the limitations that exist when studying Soviet Montage cinema, Khokhlova (1996) proposes focusing less attention on Kuleshov's canonical experiment involving Mosjoukine, arguing that as no documentary evidence exists it cannot be utilized as a reputable example.

Thompson (1996) also points out that the film stock from many of Kuleshov's other editing experiments has deteriorated to the point of only providing static imagery as well, negating the original purpose. A recovered proposal was addressed to the Photo-Kino section of the Regional Centre of Political Education, written by Lev Kuleshov himself in 1921, and outlines six different editing experiments he had intentions to develop. In this request for supplies from the government, Kulehov states the importance of receiving this film stock, claiming "All the experiments will be edited so as to match the final position of the main movement in an earlier shot with the beginning of the main movement in a later shot" (134). This statement illustrates the emphasis Kuleshov placed on continuity and believability in relation to expression of emotion. It appears that Kuleshov believed in utilizing dynamic images for his audience to observe—he claims that this created a significantly different effect than static photographs of the actor Mosjoukine and emotion stimulus would, justifying the request for a greater quantity of film stock.

A host of empirical research has been published regarding the effectiveness and differences between dynamic and static imagery. Atkinson, Dittrich, Gemmell, & Young (2004) examined the differences in emotion perception between dynamic and static body expressions in various lighting displays. Utilizing forced-choice identification of emotions, their results showed that participants were far more accurate at perceiving the correctly leveled emotions of anger, disgust, fear, happiness, and sadness in the dynamic condition than in the static conditions. Similarly, Biele & Grabowska (2006) compared sex differences in the perception of emotion intensity in dynamic and static images. The researchers found that both men and women were able to correctly identify emotion intensity more accurately when provided dynamic imagery (compared to static). Biele and Grabowska address the fact that most research on the perception

of emotional expressions is conducted using static faces as stimuli, but strongly argue that emotional displays of affection are highly dynamic and static photographs are unnatural and inaccurate representations (1).

Ambadar, Cohn, & Reed (2009) observed that participant's correct identification of smiles perceived as amused, polite, and embarrassed/nervous were heavily influenced by dynamic characteristics. Rubenstein (2005) and Kamachi et al. (2001) also examined the differences between dynamic and static imagery. They both found increased accuracy in participants that were exposed to dynamic imagery. While the Kuleshov effect has frequently been incorporated into psychological research through the use of static imagery, based on the research findings discussed above and stemming from a desire to replicate Lev Kuleshov's original experiment as accurately as possible, this study will utilize dynamic video clips as the stimuli associated with each target face.

1.7 HYPOTHESES

Although the influence of the Kuleshov effect has been well documented in a variety of empirically supported experiments, this study aims to test the strength of Lev Kuleshov's initial experiment through adapted replication, as well as examine the influence gender differences within the target face (actor) may have on subject's interpretation of facial emotional expression. Adapted replication consists of utilizing updated video clips, including both male/female actors, and providing regulated questionnaires to all participants (rather than a freeform, post-experiment discussion).

Specifically, I will test two main hypotheses and 5 sub hypotheses:

H1) The Kuleshov effect will be observed, as individuals will be likely to identify the emotion of the actor's facial expression with the associated stimuli image. For each stimulus-actor pairing I predict that the corresponding emotion will be rated greater than neutral (and the other emotions), with the exception of a neutral stimulus-actor pairing, where the rated responses will show no significant difference.

H-1.1) The stimulus-actor pairing of enjoyment will yield the highest response from enjoyment.

H-1.2) The stimulus-actor pairing of sadness will yield the highest response from sadness.

H1.3) The stimulus-actor pairing of neutral will yield an equal rating response to neutral.

H-1.4) The stimulus-actor pairing of aggression will yield the highest response from aggression.

H-1.5) The stimulus-actor pairing of sexual arousal will yield the highest response from sexual arousal.

H2) A significant gender difference in the emotion responses reported for the male and female actors will not be reported. These effects will be robust to the sex of the actor. No effect for sex of actor will be found.

1.8 PILOT STUDY

To ensure that the stimulus clips convey the intended emotion, a short pilot study was performed. A total of 27 college students ranging from 18-23 years of age (13 males, 14 females) in a mid-

level film studies course viewed eighteen 3-second clips featuring dynamic imagery intended to 'pull' for certain emotional responses (see Tables 1 and 2). After viewing each clip, the students used a Likert-type scale ranging from 1 (very little or not at all) to 5 (extremely) to identify the degree to which they felt that clip expressed the associated emotion. To ensure maximum potency during experimental procedures, more stimuli than needed were piloted during this mini-study (particularly relating to neutral stimulus clips, which are used as both a target-stimulus and to act as a 'palette cleanser' between each pairing during the experimental trials). Therefore, all participants in the pilot study viewed a total of 18 3-second clips, with the expectation that 10 would be selected for use in the experimental trials.

Once all students' rankings were collected, the mean responses for each clip were calculated (based on the 27 participant responses) and the stimulus clips that received the highest rankings are included in actual experimentation (see results in Table 3). A significant variation was viewed in the degree to which participants in the pilot study appeared to believe certain clips expressed related emotions, in comparison to others that were 'pulling' for the same emotion. The highest ranked neutral clips depicted a kitchen cabinet door opening, a hand plugging a charger into an outlet, a panned image of an open field, a man tying his shoe, a hand watering a plant, and cars driving on a road. Participants ranked the enjoyment clip that depicted a dog panting and wagging its' tail highest, the sadness clip showing a woman crying with her head in her hands highest, the aggression clip that illustrated a hand banging down a pot and quickly grabbing for a knife highest, and the sexual arousal clip featuring a zoom-in shot on condoms scattered on a table. As previously described, it was integral to the study that dynamic images be utilized (versus static). Therefore, some form of motion (either narratively or via camera movement) was integrated and present in each clip.

1.9 RESEARCH AIMS

Keeping with Prince & Hensley's (1992) procedural introduction and instructions, participants were informed that their help was needed in evaluating and identifying the emotions an actor was expressing in several video clips (edited in what we believe to be identical fashion to Lev Kuleshov's initial experiments), and asked (via questionnaire), "Please circle the number that represents the degree to which you believe the actor is expressing each of the following emotions, in response to the clip you just viewed". In the hopes of 'updating' the imagery used in the Kuleshov effect and making the experiment both believable and relatable to participants, neither the NimStim set of facial expressions (Tottenham et al., 2009) or the International Affective Picture System (Lang et al., 2008) were utilized. Instead, participants in every trial were shown ten unique clips, each featuring a dynamic stimulus-actor pairing independently created by the researcher. A Canon EOS Rebel T5 DSLR Camera was used to film each of the video clips, and editing occurred via iMovie 10.0.6, Apple Inc. Each stimulus clip was 5-seconds in duration and each actor clip was 2-seconds in duration (resulting in each pairing being viewed by participants for 7 seconds).

1.9.1 Stimulus-Actor Pairings

Incorporating the various elements of re-examining of the Kuleshov effect resulted in four primary trial groupings that participants were placed in, each following identical experimental procedures, but featuring two different male and two different female actors as part of the stimulus-actor pairing (see Table 4). Each of the 4 actors featured in this experiment were 21 years of age and recruited from the Kenneth P. Dietrich School of Arts and Sciences at the

University of Pittsburgh. Each actor was filmed from the shoulders up, sitting in front of a beige wall (in uniform lighting), exhibiting a neutral face. Each video clip of the actor used during experimental trials featured a blink of the eyes, to keep with the requirement of utilizing dynamic imagery. Both male and female actors wore non-distracting, neutral clothing— female actors wore their hair straight down without accessories, and featured make-up free faces.

1.9.2 Research Execution

Participants in each trial group were provided a questionnaire asking them to rank the degree to which they felt the actor expressed each of 8 emotion words, utilizing a 5-point Likert-type scale ranging from 1 to 5; 1 (very little or not at all), 2 (a little), 3 (moderately), 4 (quite a bit), and 5 (extremely). These emotions were selected from a large body of research that suggests that each of the 'basic' emotions are associated with distinct, cross-culturally recognized and accepted, nonverbal expressions (Ekman, 2003; Izard, 1971; Haidt & Keltner, 1999; Tracy & Robins, 2007). The emotion of 'aggression' was included for the purposes of this experiment, as it was selected for examination via the addition of gender differences between the actor-stimulus pairings. As previously stated, participants in each of the four trial groups viewed a total of ten dynamic clips, shown in succession. While only 5 of these clips featured stimulus-actor pairings that pulled for a specific emotion being examined in this study (clips 1, 3. 5, 7. 9), each stimulus-actor pairing was immediately followed by a neutral 'palette cleanser' clip meant to control for any cross-over effects from one stimulus clip to another (see Table 5). The order of emotions was initially randomized, and then made identical for each of the four trials, with the exception of the stimulus clip that pulled for sexual arousal (which was controlled to not be placed near aggression, so as not to illicit a correlation between the dynamic imagery used for these two

emotions). Therefore, the experimental structure for each trial adhered to the following method (noting that the order of actor-stimulus emotion pairings below are simply an example of one possible randomized arrangement):

- Stimulus N1 _ Actor # _ then do ranking
- Stimulus 0 (enjoyment) _ Actor # _ then do ranking
- Stimulus N2 _ Actor # _ then do ranking
- Stimulus 1 (sadness) _ Actor # _then do ranking
- Stimulus N3 _ Actor # _ then do ranking
- Stimulus 2 (neutral) _ Actor # _ then do ranking
- Stimulus N4 _ Actor # _ then do ranking
- Stimulus 3 (sexuality) _ Actor # _ then do ranking
- Stimulus N5 _ Actor # _ then do ranking
- Stimulus 4 (enjoyment) _ Actor # _ then do ranking

At the conclusion of this study, participants' response questionnaires were collected and a short demographic form was then distributed to each subject. These forms were anonymous and subjects were asked their gender, age, academic major, ethnicity, and if they were familiar with the Kuleshov effect or had any suspicions/ideas to what the experiment was about. While a conscious effort was made to exclude film students (who may have previous knowledge of the Soviet Montage film theory) and psychology majors, the inclusion of this question on the demographic form allowed researchers to gauge the prior knowledge of the subject participants may have possessed prior to participating in this experiment.

2.0 METHODS

2.1 PARTICIPANTS

A total of one hundred and twenty three Kenneth P. Dietrich School of Arts and Sciences undergraduate students were recruited from four difference academic classrooms on the University of Pittsburgh's campus for participation in experimental procedures. An email message providing introductory and contact information was distributed to several professors, who then allowed the researcher to show the stimulus-actor clips previously described to their class during the first fifteen to twenty minutes of the course's regular meeting time. A conscious effort was made to represent different academic departments and classes, as well as to exclude film and psychology majors (since there is a strong probability they may have had previous academic knowledge of the Kuleshov effect). The four classes at the University of Pittsburgh included in this study were:

- ENGFLM 0400: Introduction To Film
- ENGLIT 0550: Introduction To Popular Culture
- ENGFLM 0400: Introduction To Film
- ENGLIT 0399: Narrative and Technology

Each of the four participant trial groups followed identical experimental procedures—they received instructions, viewed all of the clips, and ranked each stimulus-actor pair on a

Likert-type scale from 1 to 5, in a classroom environment. While there were some variations in the number of students present in these classes, it was decided that a minimum of 25 participants must be present in each trial for the experiment to continue. Professors and academic faculty were not included in the study.

2.2 DESIGN

This study had a between-subjects design. It was necessary that each trial group have a minimum of 25 participants and maximum of 40 participants present and follow identical experimental procedures (relating to verbally conveyed instructions, questionnaire completion, and demographic forms), while viewing one of four different stimulus-actor pairing clips (from the choices of Actor 1 _ Female, Actor 2 _ Female, Actor 3 _ Male, Actor 4 _ Male). The stimulus-actor pairings remained the same within each experimental trial, but varied from trial to trial.

2.3 MATERIALS

Materials consisted of emotion identification instructions, questionnaires with eight emotion words to rank and a provided Likert-type scale, a demographics form, and an emotion perception task. The instructions, questionnaire, and demographic form were all distributed in a paper-based format, while the emotion perception task was viewed via QuickTime X 10.4 player on a laptop computer (projected in the classroom setting).

2.4 STIMULI

The concept for the stimuli video clips in this experiment was adapted from Prince and Hensley's (1992) study, while the design and content of each clip was independently originated by the experimenter. General knowledge of what qualifies as emotionally salient neutral imagery was pulled from Vrana (1994) and Marks & Hudson (1973). As the researcher's experimental plan included updating and expanding on the three core stimuli (which were utilized in Lev Kuleshov's original Mosjoukine experiment of the early 1920's), a total of ten new stimuli video clips were utilized in this experiment.

3.0 RESULTS

3.1 SAMPLE SELECTION

Including the pilot study and experimental trials, a total of one hundred and fifty participants were recruited as part of this study. Of the once hundred and twenty-three participants who provided rankings during the experimental trials, 47.4% identified as female and 52.6% identified as male. The age of participants ranged from eighteen to twenty-four, with twenty-one identified as the mean. A total of twenty-three participants were removed from data analysis, as their responses to the demographic form indicated they had a prior knowledge of the Kuleshov effect. As the size and attendance of each classroom where the research procedure was completed varied, the sample size for each trial lies within a range from twenty-six to thirty-five participants, specifically:

- Trial 1 (n = 31)
- Trial 2 (n = 35)
- Trial 3 (n = 26)
- Trial 4 (n = 31)

While Trial 1 & Trial 2 featured a female actor in the stimulus-actor pairings and Trial 3 & Trial 4 featured a male actor in the stimulus-actor pairings, there were no other differences relating to the research protocol or questionnaire procedure between trials. 53.7% of the total

number of participants were placed in Trials 1 & 2 and viewed the female actor (n=66), while 46.3% of the total number of participants were placed in Trials 3 & 4 and viewed the male actor (n=57) (See Table 6).

3.2 DATA ANALYSIS

All data were entered, verified and analyzed with SPSS version 22 (IBM Corp., Armonk, NY). Descriptive statistics were completed to obtain the mean, standard deviation, and standard error for each of the eight emotions ranked on a Likert-type scale in all four trials. To effectively test the hypothesis, an internal validity check was performed and all data sets were found to be complete and sound.

In order to test the primary experimental question, this study utilized t-tests to examine if the specific emotion conveyed in each stimulus-actor pairing was, in fact, ranked highest. It was expected that the Kuleshov effect would be observed and, therefore, for each stimulus-actor pairing the corresponding emotion would be ranked greater than all the other emotions, with the exception of a neutral stimulus-actor pairing where the rated response should show no significant difference. Through examining the results of the completed t-tests, a fairly consistent pattern could be observed throughout the data.

3.2.1 Enjoyment

H-1.1 suggested that the stimulus-actor pairing of enjoyment would yield the highest response from enjoyment, meaning that participants would rank the neutral-faced actor as expressing the

emotion of enjoyment to a higher degree than the emotions of sadness, aggression, neutrality, and sexual arousal. Table 7 shows the paired samples descriptive statistics comparing the mean responses for enjoyment to those of the other four emotions, while the t-test results examining the difference in means are shown in Table 8. The ranking of neutrality had significantly higher mean scores (3.76) then the other emotions, while enjoyment received the second-highest mean score (1.80). The results of a paired samples test examining the correlational relationships between rankings of emotion are displayed in Table 9. Enjoyment was correlated with neutrality and aggression—participants who ranked the neutral faced actor as expressing a high degree of enjoyment (while viewing the stimulus-actor pairing clip associated with enjoyment) provided a significantly lower ranking for neutrality and aggression.

3.2.2 Sadness

H-1.2 suggested that the stimulus-actor pairing of sadness would yield the highest response from sadness, meaning that participants would rank the neutral-faced actor as expressing the emotion of sadness to a higher degree than the emotions of enjoyment, aggression, neutrality, and sexual arousal. Table 10 shows the paired samples descriptive statistics comparing the mean responses for sadness to those of the other four emotions, while the t-test results examining the difference in means are shown in Table 11. Similar to the results examining enjoyment, the ranking of neutrality had significantly higher mean scores (3.71) then the other emotions, while sadness received the second-highest mean score (1.97). The results of a paired samples test examining the correlational relationships between rankings of emotion are displayed in Table 12. Sadness was correlated with the emotions of neutrality and aggression—participants who ranked the neutral faced actor as expressing a high degree of sadness (while viewing the stimulus-actor

pairing clip associated with sadness) provided a significantly lower ranking for neutrality and aggression.

3.2.3 Neutral

H-1.3 suggested that the stimulus-actor pairing of neutral would yield an equal rating response to neutral, meaning that participants would rank the neutral-faced actor as expressing neutrality to a higher degree than the emotions of enjoyment, aggression, sadness, and sexual arousal. Table 13 shows the paired samples descriptive statistics comparing the mean responses for neutrality to those of the other four emotions, while the t-test results examining the difference in means are shown in Table 14. Slightly differing from the results examining enjoyment and sadness, the ranking of neutrality had considerable higher mean scores (4.1) then the other emotions, none of which received an average ranking of above 1.81 (the mean ranking for sadness). The results of a paired samples test examining the correlational relationships between the rankings of emotion are displayed in Table 15. Neutrality was correlated with all of the emotions, and most strongly with sadness—participants who ranked the neutral faced actor as expressing a high degree of neutrality (while viewing the stimulus-actor pairing clip associated with neutrality) provided a significantly lower ranking for sexual arousal, enjoyment, aggression, and sadness.

3.2.4 Aggression

H-1.4 suggested that the stimulus-actor pairing of aggression would yield the highest response from aggression, meaning that participants would rank the neutral-faced actor as expressing the emotion of aggression to a higher degree than the emotions of enjoyment, sadness, neutrality,

and sexual arousal. Table 16 shows the paired samples descriptive statistics comparing the mean responses for aggression to those of the other four emotions, while the t-test results examining the difference in mean scores are shown in Table 17. Similar to the results examining enjoyment, the ranking of neutrality had significantly higher mean scores (3.71) then the other emotions, while sadness received the second-highest mean score (1.97). The results of a paired samples test examining the correlational relationships between rankings of emotion are displayed in Table 18. Aggression was correlated with the emotions of enjoyment and neutrality—participants who ranked the neutral faced actor as expressing a high degree of aggression (while viewing the stimulus-actor pairing clip associated with aggression) provided a significantly lower ranking for enjoyment and neutrality.

3.2.5 Sexual Arousal

H-1.5 suggested that the stimulus-actor pairing of sexual arousal would yield the highest response from sexual arousal, meaning that participants would rank the neutral-faced actor as expressing the emotion of sexual arousal to a higher degree than the emotions of enjoyment, sadness, neutrality, and aggression. Table 19 shows the paired samples descriptive statistics comparing the mean responses for sexual arousal to those of the other four emotions, while the t-test results examining the difference in means are shown in Table 20. Similar to the results for enjoyment and sadness, the ranking of neutrality had a higher mean score (3.83) than the other emotions, while sexual arousal received the second highest mean score (1.41). The results of a paired samples test examining the correlational relationships between rankings of emotion are displayed in Table 21. Sexual arousal was strongly correlated with every emotion—participants who ranked the neutral faced actor as expressing a high degree of sexual arousal (while viewing

the stimulus-actor pairing associated with sexual arousal) provided a significantly lower ranking for enjoyment, neutrality, aggression, and sadness.

3.2.6 Gender

Part of the experimental design of this study included 'adapted replication' of the original procedural protocol utilized in Lev Kuleshov's 1920's editing experiment. Examining if gender differences within the target face (actor) may influence a subject's interpretation of facial emotional expression was the second central research question explored through this experiment. It was hypothesized that a significant gender difference in the emotion responses reported for the male and female actors would not be observed—the gender of the actor was not predicted to influence the degree to which participants interpreted the emotions they were perceived as conveying.

To examine if the responses differed by source, based on if the actor's face was male or female, the responses from Trials 1 and 2 were grouped together (as both featured female faces in the actor-stimulus clip pairings) and responses from Trials 3 and 4 were grouped together (as both featured male faces in the actor-stimulus clip pairings). Descriptive statistics of the mean and standard deviations were reported, and a t-test was completed (see Table 22). Standard deviations ranged from 0.7747 to 1.3632 and a variance in the means could be observed, with the largest difference existing between the female and male rankings for aggression (1.621 for female actor, 2.298 for male actor) and the rankings for enjoyment (1.53 for female actor, 2.122 for male actor). With $p<.05$, it was found that a multivariate effect existed for enjoyment ($p=.002$) and aggression ($p=.004$). When examining gender differences relating to associated rankings for sexual arousal, sadness, and neutrality, a multivariate effect was not found.

4.0 DISCUSSION

4.1 KULESHOV EFFECT AND GENDER

The aims of this study were two-fold: 1) Test the strength of Lev Kuleshov's original experiment through replication, specifically examining if context can create meaning when asking participants to describe the emotion expression of a neutral-faced 'actor' grouped with an emotionally charged video clip, and 2) Examine the influence gender differences may have on participant's interpretation of facial emotional expression when then stimulus images remain identical, but the gender of the neutral-faced 'actor' varies. After closely analyzing the data, it appears that, in general, the hypothesis was confirmed. An exception exists in that participants appeared aware of the non-changing emotional expression the actor was conveying, evidenced by the 'neutral' ranking being the consistently highest ranked emotion in response to each actor-stimulus pairing clip. But the emotion that was being pulled for in each clip was also consistently ranked second to neutral, and significantly higher than the alternatives. For example, after viewing the stimulus-actor pairing clip pulling for enjoyment, most participants ranked the neutral-faced actor as expressing a high level of neutrality on his/her face. However, the second highest-ranked emotion participants felt the actor exhibited was enjoyment, significantly higher than sadness, neutrality, aggression, and sexual arousal. This same pattern can be seen when examining each clip, making the observed effect more nuanced.

The hypothesis that a significant gender difference in the emotion responses reported for the male and female actors would not be reported was, in part, proven wrong. While the gender of the actor was not predicted to influence the degree to which participants interpreted the emotion they were conveying, participants did convey differences in their rankings based on the gender of the neutral-faced actor they observed. Participants in this experiment were significantly more likely to rank male actors as exhibiting aggression and enjoyment in response to the associated clips, in comparison to the female actors who received significantly lower rankings for these two emotions. One possible explanation for this unanticipated variance in response is the 'gender-trait view', used to explain the societal stereotypes that generally portray men as more aggressive and defensive, and women as more compassionate and caring (Huddy and Terkildsen, 1993). It is possible that participants were more likely to associate a male with expressing aggression than a female, further supporting the idea of gender-trait stereotypes still being present today.

4.2 LIMITATIONS

As in all research, the current study did have limitations. The classroom environment was not ideal for participants to view the video clips in, as some variation with lighting and vantage point may have created discrepancies from trial to trial (and in each participant's experience). Additionally, the presence of numerous other participants may have biased or in some way altered some participant's responses—ideally, running through the experimental procedure in a quiet environment with one individual at a time would have been preferable. While gender differences relating to emotion rankings based on the gender of the neutral-faced actor were

reported on, it was not possible to calculate if the responses between male and female participants varied. If corrected, this critical inclusion would provide information on whether or not participant's gender plays a role in both the observance of the Kuleshov effect, and the potential influence an actor's gender may have.

4.3 FUTURE DIRECTIONS

The results of this study suggest that further investigation into the Kuleshov effect and the influence context has when altering the meaning of imagery would be a worthy experimental investment. Utilizing neuroimaging techniques to elaborate on the neurobiological basis for contextual framing effects on social attributions, similar to those posited by Mobbs et al. (2006), could be worth exploring, as decision-making during fMRI tasks would show activations in different regions of the brain (a resource limited to research studies that utilize neuroimaging resources). Incorporating more trials and a large quantity of emotionally salient clips would increase the collected data, allowing for more nuanced correlations to be observed and a larger body of results to be analyzed.

Another potential avenue of research could involve utilizing a well-known artist to serve as the neutral-faced 'actor' shown to participants throughout the study. In Kuleshov's original editing experiments, he featured the face of Ivan Mosjoukine (a very popular Tsarist actor) in the clips he showed to participants. Including an individual widely identified as an actor is thought to assist participants in the rationale of visualizing the neutral-faced actor's emotions as being varied. Lastly, examining gender as a primary research question (after observing the significant

difference that existed in rankings between the male and female actor's rankings for enjoyment and aggression) could yield some interesting results.

APPENDIX A

TABLES

Table 1. Emotionally Salient Pilot Study Clips

Four selected stimulus emotions provided to pilot study participants and rated on a Likert-type scale from 1 to 5, following the viewing of each respective clip. The stimulus clip that received the higher ranking (for each separate emotion) was selected for utilization during experimental procedures.

Emotion:	Clip 1:	Clip 2:
Enjoyment	Dog panting and wagging its' tail	Filling a jar full of candy and cookies
Sadness	Woman crying with her head in hands	Panned image of a graveyard
Aggression	Hand banging down a pot and grabbing a knife	A man angrily throwing a box against a wall
Sexual Arousal	A tousled bed with scattered undergarments	Zoom in on a box of condoms on a table

Table 2. Neutral Emotion Pilot Study Clips

Ten selected clips associated with the neutral stimulus emotion provided to pilot study participants and rated on a Likert-type scale from 1 to 5 following the viewing of each respective clip. The 6 neutral stimulus clips that received the highest rankings were selected for utilization during experimental procedures.

Emotion:	Clip #:
Neutral_1	A kitchen cabinet door opening
Neutral_2	A hand plugging a charger into an outlet
Neutral_3	Panned image of an open field
Neutral_4	A man tying his shoe
Neutral_5	A hand writing on a piece of paper
Neutral_6	Hands playing the piano
Neutral_7	A candle being lit
Neutral_8	Hand watering a plant
Neutral_9	Cars driving up a road
Neutral_10	A hand placing a picture frame on a table

Table 3. Mean Rankings for all Pilot Study Stimulus Clips

Column 1 shows a brief description of the clip and associated emotion (N = neutral, A = aggression, E = enjoyment, SA = sexual arousal, S = sadness), while Column 2 shows the mean ranking that each clip received. The inclusion of a double asterisk (**) indicates that clip was selected for use in the experimental trials.

Clip Description	Mean Ranking (n=27)
**N_1 (cabinet door)	3.85
**N_2 (charger in outlet)	3.96
**A_1 (hand with knife)	4.63
**N_3 (open field)	3.88
**E_1 (dog wagging tail)	4.77
SA_1 (bra and underwear)	2.22
N_6 (hands playing piano)	3.37
**N_4 (tying shoe)	4.29
**S_1 (woman crying)	3.96
E_2 (candy in jar)	2.51
N_5 (writing on paper)	3.48
**SA_2 (zoom in on condoms)	2.88
N_7 (candle being lit)	3.14
**N_8 (watering a plant)	3.66
**N_9 (cars on road)	4.11
A_2 (throwing box)	4.62
N_10 (frame on table)	3.12
S_2 (pan of cemetery)	3.61

Table 4. Experimental Trials with Gender of the Stimulus-Actor Pairing

Column 1 lists the four experimental trials, while column 2 details the gender of the actor depicted in the stimulus-actor pairing clip shown to participants

Trial	Actor
1	Actor 1 _ Female
2	Actor 2 _ Female
3	Actor 3 _ Male
4	Actor 4 _ Male

Table 5. Eight Selected Emotion Words

Eight selected emotion words provided to participants and rated on a Likert-type scale from 1 to 5, following the viewing of each respective clip. Underlined emotions were associated with an emotionally salient stimulus featured in one of the ten clips viewed by participants (five of which were neutral ‘palette cleansers’).

(1) Enjoyment
(2) Sadness
(3) Neutral
(4) Aggression
(5) Anger
(6) Fear
(7) Disgust
(8) Sexual Arousal

Table 6. Frequency, Percentage, and Cumulative Number of Participants

Considering Trial 1 + Trial 2 as ‘female’ and Trial 3 + Trial 4 as ‘male’, the frequency, percentage, and cumulative number of participants who viewed a male or female actor is depicted.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	66	53.7	53.7	53.7
	Male	57	46.3	46.3	100.0
	Total	123	100.0	100.0	

Table 7. Paired Samples Descriptive Statistics for 'Enjoyment'

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Enjoyment	1.80	123	1.053	.095
	Sexual Arousal	1.07	123	.515	.046
Pair 2	Enjoyment	1.80	123	1.053	.095
	Sadness	1.24	123	.591	.053
Pair 3	Enjoyment	1.80	123	1.053	.095
	Neutral	3.76	123	1.325	.119
Pair 4	Enjoyment	1.80	123	1.053	.095
	Aggression	1.10	123	.349	.031

Table 8. Independent Samples t-test for ‘Enjoyment’

		Levene's Test for Equality of Variances		t-test for Equality of Means			
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference
Enjoyment	Equal variances assumed	13.460	.000	-3.229	121	.002	-.593
	Equal variances not assumed			-3.153	99.683	.002	-.593

Table 9. Paired Samples Correlation for ‘Enjoyment’

		N	Correlation	Sig.
Pair 1	Enjoyment & Sexual Arousal	123	.027	.771
Pair 2	Enjoyment & Sadness	123	-.068	.457
Pair 3	Enjoyment & Neutral	123	-.362	.000
Pair 4	Enjoyment & Aggression	123	.231	.010

Table 10. Paired Samples Descriptive Statistics for ‘Sadness’

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Sadness	1.97	123	1.071	.097
	Sexual Arousal	1.07	123	.465	.042
Pair 2	Sadness	1.97	123	1.071	.097
	Enjoyment	1.07	123	.388	.035
Pair 3	Sadness	1.97	123	1.071	.097
	Neutral	3.71	123	1.341	.121
Pair 4	Sadness	1.97	123	1.071	.097
	Aggression	1.03	123	.178	.016

Table 11. Independent Samples t-test for ‘Sadness’

		Levene's Test for Equality of Variances		t-test for Equality of Means			
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference
Sadness	Equal variances assumed	.205	.651	1.209	121	.229	.234
	Equal variances not assumed			1.212	119.469	.228	.234

Table 12. Paired Samples Correlation for ‘Sadness’

		N	Correlation	Sig.
Pair 1	Sadness & Sexual Arousal	123	.021	.815
Pair 2	Sadness & Enjoyment	123	.065	.475
Pair 3	Sadness & Neutral	123	-.612	.000
Pair 4	Sadness & Aggression	123	.263	.003

Table 13. Paired Samples Descriptive Statistics for 'Neutral'

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Neutral	4.11	123	1.151	.104
	Sexual Arousal	1.10	123	.579	.052
Pair 2	Neutral	4.11	123	1.151	.104
	Enjoyment	1.07	123	.307	.028
Pair 3	Neutral	4.11	123	1.151	.104
	Sadness	1.81	123	.995	.090
Pair 4	Neutral	4.11	123	1.151	.104
	Aggression	1.15	123	.438	.039

Table 14. Independent Samples t-test for ‘Neutral’

		Levene's Test for Equality of Variances		t-test for Equality of Means			
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference
Neutral	Equal variances assumed	.005	.946	-.938	121	.350	-.195
	Equal variances not assumed			-.941	119.476	.349	-.195

Table 15. Paired Samples Correlation for ‘Neutral’

		N	Correlation	Sig.
Pair 1	Neutral & Sexual Arousal	123	-.089	.325
Pair 2	Neutral & Enjoyment	123	-.136	.134
Pair 3	Neutral & Sadness	123	-.448	.000
Pair 4	Neutral & Aggression	123	-.177	.050

Table 16. Paired Samples Descriptive Statistics for ‘Aggression’

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Aggression	1.93	123	1.266	.114
	Sexual Arousal	1.07	123	.400	.036
Pair 2	Aggression	1.93	123	1.266	.114
	Enjoyment	1.18	123	.559	.050
Pair 3	Aggression	1.93	123	1.266	.114
	Neutral	3.56	123	1.374	.124
Pair 4	Aggression	1.93	123	1.266	.114
	Sadness	1.35	123	.689	.062

Table 17. Independent Samples t-test for ‘Aggression’

		Levene's Test for Equality of Variances		t-test for Equality of Means			
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference
Aggression	Equal variances assumed	11.616	.001	-3.058	121	.003	-.677
	Equal variances not assumed			-3.004	105.579	.003	-.677

Table 18. Paired Samples Correlation for ‘Aggression’

		N	Correlation	Sig.
Pair 1	Aggression & Sexual Arousal	123	-.040	.659
Pair 2	Aggression & Enjoyment	123	.086	.343
Pair 3	Aggression & Neutral	123	-.337	.000
Pair 4	Aggression & Sadness	123	.017	.853

Table 19. Paired Samples Descriptive Statistics for 'Sexual Arousal'

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Sexual Arousal	1.41	123	.886	.080
	Enjoyment	1.20	123	.586	.053
Pair 2	Sexual Arousal	1.41	123	.886	.080
	Sadness	1.26	123	.745	.067
Pair 3	Sexual Arousal	1.41	123	.886	.080
	Neutral	3.83	123	1.323	.119
Pair 4	Sexual Arousal	1.41	123	.886	.080
	Aggression	1.11	123	.458	.041

Table 20. Independent Samples t-test for ‘Sexual Arousal’

		Levene's Test for Equality of Variances		t-test for Equality of Means			
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference
Sexual Arousal	Equal variances assumed	.139	.710	-.685	121	.495	-.110
	Equal variances not assumed			-.696	120.436	.488	-.110

Table 21. Paired Samples Correlation for ‘Sexual Arousal’

		N	Correlation	Sig.
Pair 1	Sexual Arousal & Enjoyment	123	.341	.000
Pair 2	Sexual Arousal & Sadness	123	.245	.006
Pair 3	Sexual Arousal & Neutral	123	-.198	.028
Pair 4	Sexual Arousal & Aggression	123	.275	.002

Table 22. Mean Rankings of Emotionally Salient Clips for Gender

Mean rankings of all five emotions for the actor-stimulus pairing clips associated with each corresponding emotion. 'Female' consists of rankings from trials 1 & 2, 'Males' consists of rankings from trials 3 & 4.

	Neutrality	Aggression	Sadness	Enjoyment	Sexual Arousal
Female	4.015	1.621	2.075	1.53	1.363
Male	4.21	2.298	1.842	2.122	1.473

APPENDIX B

FIGURES

Figure 1. Recovered static imagery from Lev Kuleshov's orifinal experiment, featuring the target face actor (Mosjoukine) and associated stimuli

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