

Quantitative Study of the Visible Link Between Discourse Language and Juror Bias

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Abstract

This researcher conducted a quantitative descriptive comparative study to examine (a) what differences exist in potential jurors' microexpression of emotions across the different felony crimes presented in Superior Criminal Court during the voir dire questions, (b) what differences exist between male and female potential jurors' microexpression of emotions, and (c) what is the interaction between the gender of the juror and the gender of the lawyer regarding potential jurors' microexpression of emotions? The theoretical framework was principally based on Paul Ekman's [1] study of emotions. Ekman found several micro-facial expressions, such as anger, disgust, fear, happiness, sadness, and surprise. This study used a quantitative descriptive comparative design in one geographic location in Washington State Superior Court to analyze juror biases which are problematic in the judicial process. Overall, the study results included a sample size of 48; a multivariate analysis of variance (MANOVA) test was used to address research questions (RQ) 1, 2, and 3. In all three research questions, the results of the MANOVA led the researcher to accept the RQ1 null hypotheses that a difference does not exist in jurors' microexpressions of emotions across juror gender in Superior Criminal Court during the voir dire questions; the RQ2 null hypothesis that there is no difference existing between male and female potential jurors' microexpression of emotions; and the RQ3 null hypothesis that there is no interaction between the juror gender and lawyer gender in Superior Criminal Court during the voir dire questions regarding the micro-facial expression demonstrated by potential jurors.

Keywords: *Micro-Facial Expressions; Jurors; Voir Dire Questions; Felony Crime*

Symbols

MANOVA, N=, IV, DV, RQ1, RQ2, RQ3, H1₀, H1_A, H2₀, H2_A, H3₀, H3_A

Introduction

Verbal language used by lawyers may influence juror behavior, and this can be identified through micro-facial expressions during the voir dire process [2]. Verbal language by counsel may affect juror bias, and this can be identified through micro-facial expressions during the voir dire [3,4]. The defendant may not have a fair jury during the voir dire [5]. A difference exists between the type of the felony crime presented in Washington State Superior Criminal Court during the voir dire questions and the micro-facial expression demonstrated by potential jurors [6]. A difference exists between sadness, happiness, anger, fear, surprise, disgust, and contempt micro-facial expressions of jurors when lawyers ask questions during the voir dire process [7-9].

General Statement

The study is important because it contributes to Paul Ekman's [10] existing theory in a different context by examining jurors' microexpressions of emotions across the different felony crimes presented in court [6], differences between male and female potential jurors'

microexpressions of emotions, and the interaction between the gender and the felony crimes presented in Superior Criminal Court during the voir dire questions [7-9] by using a quantitative descriptive comparative design [11]. This study contributes to practice by providing an opportunity for judges to incorporate strategic steps in terms of reducing potential juror bias [5].

Statement of Problem

The general problem is that verbal language by lawyers affects jury bias [1]. The adversity associated with the general problem is that identifying jury bias can affect our criminal justice system. The specific problem are cases, such as *Johnson v. Williams*, 133 S. Ct. 1088 – Supreme Court [12] of juror bias, which has negative consequences or adversity that drives the need to examine the difference between the type of the felony crime presented in Washington State Superior Criminal Court during the voir dire questions and the type of particular micro-facial expression by jurors [6]. There is a negative impact--consequences or adversity--of the specific problem on our criminal justice system. The results of the investigation were of interest to the research community since they could help researchers solve the specific problem.

Purpose of the Study

The purpose of this quantitative descriptive comparative study was to examine (a) what differences exist in potential jurors' micro-expression of emotions across the different felony crimes presented in Superior Criminal Court during the voir dire questions, (b) what differences exist between male and female potential jurors' microexpression of emotions, and (c) what is the interaction between the gender of the juror and the gender of the lawyer regarding potential jurors' microexpression of emotions? This study utilized a purposive sample derived from jurors aged 18-years-old or over in Washington State Superior Criminal Court. The researcher selected a quantitative research method over the other research methods because it was most appropriate for quantifying data and generalizing results [13]. A qualitative case study methodology was most appropriate for exploring a phenomenon [14].

The Importance of the Study

This study is important because it may contribute to judicial practice by providing an opportunity for judges and lawyers to incorporate strategic steps in terms of reducing potential juror bias [5]. The study may also contribute to the judicial field by influencing the outcome for the defendant.

Theoretical Framework

The theoretical framework was principally based on Paul Ekman's [1] study of emotions. Ekman found several micro-facial expressions, such as anger, disgust, fear, happiness, sadness, and surprise. There was evidence that micro-facial expression, such as contempt, is universally recognized.

Research Questions and Hypotheses

Research Questions

The research study was designed to answer the following questions:

- R1. What differences exist in potential jurors' microexpression of emotions across the different felony crimes presented in Superior Criminal Court during the voir dire questions?
- R2. What differences exist between male and female potential jurors' microexpression of emotions?
- R3. What is the interaction between the gender of the juror and the gender of the lawyer regarding potential jurors' microexpression of emotions?

Hypotheses

It was hypothesized that:

H1₀. There is no difference in potential jurors' microexpression of emotions across the different felony crimes presented in Superior Criminal Court during the voir dire questions.

H1_A. There is a difference in potential jurors' microexpression of emotions across the different felony crimes presented in Superior Criminal Court during the voir dire questions.

H2₀. There are no differences between male and female potential jurors' microexpression of emotions.

H2_A. There are differences between male and female potential jurors' microexpression of emotions.

H3₀. There is no interaction between the gender and the felony crimes presented in Superior Criminal Court during the voir dire questions regarding the micro-facial expression demonstrated by potential jurors.

H3_A. There is an interaction between the gender and the felony crimes presented in Superior Criminal Court during the voir dire questions regarding the micro-facial expression demonstrated by potential jurors.

Research Design

The proposed study used a quantitative descriptive comparative design to measure the difference between variables. A quantitative descriptive comparative design was better than the other research designs because it was most appropriate for measuring the difference between variables [11]. A qualitative case study methodology is most appropriate for exploring a phenomenon [14].

Assumptions and Limitations

In order to use a parametric test, the researcher met two assumptions--normally distributed data and interval or ratio variables for the dependent variable. The dependent variable should be an interval or ratio variable [15]. The assumption of normal distribution should be met to perform a parametric test. The skewness and kurtosis for normal variables should be within the values range of minus two through plus two. The researcher assessed these assumptions prior to testing the hypotheses.

Materials and Methods

Research Method and Research Design

A quantitative descriptive comparative design was selected over the other research designs because it was most appropriate for measuring the differences between variables [15]. The other research designs (i.e., experimental research design) were not appropriate for measuring the differences between variables [15]. The researcher was not interested in manipulating the independent variable (as you would in an experiment) and instead wanted to study existing variables. And, while this was a quantitative descriptive comparative study, it was nonexperimental. A quantitative descriptive comparative research differs from experimental research and other non-experimental quantitative research designs.

Sampling

This study utilized a purposive sample derived from jurors aged 18-years-old or older in Superior Criminal Court. A purposive sampling method was most appropriate for detecting differences among variables [15]. Purposive sampling was also appropriate to use with a MANOVA. Inclusion criteria were male and female jurors aged 18 years old or over in Washington State Superior Criminal Court. Exclusion criteria were jurors less than 18 years of age.

An *a priori* power analysis within the MANOVA statistical test was conducted to determine the minimum sample size required to detect possible difference between variables. The G*Power 3.1 statistical program [16] that uses the Pillai V, O'Brien-Shieh Algorithm 0.4, number of groups (6) based on IV vs. DV, and (7) response variables (micro-facial expressions) determined the effect size of 0.8. Though the 0.8 was considered a minimum high power, the 0.8 was feasible and practical effect size for an exploratory study [17]. Additionally, the probability level of statistical significance .05, and the statistical power .80, and incorporating the number of groups (6), and (7) response variables were used to derive the sample size. According to Leedy and Ormrod [16], the large effect size of 0.8 was most appropriate for experimental psychology study in deriving the sample size [17]. The study consisted of a minimum sample size of 20 based upon the power analysis. $N = 20$ pertains to the number of jurors.

Instrumentation

The researcher was allowed to observe trials, record lawyer questions, and observe emotional responses of jurors. The researcher recorded observations by using a digital voice recorder [18]. The juror was the unit of analysis to the research design. The researcher recorded each juror's microexpression of emotions across the different felony crimes presented and based on emotional behaviors when asked a question by a lawyer. Specifically, they addressed the Research Questions to identify emotional micro-facial expression differences between male and female jurors, and the interaction between the gender and the felony crimes presented in court. Emotions were expressed as particular micro-facial expressions such as happiness, anger, sad, fear, surprise, disgust, and contempt. The researcher calculated the proportion of microexpressions in each category as data for each juror. The process allowed the researcher to build a microfacial expression profile for each juror that was aggregated across the different kinds of felonies (i.e. an average proportion of each microfacial expression category for fraud, murder, assault, and other felonies). The observations became independent, as each juror's profile is independent of the other juror profiles.

Results and Discussion

Data Collection

The data was collected, catalogued, and analyzed during the quantitative research using the observation tracking sheet (see Appendix B) which documented the micro-facial expressions during the voir dire. Each potential juror was asked questions from lawyers (see Appendix C), and the questions were recorded and transcribed by a certified Superior Court transcriptionist. The researcher observed and catalogued the micro-facial expressions from each juror identified by a number issued by the Superior Court administrator (see Appendix C). The researcher paid Washington State Superior Court King County Clerk for an audio copy of the voir dire questions between lawyers and potential jurors (see Appendices A and C). The researcher also paid a certified criminal court transcriptionist to transcribe the court audio recording (see Appendices A and C). The researcher was an observer only. No potential juror or lawyer had any inner action with the researcher. After all data from the study was collected, an analysis of the studies data was conducted using a Statistical Package for the Social Sciences (SPSS), version 23. A MANOVA was used to test the quantitative research hypothesis questions.

Data Analysis and Results

Data Analysis

Inferential statistics were used to draw conclusions from the sample. The SPSS, Version 23, was used to code and provide summarized values where applicable including the median, mean, central tendency, variance, and standard deviation. The seven dependent variables, microfacial expressions (sadness, happiness, anger, fear, surprise, disgust, and contempt), were interval-level variables. The researcher tabulated all of the emotions expressed for all of the questions across all of the jurors observed. The descriptive statistics for these variables appear in table.

Microfacial expressions for sadness ranged from 0 to 3 with a mean of 0.75 (SD = 1.08). Microfacial expressions for happiness ranged from 0 to 17 with a mean of 3.08 (SD = 3.08). Microfacial expressions for anger ranged from 0 to 4 with a mean of 1.13 (SD = 1.06). Microfacial expressions for fear ranged from 0 to 2 with a mean of 0.27 (SD = 0.57). Microfacial expressions for surprise ranged from 0 to 10 with a mean of 0.73 (SD = 1.95). Microfacial expressions for disgust ranged from 0 to 3 with a mean of 0.60 (SD = 0.81). Microfacial expressions for contempt ranged from 0 to 4 with a mean of 0.63 (SD = 0.98). Total microfacial expressions ranged from 1 to 19 with a mean of 7.25 (SD = 4.51).

Sample

The sample included 48 jurors. All jurors (n = 48, 100%) were part of a case involving first degree rape, first degree child molestation, and 2nd degree child molestation. The type of felony did not vary in the study. As seen in table, the majority of the jurors were men (n = 30, 63%). However, the majority of attorneys were women (n = 31, 65.0%) and Assistant District Attorney (ADA) lawyers (n = 31, 65.0%).

Homogeneity of Variance-Covariance Matrices

Box’s M Test of Equality of Covariance Matrices was used to evaluate the homogeneity of variance-covariance matrices assumption. This test was not significant ($F [28, 4638.12] = 39.76, p = .26$) indicating that the assumption was met.

Results for Research Question 1

Research Question 1 was what differences exist in potential jurors’ microexpression of emotions across male and female attorneys in Superior Criminal Court during the voir dire questions. There was not a statistically significant effect of lawyer’s gender (multivariate $F [7, 37] = 0.85, p = .57$; Wilk’s $\lambda = 0.86$, partial Eta squared = .13) for the combined dependent variable of the seven microfacial expressions. Table 1 provides the results of the MANOVA analysis.

Effect	Wilks’ Lambda Value	F	Hypothesis df	Error df	p	Partial Eta Squared	Power
Lawyers’ Gender	0.86	0.85	7	37	.55	.13	.31

Table 1: Multivariate Tests for MANOVA.

Table 2 shows the univariate results. Given the nonsignificant multivariate result for lawyer’s gender, the univariate analyses were not interpreted.

Dependent Variable	Type III Sum of Squares	df	Mean Square	F	p	Partial Eta Squared	Power
Sadness	.291	1	.291	.258	.614	.006	.079
Anger	.363	1	.363	.351	.557	.008	.089
Disgust	.089	1	.089	.125	.726	.003	.064
Fear (T)	.028	1	.028	.627	.433	.014	.121
Surprise (T)	.065	1	.065	1.094	.302	.025	.176
Happiness (T)	.655	1	.655	.998	.323	.023	.164
Contempt (T)	1.737	1	1.737	4.278	.045	.090	.525

Table 2: Univariate Tests for Lawyers’ Gender and Microfacial Expressions (MANOVA).

Table 3 shows the means for each microfacial expression by lawyers’ gender.

Dependent Variable	Lawyer’s Gender	M	SE	95% Confidence Interval	
				Lower Bound	Upper Bound
Sadness	Male	.625	.266	.090	1.160
	Female	.793	.197	.395	1.191
Anger	Male	1.188	.254	.675	1.700
	Female	1.000	.189	.619	1.381
Disgust	Male	.563	.211	.138	.987
	Female	.655	.156	.340	.971
Fear (T)	Male	.938	.053	.830	1.045
	Female	.885	.039	.805	.965
Surprise (T)	Male	.823	.061	.700	.946
	Female	.902	.045	.811	.994
Happiness (T)	Male	1.646	.203	1.238	2.055
	Female	1.394	.151	1.091	1.698
Contempt (T)	Male	.754	.159	.433	1.076
	Female	.344	.118	.105	.583

Table 3: Mean Microfacial Expression Scores by Lawyers’ Gender.

Given these findings, the null hypothesis that a difference does not exist in jurors’ microexpression of emotions across lawyers’ gender in Superior Criminal Court during the voir dire questions was accepted.

Results for Research Question 2

Research Question 2 was what differences exist between male and female potential jurors’ microexpression of emotions? There was not a statistically significant effect of jurors’ gender (multivariate $F [7, 37] = 1.80, p = .33$; Wilk’s $\lambda = 0.81$, partial Eta squared = .18) for the combined dependent variable of the seven microfacial expressions. Table 4 provides the results of the MANOVA analysis.

Effect	Wilks’ Lambda Value	F	Hypothesis df	Error df	p	Partial Eta Squared	Power
Jurors’ Gender	.818	1.180 ^b	7.000	37.000	.338	.182	.43

Table 4: Multivariate Tests for MANOVA.

Table 5 shows the univariate results. Given the nonsignificant multivariate result for jurors’ gender, the univariate analyses were not interpreted.

Dependent Variable	Type III Sum of Squares	df	MS	F	Sig.	Partial Eta Squared	Power
Sadness	4.281	1	4.281	4.135	.048	.088	.511
Anger	.300	1	.300	.290	.593	.007	.082
Disgust	1.337	1	1.337	1.966	.168	.044	.278
Fear (T)	.030	1	.030	.658	.422	.015	.125
Surprise (T)	.033	1	.033	.554	.461	.013	.113
Happiness (T)	.100	1	.100	.150	.701	.003	.067
Contempt (T)	.006	1	.006	.014	.907	.000	.052

Table 5: Univariate Tests for Jurors’ Gender and Microfacial Expressions (MANOVA).

Table 6 shows the means for each microfacial expression by jurors’ gender.

Dependent Variable	Juror Gender	M	SE	95% Confidence Interval	
				Lower Bound	Upper Bound
Sadness	Male	.481	.196	.087	.876
	Female	1.111	.240	.627	1.595
Anger	Male	1.000	.196	.605	1.395
	Female	1.167	.240	.683	1.650
Disgust	Male	.481	.159	.161	.802
	Female	.833	.194	.441	1.225
Fear (T)	Male	.883	.041	.800	.965
	Female	.935	.050	.834	1.036
Surprise (T)	Male	.852	.047	.757	.947
	Female	.907	.058	.791	1.024
Happiness (T)	Male	1.522	.158	1.205	1.840
	Female	1.426	.193	1.037	1.815
Contempt (T)	Male	.499	.129	.240	.759
	Female	.476	.157	.158	.793

Table 6: Mean Microfacial Expression Scores by Jurors’ Gender.

Given these findings, the null hypothesis that there is no difference existing between male and female potential jurors’ microexpression of emotions was accepted.

Results for Research Question 3

Research Question 3 was what is the interaction between the gender of the juror and the gender of the lawyer regarding potential jurors’ microexpression of emotions? There was not a statistically significant effect of jurors’ gender (multivariate $F [7, 35] = 0.97, p = .46$; Wilk’s $\lambda = 0.83$, partial Eta squared = .16) for the combined dependent variable of the seven microfacial expressions. There was not a statistically significant effect of lawyers’ gender (multivariate $F [7, 35] = 0.80, p = .58$; Wilk’s $\lambda = 0.86$, partial Eta squared = .13) for the combined dependent variable of the seven microfacial expressions. There was not a statistically significant interaction between jurors’ and lawyer’s gender (multivariate $F [7, 35] = 0.78, p = .60$; Wilk’s $\lambda = 0.86$, partial Eta squared = .13) for the combined dependent variable of the seven microfacial expressions. Table 7 provides the results of the MANOVA analysis.

Effect	Wilks’ Lambda Value	F	Hypothesis df	Error df	p	Partial Eta Squared	Power
Jurors’ Gender	.83	0.97	7	35	.46	.16	.35
Lawyers’ Gender	.86	0.80	7	35	.58	.13	.29
Jurors * Lawyer’s Gender	.86	0.78	7	35	.60	.13	.28

Table 7: Multivariate Tests for MANOVA (Main Effects and Interaction).

Table 8 shows the univariate results. Given the nonsignificant multivariate result for jurors’ gender, lawyers’ gender, and the interaction between jurors’ and lawyers’ gender, the univariate analyses were not interpreted.

Effect	Dependent Variable	Type III Sum of Squares	df	MS	F	p	Partial Eta Squared	Power
Jurors’ Gender	Sadness	3.744	1	3.744	3.465	.070	.078	.444
	Anger	.612	1	.612	.576	.452	.014	.115
	Disgust	.583	1	.583	.853	.361	.020	.147
	Fear (T)	.041	1	.041	.895	.350	.021	.152
	Surprise (T)	.056	1	.056	.923	.342	.022	.155
	Happiness (T)	.549	1	.549	.873	.356	.021	.149
	Contempt (T)	.001	1	.001	.003	.954	.000	.050
Lawyers’ Gender	Sadness	.214	1	.214	.198	.658	.005	.072
	Anger	.612	1	.612	.576	.452	.014	.115
	Disgust	.238	1	.238	.348	.559	.008	.089
	Fear (T)	.038	1	.038	.821	.370	.020	.143
	Surprise (T)	.036	1	.036	.598	.444	.014	.118
	Happiness (T)	.189	1	.189	.301	.586	.007	.083
	Contempt (T)	1.771	1	1.771	4.168	.048	.092	.513
Jurors* Lawyer’s Gender	Sadness	.003	1	.003	.003	.956	.000	.050
	Anger	.612	1	.612	.576	.452	.014	.115
	Disgust	1.159	1	1.159	1.695	.200	.040	.246
	Fear (T)	.012	1	.012	.257	.615	.006	.079
	Surprise (T)	.054	1	.054	.903	.347	.022	.153
	Happiness (T)	2.365	1	2.365	3.759	.059	.084	.473
	Contempt (T)	.046	1	.046	.108	.745	.003	.062

Table 8: Univariate Tests for Jurors’ Gender, Lawyers’ Gender, the Interaction between Jurors’ and Lawyers’ Gender and Microfacial Expressions (MANOVA).

Table 9 shows the means for the interaction between jurors’ and lawyers’ gender.

Dependent Variable	Juror Gender	Lawyer's Gender	M	SE	95% Confidence Interval	
					Lower Bound	Upper Bound
Sadness	Male	Male	.400	.329	-.264	1.064
		Female	.529	.252	.020	1.039
	Female	Male	1.000	.424	.143	1.857
		Female	1.167	.300	.561	1.773
Anger	Male	Male	1.000	.326	.342	1.658
		Female	1.000	.250	.495	1.505
	Female	Male	1.500	.421	.651	2.349
		Female	1.000	.297	.399	1.601
Disgust	Male	Male	.600	.261	.072	1.128
		Female	.412	.200	.007	.817
	Female	Male	.500	.337	-.182	1.182
		Female	1.000	.239	.518	1.482
Fear (T)	Male	Male	.900	.068	.763	1.037
		Female	.873	.052	.767	.978
	Female	Male	1.000	.088	.823	1.177
		Female	.903	.062	.777	1.028
Surprise (T)	Male	Male	.767	.078	.610	.923
		Female	.902	.060	.782	1.022
	Female	Male	.917	.100	.714	1.119
		Female	.903	.071	.760	1.046
Happiness (T)	Male	Male	1.920	.251	1.413	2.426
		Female	1.289	.192	.900	1.677
	Female	Male	1.191	.324	.537	1.845
		Female	1.544	.229	1.081	2.006
Contempt (T)	Male	Male	.724	.206	.308	1.140
		Female	.367	.158	.048	.686
	Female	Male	.805	.266	.267	1.342
		Female	.311	.188	-.069	.691

Table 9: Mean Microfacial Expression Scores for Juror Gender * Lawyer's Gender.

Given these findings, the null hypothesis that there is no interaction between the juror gender and lawyer gender in Superior Criminal Court during the voir dire questions regarding the micro-facial expression demonstrated by potential jurors was accepted.

Conclusion

As this study has discussed, lawyers and defense attorneys exert a large amount of control over the individuals that they have in prospective jury panels. By use of speech, actions, and nonverbal cues, such as microfacial emotional expressions, they can convey ideas and thoughts to the jurors that may be received--and reacted to--on a subconscious level. This influence that the lawyers exert may have the effect of denying the defendant a fair trial. The court system is designed both at the state level and at the federal level to assure that

all defendants receive a fair trial. This right is enshrined in the Constitution of the United States in the 1st Article, Section 22. Most state constitutions also guarantee this right. However, if district attorneys and judges are not aware of the power of such manipulation both through verbal and nonverbal means, how can they monitor it so that an undue influence is not exerted on prospective jury panels, which could subsequently taint a jury pool, potentially depriving a defendant of a fair trial.

Although the null hypothesis in this thesis have been proven, all this data proves is that there is no statistically different influence on men and women by gender on the juries that they are trying to empanel. What this does *not* assert is that there is *no* influence on the jury. Because the data recorded in this study demonstrates that there definitely is an influence on the microfacial expressions of potential jury members during voir dire, this demonstrates that the language of the lawyers, and the microfacial responses of the jury must be attended to by the officers of the court to ensure that a fair and impartial jury is empaneled. Since Ekman's [1] work has demonstrated that such responses are involuntary and come from true emotion, these responses can give judges and district attorneys insights into when jurors are being unduly influenced by attorneys – and can give them an indication when it is possibly a good idea to reject a particular juror because they are demonstrating that they are being swayed by rhetoric rather than the facts of the case.

The identification of juror bias is a crucial function for the court, because all defendants deserve a fair and impartial hearing. When a juror is biased or influenced to render judgement on factors other than the facts of the case, this diminishes the defendants right to a completely impartial trial. This is why identifying such bias, even through nonverbal cues, such as microfacial expressions, is critical. By utilizing knowledge about microfacial expressions during the voir dire process, all who are involved can make certain that the empaneled jury will be one who will hear the entire case and judge on the facts of the matter and not on external factors, such as the lawyers' use of discourse.

This study has demonstrated that there is no statistically demonstrable difference between the reactions of men and women to lawyers' discourse during the voir dire process. There is also no direct linkage between the gender of the potential juror and the gender of the lawyer during the voir dire process. The limitations of this study have been clearly elucidated. It is hoped that other researchers will see this study as an effective pilot of deeper study involving more cases and more jurors. It is also hoped that the questions asked here can be used as a springboard for further research that will help to ensure that the criminal justice system is used fairly for all.

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Conflict of Interest

None.

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