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PERCEPTIONS OF CASE COMPLEXITY AND PRE-TRIAL PUBLICITY THROUGH THE LENS OF INFORMATION PROCESSING

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ABSTRACT

In the current study we examined the influence of case complexity and pretrial publicity (PTP) through an information processing framework. Dual process models suggest that individuals can process information in a systematic or heuristic manner. We explored the effects of defendant PTP (negative v. positive), language complexity (moderate v. high), and image complexity (moderate v. high) on participant-jurors' verdicts, damages, and information processing style. Results indicated participants exposed to highly complex language utilized PTP as a heuristic to determine damages. Language and image complexity interacted to predict jurors' understanding of trial information.

INTRODUCTION

Research indicates that individuals can engage in one of two processing styles when evaluating novel information. With this in mind, both the Elaboration Likelihood Model (ELM; Petty & Cacioppo, 1981) and the Heuristic-Systematic Model (HSM; Chaiken, 1980; Chaiken et al., 1989) suggest that individuals participate in either effortful systematic processing or less strenuous heuristic processing. During systematic processing, individuals carefully scrutinize and consider all judgment-relevant information before forming a decision (Todorov et al., 2002). In contrast, heuristic processing is less cognitively taxing and involves the use of mental shortcuts, simple decision-rules, or heuristic cues to form judgments. Research finds that highly complex information results in an increased reliance on heuristic processing (Cooper et al., 1996; Schuller et al., 2005). Interestingly, research suggests that utilizing heuristics in a legal context can bias juror decisions (Lieberman, 2002). With this in mind, in the current study we utilized complexity of case information to examine the influence of a common extra-legal factor, pretrial publicity (PTP), on participant-jurors' reliance on heuristics.

Heuristic Cues and Case Complexity

Research finds that complex and technical language commonly used in trials can increase jurors' heuristic processing by hindering their ability to remember and process trial evidence (Horowitz et al., 2001). That said, heuristic processing appears to be more prevalent in civil cases compared to criminal (McKimmie et al., 2013). Within this context, perceptions of expert witnesses also appear to be affected by language complexity, thus increasing jurors' reliance on heuristic processing (Schuller et al., 2005). Schuller and colleagues (2005) found that a male expert was perceived as more persuasive than a female expert, however only when the trial was highly complex. In addition, participant-jurors exposed to a highly complex trial awarded significantly greater damages compared to those exposed to a less complex trial (Schuller et al., 2005). Horowitz and colleagues (1996) found that while complex language did not have a direct effect on mock jurors' memory performance it did affect their ability to appropriately compensate differentially-worthy plaintiffs. Thus, jurors appear to utilize salient heuristic cues when they lack the cognitive resources to process highly complex trial information.

Contrary to language complexity, the effect of image complexity on information processing style has been considerably understudied, particularly in a legal context. Generally, research indicates that image complexity ultimately has an effect on memory for that image. While the effect of image complexity on related verbal information, rather than the image itself, is undetermined, findings from language complexity research suggest that increased image complexity may hinder individuals' understanding and systematic processing of related information and thus result in decreased memory for that information. With this in mind, images have the potential to serve as a particularly useful tool to aid jurors' systematic processing in a trial context.

Finally, pretrial publicity (PTP) can lead jurors to form biased legal opinions (Fulero, 2002). The most commonly presented type of PTP in mock juror research is negative defendant PTP. Results of meta-analytic research indicate that negative defendant PTP is significantly associated with increased guilty verdicts (Stebly et al., 1999). In terms of defendant PTP, Bakhshay and Haney (2018) found that the most common form of positive PTP and the second most common form of negative PTP was character-related. Positive character-related PTP consisted of statements describing the defendant as "good" or "very nice". Negative PTP consisted of statements describing the defendant as "a monster" or "feared by his own family". As a result, both negative defendant and positive defendant PTP appear to bias mock jurors' legal judgments.

Current Study

The current study utilized an automobile negligence case in order to examine the influence of case complexity and PTP on participant-jurors' legal judgments and understanding of trial information. We manipulated language complexity used by an expert witness (moderately complex v. highly complex) and image complexity of an image that accompanied the expert's testimony (moderately complex v. highly complex). Additionally, we manipulated participants' exposure to PTP as either positive or negative defendant PTP. We were primarily interested in

how these factors would affect participant-jurors' liability decisions and damages awarded, as well as their understanding and processing of trial information. We examine PTP as a heuristic cue in this context, utilizing character-related PTP.

In accordance with the literature discussed above, we hypothesized:

H₁: A PTP x Language Complexity x Image Complexity interaction on dichotomous liability decisions. Specifically, participants exposed to highly complex language and a highly complex image would render their verdicts as a function of PTP (positive PTP: not liable; negative PTP: liable).

H₂: A PTP x Language Complexity x Image Complexity interaction on damages awarded, such that for participants who found the defendant liable, those exposed to highly complex language and a highly complex image would award damages as a function of PTP (positive PTP: lower damages; negative PTP: higher damages).

H₃: A Language Complexity x Image Complexity interaction on **(a)** participants' perceived understanding of the case as well as the expert, and **(b)** their information processing style. Participants exposed to highly complex language and a highly complex image would **(a)** perceive the case and the expert to be more difficult to understand and **(b)** would process the trial information less systematically, as evidenced in their memory for trial information.

METHOD

Participants and Design

Participants included 200 (110 males, 89 females, 1 transgender) jury-eligible individuals (at least 18 years old and US citizens) recruited online through Amazon's Mechanical Turk (*MTurk*). Power analysis indicated that 200 participants allowed for adequate power (0.71) to detect a medium-sized effect (0.25) (*G*Power*; Faul, et al., 2007). Forty-five percent of our sample was 18-34 years old, 27% 35-44 years old, and the remaining 28% 45 or older. Participants received \$1.00 in compensation, credited to their *MTurk* account. We utilized a 2 (Defendant PTP: positive v. negative) x 2 (Language Complexity: moderate v. high) x 2 (Image Complexity: moderate v. high) between-subjects design. Cell sizes ranged from 22 to 28.

Materials and Procedure

Our materials included two versions of an online newspaper article and four versions of a written automobile negligence trial summary. Positive PTP presented Wal-Mart Corporation's (defendant) commitment to the community and ways in which the company makes a positive difference in local communities. Negative PTP presented Wal-Mart's tendency to take over local stores and hurt small businesses and community members. The trial summary was based on *Morgan et al. v. Wal-Mart Stores, Inc. et al.* (2014). The trial summary consisted of judge's initial instructions, plaintiff and defense arguments, engineer expert testimony presented on

behalf of the plaintiff, expert cross-examination, closing arguments, and judge's closing instructions. The key facts of the case stated that a truck rear-ended the plaintiff's car late at night on a stretch of highway that had ongoing construction. Prior to the accident, Wal-Mart was aware of the truck's faulty braking system and had instructed their out-sourced trucking company (Swift Transportation) to fix the brakes on the truck. Swift Transportation notified Wal-Mart that they did not have time to fix the brakes. Swift Transportation was operating the truck at the time of the accident.

Our language and image complexity manipulations took place during the engineer's expert testimony. We utilized the Flesch Reading Ease (FRE) Index for this manipulation, which ranges from 0-100 with higher numbers indicating easier readability. For moderate complexity, FRE Index was 60.6 indicating "standard" readability. For high complexity, the Index was 25.3 indicating "very confusing" readability. For our image complexity manipulation, we utilized two versions of an automobile braking system image. This image accompanied the expert testimony and varied in terms of the level of detail present in the image. All manipulations were confirmed through pilot research.

Participants first read one of two online PTP articles described above and were then instructed they would serve as a juror in an automobile negligence case. They then read one of the versions of the trial summary followed by judge's instructions. Lastly, participants completed a variety of dependent measures described below before being debriefed and provided with their code for payment.

Measures

First, participants were provided with a legal definition of negligence and asked to form a dichotomous liability decision. Next, participants who found Wal-Mart negligent read a legal definition of compensatory damages and asked to determine the amount Wal-Mart was liable to pay the plaintiff. Awards ranged from \$300,000 to \$5 million ($M = \$2$ million, $SD = \$1.2$ million). Participants then completed the following 2 items: "How difficult was the case to understand?" ($M = 2.47$, $SD = 1.81$), and "How difficult was the engineer's expert testimony to understand?" ($M = 2.68$, $SD = 1.80$). Each was measured on a 7-point scale (1 = *not at all difficult* to 7 = *extremely difficult*).

Next, participants completed 12 items that assessed their memory for trial information. For each item, participants determined whether the statement was presented in the trial (e.g., the accident took place late at night on the highway) or not (e.g., the driver of the truck attempted to swerve before the accident) and included eight true trial facts and four plausible lure items that were not presented in the trial. These 12 items were coded as correct or incorrect. For each participant we calculated percentage correct and divided the number of correct facts or lures by the total number of facts or lures. Percent correct for true trial facts ranged from 63% to 100% ($M = 96\%$, $SD = 6\%$); for plausible lures 0% to 100% ($M = 49\%$, $SD = 38\%$). The average memory accuracy for true trial facts was extremely high (96% correct), however average accuracy for plausible

lures was lower (49%). Thus, participants were not as accurate at distinguishing whether or not lures were presented at trial. Given this, as well as the ceiling effect for memory of trial facts, we utilized this susceptibility to lure items as our measure of memory for trial information. Thus, percentage correct for lure items (0%-100%) served as our measure of memory for trial information.

Lastly, in order to control for individual differences in preference for complex thinking, participants completed the Need for Cognition (NFC) scale (Cacioppo et al., 1984). The efficient NFC scale consisted of 12 items, which were summed to create a NFC Score measure ranging from 26 to 88 ($M = 61.92$, $SD = 12.27$) with higher values indicating a greater need for cognition.

RESULTS

Liability Decisions

In order to examine Hypothesis 1, we conducted a 2 (PTP: positive v. negative) x 2 (Language Complexity: moderate v. high) x 2 (Image Complexity: moderate v. high) x 2 (Liability Decision: not liable v. liable) hierarchical loglinear analysis with backward elimination. A significant Language Complexity x Liability Decision (IV/DV) association was found: $\chi^2(1, N = 200) = 4.48$, $p = .034$. Post hoc analysis (in the form of a 2 x 2 contingency table) showed an odds ratio of 2.66 indicating participants exposed to highly complex language were over twice as likely to find Wal-Mart not negligent compared to those exposed to less complex language, $\chi^2(1, N = 200) = 4.51$, $p = .034$. While this finding supports Hypothesis 1, we provide a more detailed description of this finding in our discussion.

Damages Awarded

In order to examine Hypothesis 2, we conducted a 2 (PTP: positive v. negative) x 2 (Language Complexity: moderate v. high) x 2 (Image Complexity: moderate v. high) analysis of covariance (ANCOVA), controlling for participants' NFC score, on compensatory damages awarded for those who found Wal-Mart liable. Our findings indicated partial support for Hypothesis 2 as our results revealed a marginally significant PTP x Language Complexity interaction, $F(1, 168) = 3.64$, $p = .058$, partial eta squared = .021. Simple effects analysis revealed that PTP marginally affected damages when language complexity was high, $p = 0.064$. Specifically, when exposed to highly complex language participants awarded higher damages when exposed to negative PTP compared to positive PTP. See Table 1 for interaction means.

Table 1. Interaction Means for PTP x Language Complexity on Amount Awarded

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Language Complexity	Pre-Trial Publicity	
	Positive	Negative
High	\$1.706 (\$1.18)	\$2.22 (\$1.33)
Moderate	\$2.13 (\$1.21)	\$1.93 (\$1.26)

Note: Amounts represented in millions, SD in parentheses. ($N = 176$).

Difficulty Understanding the Case and Information Processing Style

In order to examine Hypothesis 3a, we conducted a 2 (Language Complexity: moderate v. high) x 2 (Image Complexity: moderate v. high) multivariate analysis of covariance (MANCOVA), controlling for participants NFC Score. We utilized our two dependent measures that assessed perceived difficulty of understanding the case and the expert testimony. Results indicated a significant Language Complexity x Image Complexity interaction on the combined dependent variables after controlling for NFC Score, $F(2, 189) = 3.06, p = .049$, Wilks' Lambda = .97, partial eta squared = .031, thus supporting Hypothesis 3a. Tests of between-subjects effects indicated a significant Language Complexity x Image Complexity interaction for each individual item. For case understanding, $F(1, 190) = 4.18, p = .042$, partial eta squared = .022; and expert testimony: $F(1, 190) = 6.15, p = .014$, partial eta squared = .031. Simple effects analysis revealed that language complexity significantly affected perceptions of case difficulty when image complexity was high, $F(1, 196) = 4.21, p = 0.04$. Specifically, when exposed to a highly complex image, participants perceived the case to be more difficult to understand when trial language was highly complex. See Table 2 for interaction means.

Table 2. Interaction Means for Image x Language Complexity on Case Understanding

Language Complexity	Image Complexity	
	Moderate	High
High	2.31 (1.73)	2.92 (2.03)
Moderate	2.45 (1.88)	2.18 (1.51)

Note: DV scaled 1 = not at all difficult to 7 = extremely difficult. SD in parentheses ($N = 194$).

We then examined the effect of the interaction on participants' perceived understanding of the expert testimony. Similarly, simple effects analysis revealed that language complexity significantly affected understanding of expert testimony when image complexity was high, $F(1, 194) = 8.95, p = 0.003$. When participants were exposed to a highly complex image, they perceived the expert testimony to be more difficult to understand when language complexity was high ($M = 3.32, SE = 0.25$) compared to moderate ($M = 2.26, SE = 0.25$). Furthermore, image complexity significantly affected understanding of expert testimony, but only when language complexity was high, $F(1, 194) = 4.92, p = 0.028$. Specifically, when exposed to highly complex language, participants had greater difficulty understanding the expert testimony when image complexity was high compared to moderate. See Table 3 for interaction means.

Table 3. Interaction Means for Image x Language Complexity on Expert Understanding

Language Complexity	Image Complexity	
	Moderate	High
High	2.53 (1.45)	3.32 (1.91)
Moderate	2.59 (2.04)	2.26 (1.61)

Note: DV scaled 1 = not at all difficult to 7 = extremely difficult. SD in parentheses $N = 195$.

In order to examine Hypothesis 3b, we conducted a 2 (Language Complexity: moderate v. high) x 2 (Image Complexity: moderate v. high) analysis of covariance (ANCOVA), controlling for participants' NFC score, on participants' memory for trial information (i.e., percentage correct for *lure* items). Although this hypothesis was not directly supported, our results indicated a trending Language Complexity x Image interaction, $F(1, 191) = 2.95, p = 0.08, \eta_p^2 = .015$. Simple effects analysis revealed that language complexity significantly affected memory when image complexity was high, $F(1, 195) = 5.62, p = 0.019$. Specifically, when exposed to a highly complex image, participants had significantly worse memory when language complexity was high ($M = 37.4\%, SE = 0.054$) compared to moderate ($M = 55.1\%, SE = 0.054$). Additionally, image complexity marginally affected memory when language complexity was high, $F(1, 195) = 3.66, p = 0.057$. Specifically, when exposed to highly complex language, participants had marginally worse memory when image complexity was high ($M = 37.4\%, SE = 0.054$) compared to moderate ($M = 53.0\%, SE = 0.054$). See Table 4 for interaction means.

Table 4. Interaction Means for Image x Language Complexity on Memory

Language Complexity	Image Complexity	
	Moderate	High
High	53.0% (0.052)	37.4% (0.053)
Moderate	52.5% (0.053)	55.1% (0.054)

Note: DV ranges from 0% to 100%. SE in parentheses. $N = 196$.

Table 5. Correlation Matrix of Dependent Measures

	Amount defendant is liable to pay plaintiff	Overall level of case understanding	Difficulty understanding engineer's testimony	% correct of lures	Defendant liability determination
Amount defendant is liable to pay plaintiff	1	.145*	.187**	-.079	.238**
		.020	.004	.134	.000
	199	199	197	198	199
Overall level of case understanding	.145*	1	.823**	-.605**	-.152*
	.020		.000	.000	.016
	199	200	198	199	200
Difficulty understanding engineer's testimony	.187**	.823**	1	-.518**	-.075
	.004	.000		.000	.145
	197	198	198	197	198
% correct of lures	-.079	-.605**	-.518**	1	.233**
	.134	.000	.000		.000
	198	199	197	199	199
Defendant liability determination	.238**	-.152*	-.075	.233**	1
	.000	.016	.145	.000	
	199	200	198	199	200

Note: *Correlation is significant at the .05 level (one-tailed).

**Correlation is significant at the .01 level (one-tailed).

N = 197 – 200 for all cases listed.

DISCUSSION

In the current study, we examined the effects of PTP, language complexity, and image complexity on participant-jurors' legal judgments and information processing style. Results indicated that language complexity affected liability decisions, PTP interacted with language complexity to affect damage awards, and language complexity interacted with image complexity to affect understanding and information processing. Specifically, in terms of liability decisions, results point to partial support for Hypothesis 1. Participants exposed to highly complex language were more likely to find Wal-Mart not liable. While we originally hypothesized that

participant-jurors exposed to a highly complex trial (i.e., high language and image complexity) would determine their verdict as a function of PTP, observed results suggest a distinction between heuristic and systematic processing. Given that a vast majority of our participant-jurors found Wal-Mart liable in the current case, language complexity's association with not liable verdicts suggests that those exposed to highly complex language may have processed the trial less systematically. In other words, due to the distribution of verdicts in the current case (88% Liable v. 12% Not Liable) the trial facts appeared to favor the plaintiff and were not ambiguous. Thus, those who found Wal-Mart not liable may have been processing the trial facts less systematically.

For those who found Wal-Mart liable, results indicated partial support for Hypothesis 2, such that PTP and language complexity affected damage awards. Results provide clear support for a distinction between systematic and heuristic processing as a function of PTP and language complexity. Pretrial publicity acted as a heuristic cue to determine damages when participants were exposed to highly complex language, but the same trend was not seen when participants were exposed to moderately complex language. Thus, participants exposed to highly complex language awarded significantly higher damages when they were exposed to negative PTP compared to positive PTP.

The results regarding damages are in accordance with previous studies finding that language complexity significantly impacted damages awarded in civil cases (see Lieberman, 2002; Ruva & McEvoy, 2008; Schuller et al., 2005). For example, Lieberman (2002) found that participants encouraged to process heuristically awarded significantly lower damages when the defendant was attractive, compared to participants encouraged to process systematically who did not show the same attractive-leniency effect. Furthermore, Schuller and colleagues (2005) found that participants awarded significantly higher damages when language was highly complex. Results from the current study and previous literature indicate support for the effect of information processing style on damages awarded in civil litigation cases.

Our findings also provide support for Hypothesis 3, such that language complexity interacted with image complexity to affect jurors' understanding of the case and also how well they remembered trial information. When participants were exposed to a trial with highly complex language and a highly complex image, they: (a) perceived the case and the expert testimony as more difficult to understand and (b) had worse memory for trial information. When image complexity was high, participants' perceived case difficulty as a function of language complexity (moderate: less difficult; high: more difficult). Furthermore, when image complexity was high, participants remembered trial information as a function of language complexity (moderate: better memory; high: worse memory). Similar effects were seen for image complexity when language complexity was high. Participants perceived expert testimony to be more difficult to understand when image complexity was high, compared to moderate. Additionally, participants had worse memory for trial information when image complexity was high compared to moderate. The same effect of image complexity was not seen when trial language was less complex.

Importantly, our findings suggest evidence of a dual process model of information processing. Language complexity results support previous research that indicates complex and technical language can hinder jurors' ability to remember information (Horowitz et al., 2001) and that as jurors' ability to remember trial information decreases their systematic processing decreases (Horowitz & ForsterLee, 2001). Furthermore, the current results extend this notion to include image complexity. Results indicate that image complexity interacted with language complexity to significantly impact jurors' ability to understand and process trial information systematically. Future research should examine other conditions under which image complexity significantly impacts jurors' understanding and processing of trial information.

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