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Youyang Hou

University of Michigan School of Information

Cliff Lampe

University of Michigan School of Information

Maximilian Bulinski

J. J. Prescott

University of Michigan Law School, jprescott@umich.edu

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Factors in Fairness and Emotion in Online Case Resolution Systems

Youyang Hou, Cliff Lampe
School of Information
University of Michigan
{youyangh, calc}@umich.edu

Maximilian Bulinski, J.J. Prescott
Law School
University of Michigan
{bulinski, jprescott}@umich.edu

ABSTRACT

Courts are increasingly adopting online information and communication technology, creating a need to consider the potential consequences of these tools for the justice system. Using survey responses from 209 litigants who had recently used an online case resolution system, we investigate factors that influenced litigants' experiences of fairness and emotional feelings toward court officials. Our results show that ease of using the online case resolution system, the outcome of the case, and a litigant's perceptions of procedural justice are positively associated both with whether the litigant views the process as fair and whether the litigant ultimately feels positive emotions toward court officials. We also analyze the online explanations litigants offer in their arguments to courts and litigant answers to an open-ended question about their court experiences, and highlight design and practical implications for online systems seeking to improve access to justice.

Author Keywords

Online case resolution, courts, e-government, CSCW, procedural justice, fairness.

ACM Classification Keywords

H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous;

INTRODUCTION

Online case resolution systems—software tools that enable people to negotiate and resolve civil infractions or low-level criminal charges with officials over the internet—promise to save significant time and resources for litigants, prosecutors, police, judges, and court clerks. Public participants are also likely to make better and more tailored information available to authorities to ensure more accurate

outcomes at the conclusion of the decision-making process. For the general public, online case resolution systems can enable ready access to a wealth of legal information, reduce the time spent completing and filing legal documents and waiting for a court's response, and mitigate implicit biases associated with immutable or irrelevant characteristics [13]. Online judicial systems thus provide an easier, faster, and more accurate dispute resolution. They also improve court access for the public by assuaging the effects of physical distance (e.g., costly travel) and missing work, scheduling constraints, confusion, and the emotional toll associated with courtroom appearances. An important question, however, is whether litigants—citizens engaged in a legal dispute or proceeding—who use these tools conclude that they are treated fairly and well during computer-mediated interactions with the justice system.

Benefits of in-person interactions with court officials, by contrast, are typically assumed to enhance mutual understanding, positive emotional affect, and perceptions of fairness between litigant and court system. Unfortunately, in-person interactions are resource intensive [28,29]. The associated high costs can have the consequence of creating backlogs for courts and jeopardizing speedy dispute resolution [2]. Barriers arising from face-to-face case resolution are especially challenging for litigants with low socioeconomic status, who experience substantial difficulties in obtaining time off work, finding transportation, and arranging childcare so they may appear in court [4,6,14]. Face-to-face procedures may also effect the outcomes of adjudication; factors such as a litigant's class, race, gender, or appearance may direct the judge's attention away from facts relevant to the case [13].

Not all legal disputes are serious or complex. Many minor disputes require less in-person communication to reach a resolution than do others. Traffic violations and minor bench warrants are common disputes for which decision makers and litigants require much less information, interchange, and shared understanding to reach resolution. Substantively, minor cases typically depend on a few simple facts or assertions; thus, in-person interaction is often unnecessary. Online case resolution systems can ameliorate the burden on both courts and litigants for these

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minor cases, in which resolution does not require strong mutual understanding of intricate, nuanced facts.

Ascertaining the full social value of online case resolution systems requires defining a “successful” litigant interactions with the justice system. Two common measurements of success from the litigant perspective are whether litigants feel that they have received fair treatment and whether their emotions toward court officials after litigation are positive [9,34]. More importantly, previous work has shown that people often care more about procedural justice—the fairness of the process of the court system—than about distributive justice, or whether the final outcome of the process itself is accurate [7,23]. However, the perceived fairness of court officials, the valence of emotion toward court officials, and the perception of procedural justice generally are not well understood in the context of online interactions with the U.S. justice system. Identifying factors that may influence these outcomes can facilitate the development of digital justice systems that address the needs of litigants and courts.

Online case resolution systems are new and not yet widely available to the public. Consequently, our results are derived from early adaptors of online case resolution systems to solve minor infractions in four courts in a Midwestern state in the U.S. Using survey and matched court-record data from operating online case resolution systems, we investigate factors that may influence litigants’ reactions to online judicial processes. We are interested in the following research questions:

RQ1: How might the system’s components, litigants’ internet literacy, and case outcomes influence perceptions of fairness and post-resolution emotion toward court officials?

RQ2: Does litigant perception of procedural justice mediate the relationship between system, litigant, and case characteristics, the perception of fairness, and emotion toward court officials?

RQ3: What kinds of explanations do litigants submit in their requests for their preferred outcomes? How do these explanations vary with the perceived procedural justice of online case resolution?

RELATED WORK

Although several factors (ease of use, usefulness of the system, internet literacy, etc.) are linked to the adoption and trust of e-government systems generally, there is little evidence as to which factors influence perceptions of justice and fairness of legal procedures made available via an e-government platform—such as an online case resolution system—and to what extent they may do so.

Innovative Legal Information Systems

There are many innovative judicial information systems that seek to support litigants—i.e., the parties who use courts to resolve disputes—and the court staff, judges, and

attorneys who conduct the behind-the-scenes work involved in litigation [21,25]. These online judicial information systems appear to be especially helpful for self-represented litigants, who interact with government officers, court officials, and other litigants without the aid of attorneys. These online information systems increase litigant access to law and legal information, enhance the transparency of the process, and broadly support and save time for courts, attorneys, and litigants by facilitating logistics, information exchange, decision making, and resolution for self-represented litigants [30].

To illustrate, many systems currently exist to assist litigants in completing the documentation required for a case or transaction. Access to Justice (A2J), for instance, is a well-known document-assembly system [31]. It allows lawyers to build internet-guided interviews for prospective clients to simplify the preparation of required court forms. The system reduces the complexity and cost of document construction and concurrently collecting information that is retained in the system for potential future use.

Other developments in this domain include technology that reduces or replaces the need to attend face-to-face court sessions. To lessen the physical and financial difficulties of court attendance, some jurisdictions use video conferencing for remote testimony and prisoner hearings [1]. Video conferencing eliminates certain obstacles, such as travel costs and delay, but fails to alleviate other barriers, such as the necessity of being available at a hearing’s specific time [26].

Existing research has investigated the role of online dispute resolution systems that support private parties in a civil dispute [5,20]. For instance, Brennan [5] argued that such systems have many benefits, including reducing temporal and physical impediments to communicating with courts, and result in more effective negotiation and fairer settlement outcomes by curtailing power imbalances (e.g., between a divorcing couple). Moreover, asynchronous communication can free individuals to express themselves more clearly and effectively relative to video conferencing [5].

However, there are notable potential downsides to a lack of face-to-face interaction. In-person interactions have been seen as necessary, or at least better than electronic communication, for building trust between litigants, law enforcement, and the court [27]. Non-verbal cues, such as facial expressions and tone of voice, are important to both a litigant’s perception of the fairness of proceedings and a judge’s decision-making process [7]. The absence of such face-to-face interactions from existing versions of online case resolution systems may cause a litigant to perceive a particular judicial process as unfair or produce negative emotional feelings toward court officials, as compared to traditional, in-person court proceedings.

Usefulness and Ease of Use

Usefulness and ease of use are two characteristics that are commonly used to evaluate e-government and other online public services. The technology acceptance model (TAM) [10] articulates a relationship between usefulness, ease of use, and the intention to utilize a particular technology. Perceived usefulness is defined as “the degree to which a person believes that using a particular system would enhance his or her ... performance” ([10], p. 320), whereas perceived ease of use is defined as “the degree to which a person believes that using a particular system would be free of effort” ([10], p. 320). Many studies have demonstrated the positive relationship between usefulness and ease of use in the adoption of e-government systems [12,19]. Only a few studies investigate the relationship between TAM and perceived fairness. One example [8] found that perceived usefulness and perceived fairness both influence the willingness of individuals to trust and satisfaction with online shopping systems. However, the relationship between TAM and fairness in the context of judicial information and communication systems has not been studied.

In the present study, we explore whether the perceived usefulness and ease of use of online case resolution systems is related to how litigants perceive the fairness of court officials (e.g., judges, prosecutors, clerks) and their emotions toward such officials. Specifically, we postulate that:

- **H1a:** Perceived usefulness and ease of use of the case resolution system will be positively associated with the perception of fairness of court officials.
- **H1b:** Perceived usefulness and ease of use of the case resolution system will be positively associated with the existence of positive emotion toward court officials.

Internet Literacy

Internet literacy—the self-efficacy that people feel they have in using internet technology and services—is another factor that may affect the perception of fairness in e-government programs. There is evidence of a relationship between internet literacy and the adoption and continued use of e-government systems [18,37]. The so-called digital divide—disparities in either access to or literacy in digital technology—in low sociotechnical populations may interfere with access to and use of public services [3]. As new types of information technology are adopted in the court and dispute resolution sectors, the digital divide may negatively impact access to and perception of justice [17]. Here we examine the relationships between 1) internet literacy and perceived fairness of court officials and 2) internet literacy and emotion toward court officials.

- **H2a:** Litigants with higher levels of internet literacy will perceive their court officials to have been fairer.
- **H2b:** Litigants with higher levels of internet literacy will have more positive emotions toward court officials.

Case Outcome

Besides the features of the online resolution system itself, other factors are likely to play important roles in how litigants perceive and react to any dispute resolution process. One such factor is whether a court official (particularly a judge) approves or denies a litigant’s request (e.g., a reduction in a charge) seems very likely to be a key determinant of the litigant’s perception of the fairness of the overall process and the emotion the litigant feels toward the judge and other officials. Previous literature has shown that the substantive outcome of a case influences a litigant’s perception of the fairness of the process that produces it. Distributive justice research argues that fairness translates to people seeking reward in proportion to their contribution [35]. In practice, in this context, people care about receiving favorable outcomes in their disputes [32]. We hypothesize that case outcomes will influence litigants’ perceptions of fairness of court officials and their emotions toward court officials.

- **H3a:** Litigants who receive favorable outcomes will perceive their court officials to have been fairer.
- **H3b:** Litigants who receive favorable outcomes will have more positive emotions toward court officials.

Procedural Justice

Procedural justice frameworks generally postulate that an individual can be satisfied with a negative outcome if the individual considers the underlying procedure to be just [33]. Procedural justice consists of the fairness and the transparency of the processes by which decisions are made, and may be contrasted with other notions of justice, like distributive justice (or fairness in outcomes) and retributive justice (or fairness in the punishment of wrongdoing). Tyler [34] articulated four critical components of procedural justice in explaining people’s reactions to their experiences with court officials: control, neutrality, trust, and standing. Control denotes opportunities for participation. Neutrality invokes the honesty, impartiality, and objectivity of court officials. Trust refers to the belief that court officials are motivated to be fair to people when resolving legal issues. Standing connotes the degree to which people receive treatment that affords them dignity and respect. Tyler [35] also argued that procedural justice shapes satisfaction with and the perceived fairness of litigation outcomes.

However, it is unclear how litigants’ general beliefs about procedural justice might translate to legal procedures and outcomes in an online context, and importantly, how that conception of procedural justice may influence a litigant’s perception of the fairness of court officials in such a context. Given that case review is conducted over an online platform, does procedural justice remain a critical component of a litigant’s perception of fair treatment by court officials?

We hypothesize that litigants’ perceptions of procedural justice in the dispute resolution process will continue to influence their perceptions of both the fairness of court officials and emotions toward court officials, even in an

online setting. We also use our data to investigate whether a litigant's evaluation of the procedural justice of online case resolution may mediate the relationships between system and case characteristics and a litigant's perceptions of fair treatment by and emotions toward court officials:

H4a: Litigants' assessments of the extent of procedural justice they receive will be positively correlated with an increase in perceived fairness of court officials.

H4b: Litigants' perceptions of the amount of procedural justice the online process delivers will be positively correlated with positive emotion toward court officials.

H5a: Litigants' perceptions of received procedural justice mediate the relationship between usefulness, ease of use, case outcomes, and fairness of court officials: usefulness, ease of use, and positive outcomes will be associated with greater procedural justice, which in turn will positively correlate with perceived fairness of court officials.

H5b: Litigants' perceptions of received procedural justice mediate the relationship between usefulness, ease of use, case outcomes, and emotion toward court officials: usefulness, ease of use, and positive case outcomes will be associated with higher procedural justice, which in turn will correlate with positive emotion toward court officials.

METHODS

System Description

A litigant's particular experience with an online proceeding are specific to both the particular district court and the type of cases he or she sought to resolve (e.g., an outstanding warrant or a traffic-related civil infraction). In all cases, however, there are certain similarities. An individual who knows that the court offers online case resolution first navigates to a web portal. To access a legal matter online, the litigant must conduct a search based on individually identifying information (Figure 1 top). The system then pulls all relevant legal records and compares them to criteria specified by the court to determine whether this particular case is eligible for online resolution. If so, the system advances the litigant to the next step of the process. The eligibility criteria typically involve the nature of the offense and the litigant's record of previous infractions. If a case is determined to be eligible for online resolution, the system then asks the litigant to provide contact details and a statement explaining the reasons for any request or the circumstances that led to the legal issue (Figure 1 bottom). At this point, the system informs the litigant that any offer of resolution (e.g., a reduced fine) is conditional on compliance (e.g., paying fines promptly). Upon submitting a request, a litigant's case is presented digitally and directly to a court clerk, prosecutor, or judge (as appropriate for the court and type of case). The decision maker then determines whether approving or denying the request is appropriate, based on the data received from the system: e.g., the infraction, the specifics of the request, and the litigant's past infractions, and interactions with the court.

Figure 1. Online case review systems traffic ticket search page (Top) and case review request page (Bottom).

If the decision maker decides to approve the request (e.g., offer a reduced sanction), the system notifies the litigant, and provides the litigant the option of accepting or rejecting the terms set forth by the decision maker. If the litigant accepts, the system directs the litigant to comply as soon as possible with any prescribed fines or fees. If the litigant does not comply within the specified timeframe, the system will automatically rescind the offer and restore the original charge, as if the online proceeding had not occurred.

We procured the following case-level data from the online case resolution systems of four courts for use in our analysis:

Case Outcome. The outcome of a case refers to a court official's final decision (e.g., approval or refusal) regarding a litigant's request for reduction.

Explanation Statements. With each litigant's and court's permission, we collected the written statements that litigants submitted to courts explaining their requests (typically, for a charge reduction in a traffic infraction). We analyzed the lengths of these explanations, and inductively coded them to identify themes related to our research questions. In our sample, litigants submitted a total of 185 statements to the four courts via an online case resolution system. After training, two graduate students coded each of these litigant statements. Assessed with Cronbach's alpha, the intercoder reliability for the coding of these request statements is 0.985, which is above the conventional 0.70 cut-off.

Participants and Design

We administered a web-based survey through Qualtrics and recruited participants from two groups who had recently used an online case resolution system in one of four courts in a Midwestern state and agreed to participate in the study. We collaborated with the case review system developer and recruited participants through the developer's user opt-in email list. The first group we invited to participate was comprised of 342 litigants who had used one of four online case resolution systems between January and March of 2016. We invited participants via emails sent from Qualtrics, and the response rate was 17.5% (60/342). The second group we invited to participate comprised all litigants who had used the online case resolution systems from March through May of 2016. We invited participants on this list through emails sent from the online case resolution systems after their requests for reduction had been either approved or denied. The response rate for these invitations was 20% (162/811). Participants received a \$5 store gift card as an incentive to participate. We conducted post-hoc t-tests to identify any differences between these two groups of participants. The t-tests found no statistically significant differences in the responses to survey questions based on when participants took the survey, so the groups were aggregated for our analyses. We also investigated whether there might be heterogeneity among respondents based on their having interacted with different courts, and found no statistically significant differences. In addition to survey data, we analyzed information collected and stored by the case resolution systems, such as the approval decisions, and the litigants' explanation for their requests to the courts. A university institutional review board approved this study.

Survey instrument

Independent Variables

Usefulness and Ease of Use. We adapted questions used to measure perceived usefulness and perceived ease of use from Technology Acceptance Model (TAM) work [10] with modifications to reflect differences in the online case resolution context. We employed 5-point Likert scales in our survey questions. The usefulness measurements asked participants to rate the usefulness of the online system at accomplishing the task, cutting traveling expenses, reducing time spent in line, and dealing with their legal issue at a time of their convenience. The ease of use measurements asked participants to rate the ease of accessing the system, of getting information needed from the system, of dealing with a ticket or warrant through the system, and of following the organization and structure of the system.

Internet Literacy. Internet literacy, typically self-reported assessments of an individual's skill in using internet technology, influences the benefits people enjoy from the availability of online systems [16]. To measure internet literacy, we adapted 11 questions from [16] in designing our survey instrument.

Procedural Justice. The eight items we employed to measure a litigant's perception of procedural justice are adapted from [34] with some modifications to align the questions with the online case resolution context. We presented respondents with 5-point Likert scales as response options. We collected four subsets of procedural justice measurements. 1) Control: we measured perceived control over the process by asking respondents to report how many opportunities they had received to express their opinions before decisions were made. 2) Neutrality: we measured authority neutrality by asking respondents if they felt that their case outcome was influenced by race, gender, age, or other demographic factors, and if court officials had obtained adequate information to make a good decision. 3) Trust: we measured trust in court officials by asking litigants if they felt the actions of officials were generally honest, and the officials had made efforts to be fair. 4) Standing: we established a standing measure by asking respondents whether officials had been polite to them and had generally shown respect for their rights.

Dependent Variables

Fairness of Court Officials. To gauge litigant perceptions of fair treatment by court officials, we asked respondents to rate on a 5-point Likert scale how fairly their treatment by the court, how fairly the court handled their case, and how fairly they expected to be treated by the court in the future [34]. Note that the perceptions of procedural justice scale variables described in the previous section measure opinions about specific aspects of litigant interactions with courts, whereas the measure of perceived fairness of court officials assesses litigants' overall impressions of the treatment they received by courts and judicial decision makers.

Emotion toward Court Officials. To measure litigant emotions and feelings toward court officials, we asked respondents to rate their levels of anger, frustration, and happiness toward these authority figures [34] on 5-point Likert scales. Because these three measures were correlated, we averaged them to form a single index to capture positive affect toward court officials.

Control Variables

We asked litigants to report their gender, age, ethnicity, education, mother's education, household income, and current employment status in our survey using U.S. Census questions as models.

Finally, we invited respondents to reply to an open-ended question to describe their overall experience with courts. We inductively coded the responses we collected to identify relevant themes. 138 respondents submitted responsive answers. Two coders coded our respondents' answers, and intercoder reliability assessed with Cronbach's alpha is 0.879, which is above the traditional 0.70 level for acceptable agreement.

RESULTS

Litigants Demographics

The participants of this study were litigants who consented to have their case evaluated for resolution by a court through an online case resolution system. 115 (58.4%) participants were female. Most participants were between 18-25 (41.6%), followed by 26-40 (21.8%), 41-55 (20.3%), and older than 56 (16.3%). The majority of participants were white (77.8%) followed by African American (7.7%), Asian (7.25%), and Latino (4.1%). Most participants had some college or bachelor’s degree (69.3%), followed by high school degree (11.3%), master or advanced graduate degree (17.9%), and high school (12.8%). The annual income of participants included groups under \$10k (12.9%), \$10k to \$25k (28.9%), \$25k to \$75k (26.3%), and higher than \$75k (31.9%). Most participants were employed for wages (58.7%), followed by those with student status (21.9%), out of work (7.7%), retired (6.1%), and self-employed (5.6%). Of the requests that survey respondents submitted to courts using an online system, 155 (78.6%) were approved, while 42 (21.3%) were rejected. The requests involved different case types: 157 (75.5%) of the cases were traffic ticket disputes, 48 (23.1%) involved parking tickets, and 3 (1.4%) were minor bench warrant issues. The average amount due to the court was \$111.20 (SD = 44.76).

The average score of the usefulness of the system is 4.3 (SD=0.92), ease of use is 4.18 (SD=0.87), internet literacy is 8.07 (SD = 0.9), procedural justice is 3.71 (SD = 0.85), perceived fairness is 3.92 (SD = 0.98), and emotion toward court officials is 3.10 (SD = 0.88). The correlation between usefulness and ease of use is 0.76 (p < 0.001), the correlation between procedural justice and perceived fairness is 0.71 (p < 0.001), and the correlation between procedural justice and emotion toward court officials is 0.64 (p < 0.001). However, there were no significant correlations between internet literacy and other variables. Overall, the correlation results provide confidence that the measures function effectively.

Prediction of Perceived Fairness of Court Officials and Emotion toward Court Officials

To investigate RQ1, we conduct a series of regression

	Perceived Fairness 1	Perceived Fairness 2
Ease of Use	0.38***	0.004
Internet Literacy	0.02	0.04
Case Outcome (Approved)	0.86***	0.43**
Procedural Justice		0.72***
R ²	0.37	0.61
Δ R ²	0.27	0.24

Table 1. Models predicting perceived fairness of authorities (* p < 0.05; ** p < 0.01; *** p < 0.001, N=160).

analyses to discern the descriptive relationships between ease of use, internet literacy, case outcome, procedural justice, the fairness of court officials, and emotion toward court officials. Usefulness is omitted from these models and the work that follows to avoid multicollinearity with ease of use. All regressions include demographic controls. Table 1 presents the results of hierarchical regression analyses of our perceived fairness measure (with demographic controls) in the form of the models’ estimated coefficients of interest. Model 1 regresses perceived fairness on ease of use, internet literacy, and case outcome. Model 2 adds procedural justice as an explanatory variable.

A base model relating perceived fairness of court officials to demographic variables is not significant, F(17, 142) = 0.097, p = 0.58. Adding ease of use, internet literacy, and case outcome in Model 1 as potential determinants of perceived fairness of court officials, while retaining the demographic controls of the base model, adds 27% explained variance (R²) of perceived fairness: F change (3, 139) = 19.84, p < 0.001. The model statistically predicts perceived fairness of court officials (R² = 0.37, F(20,139) = 4.04, p < 0.001), and ease of use and case outcome are statistically significant predictors. The data thus support H1a and H3a, but provide no evidence in favor of H2a.

Perceived Fairness Model 2 augments the previous model by adding procedural justice as a predictor of perceived fairness of court officials, along with ease of use, internet literacy, and case outcome, controlling for demographics. Adding procedural justice, given that all other variables are included, adds 24% explained variance (R²) of perceived fairness of court officials: F change (1, 138) = 87.56, p < 0.001. The model statistically predicts perceived fairness of court officials (R² = 0.61, F(21, 138) = 10.41, p < 0.001), and procedural justice is a statistically significant predictor of perceived fairness. The data support H4a.

Table 2 presents the results of hierarchical regression analyses of positive emotion toward court officials (with demographic controls). The base model that only includes demographic variables as regressors is not significant (R² = 0.11, F(17, 142) = 1.03, p = 0.43). Emotion toward Court Officials Model 1 regresses positive emotion toward court

	Emotion toward Authorities 1	Emotion toward Authorities 2
Ease of Use	0.24**	-0.008
Internet Literacy	-0.05	-0.04
Case Outcome (Approved)	0.64***	0.36*
Procedural Justice		0.47***
R ²	0.25	0.37
Δ R ²	0.14	0.12

Table 2. Models predicting emotion toward court officials. (* p < 0.05; ** p < 0.01; *** p < 0.001, N=160)

officials on three predictor variables: ease of use, internet literacy, and case outcome, along with demographic controls, which adds 14% explained variance (R^2) to the base model: F change (3, 139) = 8.8, $p < 0.001$. Emotion toward Court Officials Model 1 successfully predicts respondent litigants reporting positive emotional affect toward court officials on our survey ($R^2 = 0.25$, $F(20, 139) = 2.34$, $p = 0.002$). Furthermore, ease of use and case outcome are both statistically significant predictors of positive emotion toward court officials. Accordingly, our data support H1b and H3b, but do not support H2b.

Emotion toward Court Officials Model 2 incorporates procedural justice as a predictor of positive emotion toward court officials (joining ease of use, internet literacy, and the outcome of the case, with demographic controls). Adding procedural justice, with the other variables included contributes 12% to the explained variance (R^2) of positive emotion toward court officials: F change (1, 138) = 26.19, $p < 0.001$. This model is statistically predictive of positive emotion toward court officials ($R^2 = 0.37$, $F(21, 138) = 3.88$, $p < 0.001$). Procedural justice itself is a significant predictor of positive emotion toward court officials. H4b therefore finds support in our data.

These results suggest that litigants' perceptions of the fairness of court official behavior and litigants' emotional reactions toward court officials may be influenced by both case-specific and system-level characteristics. Particularly relevant factors include how easy the system is to use, substantive outcomes of cases, and perceptions of having received procedural justice.

The Mediating Effect of Procedural Justice

To investigate RQ2, we leverage the results of the models above to test whether litigants' perceptions of procedural justice mediate the relationship between system factors, case factors, and our measures of perceived fairness and emotion towards court officials.

We begin with the finding that ease of use and case outcome are significant predictors of the fairness of court officials (Figure 2 Top). Next, we examine whether these factors also predict a litigant's perception of procedural justice. Ease of use (standardized beta = 0.52, $t = 7.28$, $p < 0.001$) and Case outcome (standardized beta = 0.60, $t = 4.18$, $p < 0.001$) statistically predicts procedural justice. When procedural justice, ease of use, and the outcome of the case are entered simultaneously as predictors, the estimated coefficient on the procedural justice variable is statistically significant. However, while the coefficient on the case outcome variable is still significant, ease of use is no longer a statistically significant predictor. The standardized indirect effect of ease of use on the perceived fairness of court officials is 0.37, 95% bootstrapped CI [0.25, 0.50]. The standardized indirect effect of case outcome (approval) on perceived fairness is 0.44, 95% bootstrapped CI [0.24, 0.67]. Thus, the indirect effect is statistically significant, and the data support H5a.

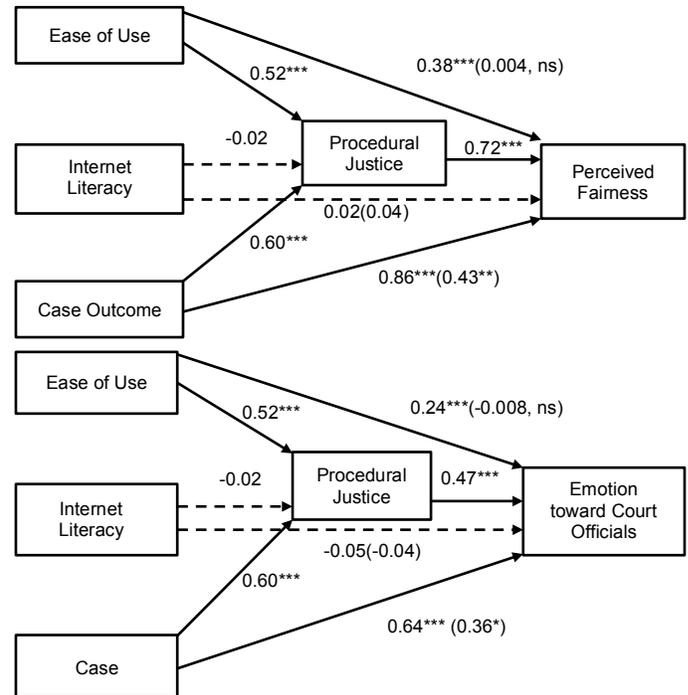


Figure 2. Mediating effect of procedural justice on perceived fairness (top) and emotion toward court officials (bottom).
(* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$)

We apply a similar analysis to explore whether a litigant's perception of procedural justice might account for the relationship between system and case factors and positive emotion toward court officials (Figure 2 Bottom). Ease of use and case outcome are both significant predictors of emotion toward court officials. When procedural justice and our case and system factors are entered simultaneously as predictors, only procedural justice and case outcome are statistically significant. The standardized indirect effects of ease of use on emotion toward court officials via procedural justice is 0.24, 95% bootstrapped CI [0.14, 0.36]. The standardized indirect effect of case outcome (approval) via procedural justice is 0.29, 95% bootstrapped CI [0.13, 0.48]. The indirect effect is statistically significant. Our analysis finds support for H5b.

Content Analysis of Explanatory Accounts

To provide more contextual information about litigants' experiences with the justice system, we study statements litigants submitted to courts regarding their case as part of the online case resolution process, as well as litigant responses to an open-ended survey question about their court experience. Litigants using the online case resolution system were given the opportunity to submit short statements explaining and/or defending their requests. We inductively and iteratively coded these messages, focusing on the characteristics of respondent accounts, such as whether they deployed extrinsic or intrinsic explanations (Table 3). The average litigant tendered $M = 3.39$ ($SD = 1.55$) different types of request explanations in his or her communications with the court.

Category	Codes	Explanation	Number
Extrinsic	External factor	Claim officer made mistake (e.g., no sign)	44 (23.8%)
	Ignorance	Claim unaware of or misunderstood the rule	49 (26.5%)
Intrinsic - Identity	Future promise	Promise to take actions to prevent the violation	28 (15.1%)
	Clear record	Report was first ticket, good citizen	43 (23.2%)
Intrinsic - Context	Emotional appeal	Request sympathy, medical reason	49 (26.5%)
	Financial constraint	Claim financially difficult or unable to pay	14 (7.6%)
Culpability	Accept responsibility	Take responsibility for the violation	47 (25.4%)

Table 3. Content analysis of the explanations that litigants submitted to an online case resolution system (N=185).

Extrinsic explanations clarify and expand on the context of the underlying situation—for example, explaining that poor signage in a particular location led to a litigant’s failure to stop. Intrinsic explanations arise from a litigant’s characteristics—i.e., why the identity or situation of a litigant should lead to the court official accepting the request. Intrinsic explanations fall into at least two major categories: Intrinsic-identity explanations cite the litigant’s admirable personal characteristics, most often through a narrative that presents the litigant as a law-abiding citizen. Intrinsic-context refers to specific personal challenges that the litigant happened to face when the violation occurred, including emotional distress or financial insecurity, which might evoke sympathy from judges or other court staff. Culpability statements are usually simple declarations in which a litigant assumes responsibility for the violation without further explanation.

Our data indicate that the content of litigant explanations is related to measures of procedural justice. Table 4 contains the results of hierarchical regression analysis on perceived fairness of court officials, controlling for demographics data. The model succeeds at statistically significantly accounting for variation in the perceived fairness of court officials ($R^2 = 0.04$, $F(9,174) = 1.93$, $p < .05$). Interestingly, while explanation length positively predicts the perception of procedural justice, the number of distinct messages is negatively correlated with perceived procedural justice. Also notable is that “ignorance”-based explanations—or explanations in which litigants state that they were ignorant of the relevant law—are nevertheless positively associated with perceptions of procedural justice.

The Court Experiences of Litigants

To better understand the experiences of litigants using

	Standardized Beta	t-value	p-value
Length of explanation message	0.11	1.31	0.19
Number of explanation types	-0.36	-2.46	0.02*
External factor	-0.03	-0.33	0.43
Ignorance	0.19	2.14	0.03*
Future promise	0.02	0.18	0.86
Clean record	0.14	1.49	0.13
Emotional appeal	0.16	1.70	0.09
Financial constraint	0.17	1.48	0.04*
Accept responsibility	0.09	1.01	0.31

Table 4. Model predicting procedural justice using litigant explanation characteristics. (*, $p < 0.05$, **, $p < 0.01$, *, $p < 0.001$, N=185)**

online case resolution systems and the potential influence of previous experiences with courts, we asked an open-ended question about litigants’ overall assessment of courts and the justice system. We iteratively coded participants’ reported impressions of their justice system experiences, based on litigants’ interactions with courts and the system generally (Table 5). The majority of respondents felt that they were either neutral toward the process, or that they had received fair outcomes. This outcome is promising for the feasibility of online systems for mediating court interactions.

The open-ended question further illustrates what justice means for litigants. Some litigants mentioned being angry at the police officers who gave them their traffic tickets, not the courts: “*They fairly gave me mediation. I received impeding traffic instead of a speeding ticket. I'm not angry at the courts. I'm angry at the police officer.*” Courts are complex organizations, with police, clerks, lawyers, and judges all working in concert. Seeing how perceptions of justice may be divided among different parts of this intricate institution may provide opportunities to design new interventions at different stages or dimensions of the case process.

Many litigants felt the lack of transparency about how court officials made the decision bothered them: “*(It is) hard to answer questions when I have no idea what's happening on the other end of it.*” Some litigants also felt that, without dealing with a real judge in-person, the case resolution process was not truly fair, as they could not explain their cases well or receive immediate feedback: “*I don't feel the justification I gave online was received with as much consideration as it would have been if I had appeared in person. It seemed the response to my explanation was a standard paragraph that did not speak to my specific situation.*” Olson and Olson [28] mention the benefits of colocation, including rapid, iterative feedback in an interpersonal exchange as litigants assume occurs in court.

Category	Codes	Explanation	Proportion
Positive	Quick and convenient	Case review is quick and convenient	59 (42.8%)
	Fair	The process is fair	16 (11.6%)
Neutral	Neutral	Neutral about court	26 (18.9%)
Negative	Angry at police	Feeling angry at police, not necessarily the court	13 (9.4%)
	Lack of transparency	A lack of transparency of the case review process	13 (9.4%)
	Unfair	The case review process is unfair	10 (7.2%)
	Not real person	The online case resolution system does not have real person	6 (4.3%)
	Not in a timely manner	The case is not reviewed in a timely manner	3 (2.2%)
	Lack of eligibility checking	A lack of eligibility checking	2 (1.4%)

Table 5. Content analysis of the open-ended question about the litigants' sentiment of court experience (N=185).

A technology-mediated solution like the one presented here removes face-to-face interaction and might prevent litigants from perceiving the fairness of the process.

Another effect of the asynchronicity of the online system may be the anxiety of waiting for a decision. *"It took a while for me to be able to access my ticket online. Granted I received the ticket on a Friday and couldn't do anything until Tuesday. Once submitted it took the trooper until the following Tuesday to have it sent to the judge. That was the most nerve-racking thing about this whole situation."* Of course, in the in-person unmediated court context, wait times are typically much longer. However, expectations of immediacy that are generally associated with online interactions may be shaping the sense of perceived justice in ways peculiar to the online context.

Another dimension of usability that appears to affect perceived justice is the clarity of the system's rules. Some litigants felt confused and intimidated when the system was not clear about eligibility requirements: *"Online seems like a great idea but I went through all the hassle just to be rejected by what should have been a screening question to determine whether I was eligible to use online or not."*

DISCUSSION

In the U.S., courts can be overburdened with scheduling, subject to implicit biases, and inflexible for litigants who have trouble appearing during normal work hours. Online case resolution systems offer the potential to relieve many

of these pressures. This study improves our understanding of the factors that contribute to litigants' perceptions of the fairness of court officials and how they feel about court officials, and lays the groundwork for the better design of mediated judicial systems, e-government systems, and other civic technologies that provide public services more broadly.

Our study highlights several important factors that may affect litigants' perceptions of the fairness of court officials (e.g., judges and prosecutors) and their emotions toward court officials following the use of an online case resolution system. Both case factors (e.g., whether a court approves a request) and system factors (e.g., ease of the tool's use) are associated with how litigants feel about the dispute resolution process. We found that perceptions of procedural justice mediated the potential effects of both case factors and system factors on perceived fairness of court officials and emotion toward court officials. This finding suggests that when we supplement face-to-face court interactions with fast, "convenient" online case resolution options, the online system still is subject to the perception of procedural justice that people would have for courts overall.

Ease of use is important in all online systems, but one important and novel finding here is that ease of use and perceptions of procedural justice interacted strongly in their relationship with emotion toward court officials. For online judicial systems, priority should be placed on ease of use that promotes a strong sense of procedural justice. Systems that mediate interactions with the justice system may need to blend concerns of usability with mechanisms to promote types of justice.

Design Implications for Online Judicial Systems

The qualitative results provide design insights into how to enhance the perception of procedural justice and ease the use of an online case resolution system. In their open-ended responses, many litigants referred to the absence of rich in-person cues when using the online case resolution system. Some respondents also described wanting to meet with a judge face-to-face because they felt they could better explain their situation in that setting. Online resolution systems ought to consider including (options for) more interpersonal cues from the court officials (or other decision makers) assigned to a particular dispute—such as making a judge's bio and picture available to litigants using the system. More interactive communication channels (e.g., online chat) might also serve to increase a litigant's sense that a robust opportunity to be heard throughout the litigation process is not only available, but valued.

Our data show that assessments of courts and court officials are not solely the result of the dispute resolution process and outcome, but also of interactions with other public actors outside of the online system, such as police officers who issue tickets. In answering our open-ended survey question, several litigants expressed anger at police officers, not the courts. Prior work has suggested that efforts to build

trust and buttress other values in e-government systems should incorporate various stakeholders [36] such as intermediaries and outreach workers [12]. Many current systems start with a view of courts as monoliths. System design in the justice space ought to consider tools that allow law enforcement officials, clerks, social workers, and other stakeholders to independently interact with litigants.

Future design of online judicial systems and other types of e-government systems might also experiment with including more structured ways for citizens to communicate and interact with court officials and other relevant stakeholders. Our analysis of litigant explanatory statements raises the possibility that the information and arguments litigants choose to present may ultimately affect their perceptions of justice and fairness in our court processes and outcomes. Providing checklists or a set of relevant issues for litigants to consider discussing in any statement supporting a request (e.g., lessons learned) might make an online case resolution system easier to use and result in greater overall satisfaction, and in turn enhance perceptions of procedural justice.

Additionally, litigants identified speed, transparency, and clarity as critical for improving the ease of use of online case resolution systems. While people may have a schema for how offline interactions with court and other government offices should go, that schema may come into conflict when the interaction moves online. People may expect the courts to take weeks to process litigation normally, but when the interaction moves to an online setting, the expectations may be for things to move as quickly as other online services do. The schema of “online” shapes expectations of ease of use and system responsiveness. Online legal tools should provide better and faster feedback and keep in mind that speed may well be critical to the ease of use of an online case resolution system.

Because of the costs and biases in litigating judicial cases in the traditional in-person manner, online systems of this sort are being developed at a rapid pace [21,22,25]. As forms of e-government services, especially those intersecting with the judicial system, become more common, it is important to distinguish and develop design criteria that support contextually important structures and practices of courts. Future work should examine online case resolution systems from the perspective of court officials and other stakeholders to determine how their perceptions of justice are related to online features and tools.

Recently, there have been design efforts that build on the idea that community participation can improve the usability of judicial process, such as “hack for justice” events [24]. The practical implications of this work most immediately concern the design of online legal tools, which ought to enhance ease of use and procedural justice in the ways most likely to build overall trust and, when deserved, produce a legitimizing perception of an authority’s fairness.

Limitations and Future Work

This study is based on litigant experiences with the online resolution of legal cases. To robustly identify differences between how litigants experience online court proceedings and in-person court proceedings, future research should seek opportunities to compare the experiences of similar litigants resolving similar types of cases in both settings. Second, our survey responses are largely from the same demographic groups, primarily from litigants who are living in the Midwest, and primarily from white participants. Citizens with lower levels of education and income and weaker internet literacy either participated less frequently in our survey or opted to forgo using an online case resolution system, and may have different perceptions of fairness in the system and different feelings about court officials. As these systems become more widely adopted by courts, there will be opportunities to evaluate whether our findings can be extended to other segments of the population. The systems studied here also only offered resolution for parking and traffic cases and bench warrants. Cases with higher stakes—e.g., those that might involve incarceration or heavier fines—may engender different experiences of justice and fairness and produce different emotions toward court officials.

Although we hypothesized that some effect of internet literacy on the perception of fairness and emotion toward court officials, we found the effect of internet literacy to be non-significant in all the models. This lack of practical and statistical significance may have been due to the ceiling effect of high internet literacy in our sample as the average internet literacy score was 8/11. Future research with a more diverse sample in a wider population will allow for a more complete understanding of the relationship between internet literacy, fairness, and satisfaction with court officials.

CONCLUSION

We investigate the system and case factors that influence litigants’ perceptions of fairness of court officials, emotion toward court officials, and perceived procedural justice in online case resolution systems. Our results show that both case outcome and the ease of use of a system positively relate to litigants’ perceived fairness of court officials and their emotion toward court officials. Perceived procedural justice also serves as a mediator of the relationship between case and system factors and perceived fairness of court officials and emotion toward officials. An analysis of litigant explanation statements reveals that perceived procedural justice is related to the content of explanation statements that litigants include in their communications with courts. The study shows that online case resolution systems should consider how ease of use interacts with perceptions of procedural justice to engender positive outcomes for litigants.

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