The Effects of Perceptions of Crowding on Juror Attitudes and Decision-Making

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THE EFFECTS OF PERCEPTIONS OF CROWDING ON JUROR ATTITUDES AND DECISION-MAKING

by

Charles P. Short

A thesis submitted in partial fulfillment of the requirements
For the Honors in the Major Program in Interpersonal Communication
In the College of Arts and Sciences
And in the Burnett Honors College
At the University of Central Florida
Orlando, Florida

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Thesis Chair: Dr. Jeff Butler
Abstract

Previous studies have explored the effects of crowding on non-human animals, human communities, human behavior, and differential effects on men and women. This area of research demands greater attention. Much of the existing work was performed in the 1970s and 80s. Further, it seeks to operationalize crowding only in terms of density. This study is premised on the idea set forth by Freedman that crowding is not merely the number of individuals per unit of space, but rather a subjective feeling.

This thesis looks beyond density to find the effects of crowding on juror attitudes and decision-making. Participants were placed in a mock jury scenario. They read a description of a hypothetical court case, and, as individuals, came to a determination of the guilt or innocence of the defendant, as well as severity of punishment. Participants also engaged in a group deliberation and completed a questionnaire dealing with their attitudes regarding the defendant, their fellow group members, and their environment. Individuals in the crowded condition found the defendant to be guiltier than did those in the uncrowded condition. Crowded participants rated the room they were in as more uncomfortable.
DEDICATIONS

To my parents, Edward and Paula Short. Thank you for the love and support.

To Patrick and Violet Popescu, amazing Grandparents who have always encouraged me in my pursuits.

And especially to Alex Short. You make me proud to be your big brother. Every day.
ACKNOWLEDGEMENTS

Thanks to all those who extended a helping hand.

Thank you to Dr. Butler for the guidance. You are a fantastic mentor who has been essential to this process.

Thank you to Dr. Pryor for the advice and assistance with data analysis.

Thank you to Dr. Kiel for bringing the “Political Science” perspective to the table.
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Literature Review

An Introduction

Crowding is a complex issue. It has been explored by psychologists, biologists, and communication researchers in a variety of contexts. The bulk of the existent research can be divided into several categories: research that examines its effects on non-human animals, on human communities, its effects on human behavior, and differential effects on human men and women.

A Question of Definition

There is no universal definition of crowding. Different scientists have adopted different theoretical and operational definitions of this concept. As a consequence of the variation in how the term crowding is used, one must analyze the research of other scholars with due caution.

Jonathan L. Freedman, a researcher who has contributed much to our understanding of crowding, draws a distinction between density and degree of crowding. Density, he writes, is the amount of space available per person in a given area (Freedman, 1975, 9). Simply and mathematically:
Density = (units of space)/ (number of people occupying space)

Yet this physical state of density must be differentiated from feelings of crowding. In *Crowding and Behavior*, Freedman states that crowding is an individual, subjective feeling. This perception may be influenced by other factors such as odor and temperature (Freedman, 1975). Additionally, he asserts that the subjective feeling of crowding carries heavily negative connotations. To Freedman, density is not necessarily negative, but crowding always is. He writes:

The physical state [of density] is neither good nor bad by itself. In contrast, the sensation of being crowded is almost by definition a negative one. People do not say, "I feel crowded, isn't that nice?" "Three’s a crowd" is not meant invitingly. Whenever a person experiences a sensation of being crowded, he is saying he does not like a situation he is in (Freedman, 1975).

Despite Freedman’s careful differentiation of density from crowding, he uses the word crowding in his research to refer not to the subjective feeling of an individual, but to the physical state of amount of space per person.

Besides variations in conceptual definitions of crowding, there are significant variations in operational definitions as well. For example, Griffit and Veitch operationalize high density as 4.06 square feet of space per person, and low density as 12.73 square feet of space per person. Freedman, Katz, and Kinder placed participants in a high density condition of about 6 square feet of space per person, and a low density
condition of 20 square feet per person (Freedman, 1972). In “Crowding and Human Aggressiveness,” the researchers (Freedman, et al. 1972) used high densities that ranged from 10 to 16.67 square feet and low densities that to 30 to 50 square feet, depending on the number of individuals in the small and large rooms, which ranged from 6 to 10. Griffit and each manipulated density by varying the number of individuals in an environmental chamber of constant size (1971). Using this method, what they operationalize as low density (12.73 square feet per person) is actually higher density than some of high density conditions of Freedman et. al (which ranged up to 16.67 square feet per person). As such, one researcher’s low density is another researcher’s high density.

**Density and Non-Human Animals**

Research on the effects of crowding on non-human animals has focused primarily on density, since one cannot divine whether an animal experiences a subjective “feeling” of being crowded. Using density as an independent variable in experimental designs, biologists have examined its effects on pathology and behaviors of non-human animal species.

Experiments in which researchers increased the density of populations of test animals frequently resulted in increased instances of abnormal behavior and increased mortality, even when resources other than space were plentiful. The research of scholars such as Calhoun, Christian, and Southwick have focused on the general following procedure, though there are some differences: a population of a non-human animal
species (often of rodents) is placed within an enclosed laboratory setting in which the colony is given plenty of food and water. Its population grows steadily, then reaches a point at which it usually declines dramatically (1962, 1965, and 1955, respectively).

Summarizing this research, Freedman writes that the immediate cause of population decrease is infant mortality (1975). In high density conditions, though the animals continue to have normal birth rates, the survival rate of offspring plummet due to a variety of factors. Though females continue to attempt nest-building behavior, the amount of adequate locations is diminished. Some animals actively invade nests while others, deliberately or not, trample the nests and offspring of others (Freedman, 1975). Additionally, high density conditions also produce increased aggressiveness and cannibalism (Calhoun, 1961, 1962). Freedman cites anecdotal evidence that males become more sexually aggressive in the high density conditions (Freedman, 1975).

Christian purports that high density is a stressful condition for non-human animals, and thus produces an increase in adrenal activity that accounts for these effects (1965). In the long run, this increased adrenal activity may produce such maladies as heart disease and ulcers, which may shorten an animal’s lifespan.

Freedman contests the idea that high density in non-human animal populations leads to increased adrenal activity and thus to the aforementioned effects. Citing experiments that manipulated group size and density separately, he concludes that increased endocrine activity is “a function primarily of group size, rather than the amount of space available per individual” (Freedman, 1979). Thus, asserts Freedman, “the available evidence on non-human animals indicates that density per se does not generally
have harmful effects and that the effects it does have are determined mainly by other factors in the situation” (Freedman, 1979).

Density and Communities

Researchers have used statistical data to look for correlations between density in human communities and social problems such as crime or juvenile delinquency. Freedman, Levy, and Heshka found a small but appreciable correlation of higher density populations in metropolitan areas with higher crime (1972). Approximately 9% of the variation in crime was associated with density, indicating that the other variables that the study examined for correlations with crime were more significant (Freedman, 1975).

One must note that the correlation between higher density and higher crime in the Freedman study holds true for overall crime rate only (1972). No relationship was found between density and murder, rape, or aggravated assault (Freedman, 1972).

Though this information suggests a weak connection between density and crime, some other researchers in this field have found no relationship whatsoever. Pressman and Carol, for example, did not find a correlation between density and pathology (1971). Galle, McCarthy, and Gove found no reliable relationship between household density and pathology (Galle, 1974).
Density and Humans

The research on the impact of density on humans is of paramount importance to the current research. Researchers have studied the effects of high density on task performance, as well as affective judgments about the environment and people.

Some scholars have found evidence to suggest that high density has negative affects such as increased aggression. Hutt and Vaizey studied groups of hospitalized children, varying their density. In the high density condition, brain damaged and normal children became more aggressive, though autistic children grew more withdrawn (Hutt and Vaizey, 1966). Griffitt and Veitch placed participants in low density, 12.73 square feet per person, or high density conditions, 4.06 square feet of space per person (1971). Further, they varied temperature and the level of belief similarity that the participant had with a “bogus stranger” whom they rated on the Interpersonal Judgment Scale. Additionally, participants completed a series of semantic-differential scales. They found “that reports of affective experience are generally more negative in the high than in the low density conditions” (Griffitt and Veitch, 1971). Similarly, participants in high density conditions rated the bogus stranger more negatively and had more negative moods (Griffitt and Veitch, 1971). They also rated the room more negatively (Griffitt and Veitch, 1971).

Freedman conducted a similar experiment designed to test for a relationship between crowding and emotional reaction, and between crowding and aggressiveness. Participants were divided into all-male, all-female, and mixed-gender groups; they were then placed in a mock jury situation, in which they listened to a variety of cases
(Freedman, 1975). Participants individually made a determination of guilt or innocence, and determined the severity of punishment if they judged the defendant to be guilty. Freedman found no statistically significant overall effect of density on severity of punishment. In a similar vein, mixed sex groups “show no consistent pattern as a function of crowding-- there are no overall affects of room size for the group as a whole” (Freedman, 1975). There were also no overall effects of crowding on affective reactions (Freedman, 1975).

However, this experiment demonstrated differences between male and female responses to density conditions. The all-female groups were more severe in sentencing the defendant in low density conditions than they were in high density conditions, whereas men were more severe in the high density room and less severe in the low density room (Freedman, 1975). Freedman cautions, however, that while this relationship is statistically significant for women, it is not for men (1975). Differences between all male and all female groups also emerged when affective reactions were considered. “Females are more positive in the small than the large room, while males show the opposite pattern” (Freedman, 1975). As was the case regarding severity of punishment, mixed sex groups demonstrated no consistent relationships between density and affective issues (Freedman, 1975).

Freedman also conducted a study in which groups of boys or girls were placed in high or low density conditions and played a game called the prisoner’s dilemma. The game can be played cooperatively or competitively. A perfectly cooperative group would result in every player winning money; if the individuals competed against each other, there was a chance for an individual to win a large sum, but the group as a whole will
certainly win less (Freedman, 1975). Freedman used this mechanism to look for a connection between density and competitiveness. He found that while there was no overall effect of density on competitiveness, the groups of girls were more competitive in the low density condition than they were in the high density condition (Freedman, 1975). Groups of boys were more competitive in the high density condition than they were in the low density condition. "In other words," Freedman writes, "the girls responded positively to a lack of space by becoming more cooperative, while the boys responded negatively, becoming much less cooperative" (Freedman, 1975).

Scholars such as Ross have found the same pattern (1973). Loo, however, found the opposite pattern when his participants were children (1972).

**The Density-Intensity Theory**

In seeking to explain the complex responses to density exhibited by humans, Freedman posits the density-intensity theory, which states that density by itself has neither good nor bad effects on people, but rather acts to intensify an individual's typical reaction to the situation, whatever that may be (1975).

To test this theory, Freedman placed individuals in high or low density conditions in which they would read a provided speech and receive feedback from other individuals in the room. The others were instructed to either give all positive feedback, or all negative feedback. The participants then completed a questionnaire regarding their feelings about the experience and the other members of their group (Freedman, 1975).
In this study, there was no overall affect of density on responses (Freedman, 1975). However, participants in the pleasant condition, the one in which they received all positive feedback, gave more positive responses in the high density room than in the low density room (Freedman, 1975). Participants who received all negative feedback gave more negative responses in the high density condition than in the low density condition (Freedman, 1975). These findings are in accord with the density-intensity hypothesis.

**Summary of Current Research**

Taken as a whole, the existing research indicates that density does not have universally ill effects. Though the data on density and non-human animals suggest that high density produces negative effects, it is possible that these may be more contingent on the number of animals in the population (a component of density), rather than density itself. Some researchers purport that links between density and pathology in communities exist, while others have found no such correlation.

The research on groups of humans demonstrates that high density can have negative effects, as seen in the work of scholars such as Hutt and Vaizey, and Griffitt and Veitch. The effects of density are not universal, however, as the differing responses to crowding by males and females indicate.
Statement of the Problem

There are gaps in the extant research on human crowding. The bulk of the existent research was performed during the period of 1960-79, with a few studies in the 1980s. Communication research has demonstrated change in attitudes in recent years. For example, studies of tactile (touch-related) nonverbal communication have demonstrated that levels of touch between opposite sex friends in physical areas have changed over time (Rosenfeld & Ray, 1976). It is not unreasonable, then, to postulate that shifts have occurred in other areas of nonverbal communication behavior, such as responses to crowding.

The contemporary investigation utilized a mock jury scenario to investigate the relationship between crowding and determinations of guilty or innocence, severity of punishment, and affective judgments. Others have looked at similar questions. Griffitt and Veitch manipulated density and observed a change in affective judgments; Freedman looked for similar relationships in his mock jury experiment.

A problem with such studies as these earlier studies is that they defined crowding strictly in terms of density. Ironically, early scholars took care to differentiate the physical state of density from the subjective one of crowding, and referred to the physical state in their works as "crowding" anyway. The current study also seeks to manipulate crowding primarily by manipulating density; but also assessed participant’s ratings of their subjective feeling of crowding. This represented a unique contribution to the research on crowding because it was the first research which determined if participants actually felt crowded in high density conditions.
Griffitt and Veitch varied density by changing group size (1971). Yet Freedman states that group size may have more of an impact on a non-human animal in some cases than does density (1979). It may be that manipulating density in the fashion of Griffitt and Veitch introduces the confounding variable of group size.

Specifically, the present investigation attempted to assess the effects of crowding on the deliberations of mock juries by posing the following research questions:

RI: Will crowding affect determinations of guilt?
RII: Will crowding affect participants' evaluations of other members of the jury?
RIII: Will crowding affect participants' evaluations of their surroundings?
RIV: Will crowding affect participants' evaluations of the hypothetical defendant?

This project will address questions of communication studies that have not been significantly examined in approximately two decades. It will buttress the preexisting literature, and further elaborate upon researched on the effects of perceptions of crowding on juror attitudes and affective judgments. In a society that places such a high premium on "justice for all," the implications for the justice system are truly significant.
Method

Subjects from a pool of University of Central Florida students were randomly assigned to crowded or uncrowded conditions in groups of six males or six females. The current research manipulated density but also measured participants’ perceptions of crowding.

The measure of crowding was based on an individual’s perception of crowding on a Lickert type scale administered in the questionnaire following the experiment. The same room was used for the administration of both conditions. A barrier of furniture was used to reduce available space in the crowded condition. In the crowded condition, density was 4.32 square feet per person. Density in the uncrowded condition was 46.57 square feet per person. Subjects were assigned the task of reviewing a summary of a legal case and determining the guilt or innocence of the suspect, as well as setting a penalty if applicable. The summary was developed by Pryor and Buchanan for their research (1984).

Following this determination, subjects completed a questionnaire to assess their personal backgrounds, perceptions of crowding, and attitudes toward their fellow participants, the defendant, and their environment (See Appendix C).

After the questionnaire was completed, participants were instructed to deliberate as a group and reach a collective determination of guilt or innocence, and severity of punishment (where applicable). Deliberation were terminated at five minutes. Groups that did not come to consensus in the allotted time were defined as hung juries.
Results

Table 1 depicts the means of the dependent variables, including manipulation checks, by crowding and gender. There are several significant main effects of crowding. There were no significant effects for gender, and no significant interaction effects.

As show Table 1, the experiment successfully manipulated perceptions of crowding. Individuals felt significantly more crowded in the crowded condition than the uncrowded one. On a scale of 1 (very crowded) to 5 (very uncrowded), the mean response in the crowded condition was 2.40. In the uncrowded condition, it was 4.22. This results in a significant difference.

In rating their perceptions of crowding during the group deliberation, participants in the crowded condition reported a mean of 2.83. The mean for the uncrowded condition was 4.21. This difference is also significant.

Table 1: Means for All Dependant Variables by Crowding and Gender

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Crowded Condition</th>
<th>Uncrowded Condition</th>
<th>Crowding Main Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
<td>Male</td>
</tr>
<tr>
<td>Perceptions of crowding when determining case individually</td>
<td>2.42</td>
<td>2.39</td>
<td>4.22</td>
</tr>
<tr>
<td>Perceptions of crowding during deliberation</td>
<td>2.86</td>
<td>2.81</td>
<td>4.14</td>
</tr>
<tr>
<td>Individual determination of verdict</td>
<td>2.25</td>
<td>2.22</td>
<td>2.67</td>
</tr>
<tr>
<td>Individual punishment</td>
<td>1.38</td>
<td>1.43</td>
<td>1.94</td>
</tr>
<tr>
<td>length in years</td>
<td>Length of group deliberations in seconds</td>
<td>159.67</td>
<td>223.67</td>
</tr>
<tr>
<td>---------------</td>
<td>------------------------------------------</td>
<td>--------</td>
<td>--------</td>
</tr>
<tr>
<td>Comfort with group members</td>
<td>3.72</td>
<td>4.03</td>
<td>4.00</td>
</tr>
<tr>
<td>Likeability of group members</td>
<td>4.11</td>
<td>3.97</td>
<td>4.17</td>
</tr>
<tr>
<td>Competency of group members</td>
<td>4.03</td>
<td>4.03</td>
<td>4.22</td>
</tr>
<tr>
<td>Comfort of room</td>
<td>2.69</td>
<td>2.78</td>
<td>4.08</td>
</tr>
<tr>
<td>Trustworthiness of defendant</td>
<td>2.69</td>
<td>2.61</td>
<td>2.81</td>
</tr>
<tr>
<td>Likeability of defendant</td>
<td>2.75</td>
<td>2.61</td>
<td>2.67</td>
</tr>
</tbody>
</table>

**Tests of Research Questions**

RI asked if crowding would affect determinations of guilt. The data demonstrate that participants in the crowded condition found the defendant to be more guilty than participants in the uncrowded condition did. On a scale ranging from 1 (certainly guilty) to 4 (certainly not guilty), the average determination of guilt in the crowded condition was 2.24. In the uncrowded condition, it was 2.58. The p-value is .001.

No significant difference existed between individual punishments assigned in the different conditions. There is also no significant difference in the time it took groups to complete their deliberations.

RII asked if crowding would affect participants' evaluations of other members of the jury. No significant differences exist on affective judgments of other group members on the dimensions of comfort, competence, or likeability.

RIII asked if crowding would affect participants' evaluations of their surroundings. Participants in the crowded condition rated the room as more
uncomfortable than did those in the uncrowded condition. On a scale ranging from 1 (very uncomfortable) to 5 (very comfortable), individuals in the crowded condition rated the room an average 2.73. The mean rating assigned by those in the uncrowded condition was 4.11. This difference is significant with a p-value of .001.

RIV asked if crowding would affect participants’ evaluations of the hypothetical defendant. It did not. There were no significant differences on ratings of the defendant’s trustworthiness or likeability.

Descriptive Data

The group consensuses on verdict and punishment were also gathered. The information is presented below.

Table 2: Group Verdicts and Punishments

<table>
<thead>
<tr>
<th></th>
<th>Verdict</th>
<th>Punishment (Years in Prison)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crowded Male</td>
<td>Probably Guilty</td>
<td>1</td>
</tr>
<tr>
<td>Groups</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Probably Guilty</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Probably Guilty</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Probably Guilty</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Probably Not Guilty</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Hung</td>
<td>No Determination</td>
</tr>
<tr>
<td>Female Groups</td>
<td>Certainly Guilty</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Probably Guilty</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Hung</td>
<td>No Determination</td>
</tr>
<tr>
<td></td>
<td>Hung</td>
<td>No Determination</td>
</tr>
<tr>
<td></td>
<td>Probably Not Guilty</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Probably Guilty</td>
<td>Hung</td>
</tr>
<tr>
<td>----------------------</td>
<td>-----------------</td>
<td>--------</td>
</tr>
<tr>
<td><strong>Uncrowded</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Male Groups</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>No Determination</td>
</tr>
<tr>
<td></td>
<td>Hung</td>
<td>Hung</td>
</tr>
<tr>
<td></td>
<td>Hung</td>
<td>Hung</td>
</tr>
<tr>
<td></td>
<td>Hun</td>
<td>No Determination</td>
</tr>
<tr>
<td></td>
<td>Probably Not Guilty</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Probably Not Guilty</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Probably Not Guilty</td>
<td>0</td>
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<tr>
<td></td>
<td>Probably Not Guilty</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Probably Not Guilty</td>
<td>0</td>
</tr>
<tr>
<td><strong>Female Groups</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hung</td>
<td>No Determination</td>
</tr>
<tr>
<td></td>
<td>Hung</td>
<td>No Determination</td>
</tr>
<tr>
<td></td>
<td>Probably Not Guilty</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Probably Not Guilty</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Probably Not Guilty</td>
<td>0</td>
</tr>
</tbody>
</table>

Due to the small number of units at the group level of analysis, this data must only be considered descriptively. Nonetheless, it suggests a trend that mirrors the findings at the individual level of analysis. Crowded groups appear to judge the defendant more guilty than do uncrowded groups. No uncrowded groups found the defendant certainly or probably guilty, while seven of the crowded groups did.
**Discussion**

This investigation found that individuals who felt crowded rated the defendant in the court case scenario as more guilty than did their counterparts in uncrowded groups. No effect of crowding on punishment length was found. This reinforces the conclusions of Freedman, who also found no statistically significant overall effect of density on severity of punishment in his jury experiment (1975).

This research diverges from previous research in the area of gender effect. Freedman states that the all-female groups were more severe in sentencing the defendant in the low-density condition (1975). He also asserts that women had more positive affective reactions in his high-density condition than in the low (Freedman, 1975). Men demonstrated the opposite pattern (Freedman, 1975).

This study, however, found no gender effects whatsoever. In another 1975 study, Freedman noted, "girls responded more positively to a lack of space by becoming more cooperative, while the boys responded negatively, becoming much less cooperative." This apparent change in gender effects and crowding may be caused by the evolution of social norms since 1975. Women may be no longer socialized to respond to conditions such as crowding by becoming more cooperative. Women's responses were identical to men's. This may result from increased equality among the sexes.

This study's finding that no significant differences exist on affective judgments of other group members or the hypothetical defendant is generally at odds with the findings of Griffitt and Veitch. They found that affective ratings were generally lower in the high density than low density condition (1971). However, the participants in this study, like
those in the Griffith and Veitch study, rated the room more negatively in the crowded condition.

Methodological differences may help explain the differences in these findings. This investigation used an instrument to measure affective ratings that was different from the ones utilized by either Freedman or Griffith and Veitch. It remains possible that the phrasing of the instruments play a role in a participant’s response.

Additionally, environmental differences in the experimental designs exist. Griffith and Veitch, for example, placed their subjects in experimental chambers of varying sizes (1971). This may well have a different impact than the conference room used in this study. The room density was also varied in different ways. Griffith and Veitch manipulated density by increasing the number of people in an experimental chamber (1971). Freedman increased the number of individuals in a given room and used different rooms (1975). Density was manipulated in this study by using furniture to decrease the available space while holding number of group members and the room itself constant.

**Limitations**

The results of this study are somewhat limited in their applicability to a real jury situation. If the density-intensity theory is to be believed, than the exact circumstances of a crowding experience may play a defining role in whether it is positive or negative.

Participants were drawn randomly from large lecture classes. Nonetheless, it is very possible that they had seen each other previously. In a genuine jury situation, one seldom encounters familiar faces. Perhaps it is more or even less distressing to be crowded with those who are strangers rather than those with whom we might have a passing familiarity.
Those who participated in this study also operated under a time limit. The entire experiment, from beginning to end, did not last longer than twenty minutes per group. In a bona fide jury situation, jurors might be together for hours. Though research has not addressed the point, it may be that feelings of crowding in such a situation would wax or wane over such a time span.

Participants in this study were placed in groups of six. Freedman points out that, at least in non-human animals, group size may have more of an impact on some physical reactions than density. It is possible that group size may alter human reactions. Therefore, research should also examine the effects of perceptions of crowding in a twelve person jury situation.

Groups also consisted only of all-males or all-females. Future researchers may be interested in creating a crowding situation that more clearly mirrors a bona fide one by including the study of mixed-gender groups.

Further work should be done at the group level of analysis, rather than the individual. This would allow more useful generalizations to be drawn regarding the effects of crowding on group attitudes. While the descriptive findings of this study in that area are intriguing, too few groups were studied to allow statistically sound conclusions to be drawn in that area.

This study has found that crowded individuals were more likely to find a hypothetical defendant guilty than were uncrowded individuals. Despite this increased severity of verdict, no significant difference exists in the level of punishments assigned in the different conditions. There is also no significant difference in the time it took groups to complete their deliberations.
Unlike prior research, this study found did not find significant differences regarding the effects of perceptions of crowding on the affective judgments made about group members or the hypothetical defendant. While crowded participants rated the room around them as uncomfortable, no significant differences exist on the other affective judgments.

Some findings of this study challenge the existing literature. The data do not, for example, support the gender or interaction effects that other experiments demonstrated.
Appendix A

Verbal Instructions to Participants
Good (time of day), and thank you all for coming. My name is Chas, and I'm an undergraduate here at UCF. I'm currently writing an undergraduate thesis on how people perceive others.

Today, I'm going to give you a summary of a court case for you to read. Afterwards, you will fill out a questionnaire. It is very important that you not talk to each other at this time. Do you have any questions about what you're going to do?

(Crowded) I'm sorry that it's so crowded here today. I hope it won't be too uncomfortable. They really crammed us in to this conference room.

Here are the summaries, you've got seven minutes to read them. Please keep them face down until I ask you to begin.

Case summary materials distributed face down.

Please begin. [seven minutes will elapse] Thank you, please stop reading. I'm going to collect the summaries right now, and give you a questionnaire. Please take as much time to answer it as you need, and just turn it facedown in front of you when you are finished.

[Once all subjects have finished] Thanks, I'm going to collect these completed questionnaires now. [Collect questionnaires] In your questionnaire, you all made a determination of how guilty or not guilty you thought the defendant in the scenario is. Now, as a group, you need to deliberate and discuss the case. You need to decide together how guilty or not guilty you all think the defendant is, and what punishment he should receive if he is guilty. I'm going to pass out a sheet now to remind you of your different options. [Pass out group deliberations sheet] Remember, you must decide these two things as a group. Once you've reached a decision that the group accepts, one person should raise his or her hand to tell me. Take as much time as you need, we'll be leaving as soon as you're done. You can start deliberating now.

Group will be timed from the conclusion of these instructions until an individual raises his or her hand to indicate that the group is finished deliberating. Final questionnaire page handed out.

Great. I've just got one more page of the questionnaire for you to fill out. Please paperclip it to the back of your packet once you're done.

Wait until participants complete questionnaire.

Okay. I want to thank you all again for the incredible help you've been, I appreciate it very much. We're all done here, so have a great day.
Appendix B

Court Case Scenario
Case Summary

Victim: Acme Drugs

Location: Orange Avenue Shopping Center

Time: 2:00 a.m.

Predawn (2:00 a.m.)

1. Silent alarm at police headquarters notifies authorities of robbery in progress.

2. Contact officer proceeds to scene.

3. Upon arrival, officer hears commotion in rear; proceeds to rear of store with weapon drawn.

4. As the officer rounds the corner of the building, he sees a black male, approximately medium build, running from the scene.

5. Officer follows but is unable to apprehend the man before he enters a wooded area; while pursuing the suspect, the officer notices that the man in question has a peculiar stride, as if dragging one leg; not knowing if the suspect is armed, the officer does not follow but rather returns to patrol car to have the area sealed off.

6. Officer then returns to the crime scene, where he is joined by back-up units.

7. Investigation reveals that the thief entered the drugstore through rear window by sawing steel bars and breaking glass.

8. A hacksaw with the initials “I. D.” scratched into the plastic handle is found near the point of illegal entry.

9. Further investigation finds pharmaceutical area of store in disarray and approximately $200 worth of barbiturates were found missing from display case which had been broken into.

10. Also, found near the broken case was a recently extinguished roll-your-own cigarette butt; another was found near the window.
11. Prints on the hacksaw were smudged so no usable prints could be lifted.

12. When reconstructing the crime, detectives figured the thief tripped the alarm as he was leaving the scene, thus unknowingly giving himself enough time to flee the scene before officers arrived.

13. Later the same morning (3:00 a.m.), uniformed police noticed a black male matching suspect's description limping hurriedly along road in a predominantly white residential section approximately 10 blocks from the crime scene.

14. The uniformed officers stopped and questioned the man, who was then identified as Isiah Dawkins, a recent parolee.

15. After further investigation, Isiah Dawkins was arrested one week later and charged with the breaking and entering of Acme Drugstore with the intent to commit a felony.

Defense Attorney's Closing Argument

Ladies and gentlemen of the jury, what we have here is a plainly unfortunate case of mistaken identity. Isiah Dawkins just happened to be at the wrong place at all the right times. But please, ladies and gentlemen, consider the evidence the prosecution has offered thus far. It's all only circumstantial. He contends his only eye witness, the police officer, saw a black male leaving the scene of the crime with a distinctive stride as though he had a bad leg. But will the officer, the only eye witness, make a positive I.D.? You heard his reservation, then refusal to positively identify Isiah as the man he saw leaving the crime. What was it the officer said, "It was just too dark to be sure?" Ladies and gentlemen, do you realize how many black men in this area resemble Isiah in stature? Quite a few. In addition, to address the problem of the unusual stride, you have all seen Isiah as he approached the bench. Did you notice anything unusual about his walk?

The prosecution has made emphasis of Isiah's previous record. Ladies and gentlemen, selling a few "joints" does not a criminal make. Certainly not in the same league as breaking, entering and robbery.
Let us review several other coincidences the prosecutor suggests are fact. First, about Isiah’s hacksaw being found at the scene of the crime. Surely all of you know the problem of petty theft these days. It’s more likely the saw was stolen, then used to open up the drug case by the person who stole it. Again, ladies and gentlemen, it’s not against the law to browse in a drug store. It is also not unlikely that Isiah may have touched several of the store’s contents, thus explaining his fingerprints being identified.

The remaining evidence offered by the prosecution is, again, only circumstantial and not worth wasting your time and patience refreshing. Therefore, ladies and gentlemen, in closing, let me remind you of the only of evidence offered, during the trial, that is not circumstantial. First, there was never a positive I.D. of Isiah as the robber. Secondly, the police did not find the drugs that were stolen in Isiah’s possession. Thirdly, Isiah has pleaded, under oath, to be not guilty.

Therefore, ladies and gentlemen, you don’t have positive identification, you don’t have possession, and most importantly, you don’t have an admission of guilt. All you really have is an unfortunate combination of circumstances. Circumstances, that do not prove beyond a reasonable doubt that that man, Isiah Dawkins, is guilty.

Thank you, I rest my case.
Appendix C

Questionnaire
Your Sex: M F

Your Ethnicity: ____________________________

1. How trustworthy do you think the defendant is?

1 2 3 4 5
Very Untrustworthy Very Trustworthy

2. How likeable is the defendant?

1 2 3 4 5
Very Unlikeable Very Likeable

4. Do you think the defendant is guilty or innocent?

Certainly Guilty Probably Guilty Probably Not Guilty Certainly Not Guilty
Group Deliberations

As a group, you must decide if the defendant is:

Certainly guilty    probably guilty    probably not guilty    certainly not guilty

If you determine that the defendant was certainly or probably guilty, what punishment should he receive? According to the sentencing guidelines, these are your options:

One year prison sentence
Two year prison sentence
Three year prison sentence
Four year prison sentence

Remember, these decisions must be made as a group.
1. **How do the people sitting near you make you feel?**

   1  2  3  4  5
   Very Uncomfortable  Very Comfortable

2. **How does this room make you feel?**

   1  2  3  4  5
   Very Uncomfortable  Very Comfortable

3. **How crowded did you feel when deciding this case?**

   1  2  3  4  5
   Very Crowded  Very Uncrowded

4. **I consider the people in my group, as jury members, to be:**

   1  2  3  4  5
   Very Unlikeable  Very Likeable

5. **I consider the people in my group, as jury members, to be:**

   1  2  3  4  5
   Very Incompetent  Very Competent

6. **How crowded did you feel during the group deliberation?**

   1  2  3  4  5
   Very Crowded  Very Uncrowded
List of References


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