



Short Article

Does the distance between us matter? Influences of physical proximity to others on consumer choice

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Abstract

Individuals' physical closeness to one another can either increase or decrease their preference for distinctive products. When individuals perceive their proximity to others to be voluntary, they are likely to interpret it as an indication of their affiliation motivation. Consequently, in a product choice task, they choose options that others consider desirable. When people perceive that their close proximity to others results from circumstances beyond their control, however, they feel that their personal space is violated and experience a need for to express their individuality. In this case, they are more likely to choose products that distinguish themselves from others.

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How does consumers' physical proximity to others affect their purchase decisions? Research in both psychology (e.g., Zajonc, 1965) and consumer behavior (e.g., Argo, Dahl, & Manchanda, 2005; Ariely & Levav, 2000; Dahl, Manchanda, & Argo, 2001; Ratner & Kahn, 2002) has investigated the effects of others' presence in a situation on behavior. However, the *density* of individuals in a situation, and thus how crowded people feel, could have an impact on their reactions to the situation over and above the presence of others per se (see Levav & Zhu, 2009, for relevant evidence). Furthermore, this impact could be reflected in the types of products they prefer.

We hypothesized that when consumers find themselves in a crowded environment for reasons beyond their control, they feel that their personal space is violated and attempt to reaffirm their identity as independent and unique individuals (Levav & Zhu, 2009). As a result, they are inclined to choose more unique and distinctive products than they otherwise would. However, suppose consumers perceive that their proximity to others is volitional. Then, they might infer that they have positive feelings about being

close to others and are motivated to affiliate with them. Consequently, they might conform to the preferences of other persons and select products that are *less* unique and distinctive than they otherwise might.

These differences could affect behavior outside the laboratory. For example, consumers' purchase decisions might differ when they freely decide to enter a store that is already filled with customers than when the store becomes crowded only after they arrive. Alternatively, consumers who enter a crowded food court might be more or less likely to order what other people are having if they are able to choose where to sit than if they have no choice. Thus, the effects of proximity to others on product preferences are of both theoretical and practical interest. Two experiments examined these effects.

Effects of proximity on preferences for uniqueness

There is an optimal distance from others at which people feel comfortable (Hall, 1966; Patterson, 1976). Consequently, when others are closer to them than they perceive to be optimal, they are likely to feel that their personal space is violated and experience discomfort. These feelings can depend on other factors as well,

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of course. For example, people often feel less constrained by a person's physical proximity if they have eye contact with this person than if they do not (Patterson, 1976; see also Ellsworth & Carlsmith, 1968). (Thus, persons feel more uncomfortable in a crowded elevator if they are facing one another than if they are all facing the front.)

When individuals' personal space is violated by the presence of others, they may feel that their individuality or uniqueness is threatened and may be motivated to reassert this individuality (Edney, Walker, & Jordan, 1976; Hui & Bateson, 1991; Stokols, 1972). When this cannot be done directly, they may resort to indirect means. For example, they might be less likely to accept a persuasive message (Albert & Dabbs, 1970). Levav and Zhu (2009) found that when consumers were constrained by their physical environment, they seek more distinctive and varied products in a consumer choice task. Social constraints could have similar effects.

Based on these considerations, we hypothesized that consumers' physical closeness to others can motivate them to reassert their individuality. In a product choice situation, for example, consumers may express preferences for products that distinguish themselves from others. This hypothesis assumes, however, that they have little or no control of the situation in which they find themselves. When consumers perceive their closeness to others to be a result of their own actions, they are less likely to feel that their personal space is violated and their motivation to assert their individuality may be less evident. In this case, other considerations arise.

Effects of proximity on affiliation motivation

People often use the implications of their own behavior as a basis for judgments and decisions to which this behavior is relevant. This possibility was initially suggested by Bem (1965, 1972) and was confirmed more recently by Albarraccin and Wyer (2000). The effects of bodily feedback (for a review, see Briñol & Petty, 2008) are also consistent with this possibility. For example, unobtrusively inducing individuals to nod or shake their head while they read a persuasive communication can influence their acceptance of the position being advocated (Briñol & Petty, 2008). Furthermore, mentally simulating the behavior of pulling a product toward oneself can influence one's liking for it (Labroo & Nielsen, 2010).

As Bem (1972) points out, however, individuals only use their behavior as a basis for inferring their attitudes if they perceive that they have engaged in this behavior voluntarily. For example, individuals are more likely to perceive their choice to reflect their true preference when they make the choice without any constraints than when these constraints exist (Iyengar & Lepper, 2000). In the present context, therefore, suppose individuals are given an opportunity to choose where to sit. Then, when their proximity to others is voluntary they may later infer that it reflects the extent to which they like these persons and their affiliation motivation more generally. Therefore, if their decision has led them to sit close to others, they may be inclined to adopt others' opinions and to choose products that others are likely to consider socially desirable. In this case, therefore, the effect of their

proximity to others may be diametrically opposite to the effect that occurs when individuals have no control over where they sit.

Overview of experiments

Two experiments investigated implications of the preceding analyses. In one experiment, participants who had been sitting in one area of an experimental room were asked to move to another area in which other participants were already present. They were given a choice of where to sit. However, the seats available were arranged so that in one condition, participants had to sit next to the participants who were already seated, and in another condition, they sat one seat away from the others.

Participants were then given a product choice task in which one alternative was distinctive relative to the others. We assumed that the participants who already occupied seats in the area would feel that their personal space was violated to a greater extent if the intruders sat next to them than if they sat further apart. Thus, we expected them to make unique product choices in order to reassert their individuality. In contrast, we assumed that participants who moved into the space that others occupied would infer from their proximity to the others that they were attracted to them and were motivated to affiliate with others in general. To this extent, they should be less inclined to choose distinctive products when they were seated next to others than when they were not.

In a second experiment, participants were seated in chairs that were either very close together or were separated by a comfortable distance. In one condition, however, participants were assigned specific seats by the experimenter, whereas in the other condition, they were allowed to choose their seats. We expected that when participants were assigned seats, they would perceive that their personal space to be violated to a greater extent if the seats were close together than if they were separated and so they would be more likely to prefer unique and distinctive products that reaffirm their individuality in the former condition. When participants had freedom to choose where to sit, however, we expected the reverse to be true.

In evaluating our predictions, it is worth noting that the participants in our research were Chinese undergraduate students. East Asians are inclined to have interdependent self-concepts (Markus & Kitayama, 1991). Therefore, they may be less inclined than European Americans to value uniqueness and correspondingly more disposed to value social contact. Thus, on a priori grounds, one might expect that this general disposition would qualify the differences we predicted. In fact, however, our expectations were confirmed even in the cultural group we investigated. We discuss the implications of this more fully after reporting our findings.

Experiment 1

Method

Participants and procedure

One hundred seventy-four undergraduate students from a large public Chinese university participated in this study for a payment of approximately \$5. They were randomly assigned to

conditions of a 2 (density: crowded vs. uncrowded) by 2 (seating mobility: movers vs. non-movers) between-subjects design.

We partitioned the room into two sections. Half of the participants were randomly asked to sit in the front section and the others were asked to sit in the rear section. All participants first completed a set of questionnaires as part of an unrelated study. After doing so, the experimenter approached the participants in the rear section of the room and told them that for the next experiment, they would be working on the computer but that because the computers in the back of the room were not working properly, they would have to move to the front. Participants were given a choice of where to sit. However, the distance between computers was manipulated so that as a result of the move, participants in crowded conditions were required to sit side by side, whereas those in uncrowded conditions sat one seat apart.

Participants were then asked to imagine that they were doing on-line shopping and were shown four pictures of Adidas t-shirts on the computer screen. The pictures were identical except for the logo. Three shirts had a blue logo that varied slightly in hue. The fourth shirt had a bright orange logo. (Pretesting revealed no systematic preferences for the logos themselves.) Participants were asked to indicate which of the four shirts they preferred.

After making their choice, participants were asked to indicate the distance between themselves and others along a scale from 0 (very far) to 10 (very close). Their feelings about their neighbors were then measured by three items (“I feel close to the people who are sitting beside me”; “I feel similar to the people who are sitting beside me”; and “I feel comfortable with the people who are sitting beside me”). Each item was answered along a scale from 1 (not at all) to 7 (very much). The three items were highly correlated ($\alpha = .74$) and were averaged to provide an indication of participants’ feelings about their neighbors. Finally, participants identified themselves as movers or non-movers.

Results

Manipulation checks

Participants perceived themselves to be sitting closer to others in crowded conditions ($M = 6.14$, $SD = 2.41$) than in uncrowded conditions ($M = 4.18$; $SD = 2.48$, $F(1, 170) = 28.20$, $p < .001$, $\eta^2 = .14$).

Feelings about their neighbors

We expected that non-movers would feel more negatively about their neighbors in crowded conditions than in uncrowded conditions, as they would feel that their space was “invaded.” In contrast, movers were expected to feel a closer relationship with the others in crowded conditions and to feel positively about sitting beside them. This was actually the case. As indicated in the top half of Table 1, non-movers felt less positively about their neighbors in crowded conditions ($M = 5.01$) than in uncrowded conditions ($M = 5.66$; $F(1, 170) = 2.68$, $p < .10$, $\eta^2 = .03$). In contrast, movers felt relatively more positively about their neighbors in the former conditions ($M = 5.79$) than the latter ($M = 5.01$; $F(1, 170) = 4.15$, $p < .05$, $\eta^2 = .06$). The interaction of

Table 1

Choice of unique option as a function of mobility and density—Experiment 1.

	Non-movers	Movers
Positive feelings toward neighbors others option		
Crowded	5.01 (2.19)	5.79 (1.53)
Uncrowded	5.66 (1.81)	5.01 (1.72)
M_{diff}	-0.65	0.78
Likelihood of choosing unique option		
Crowded	35%	8%
Uncrowded	17%	21%
M_{diff}	18%	-13%

Note: Standard deviations are provided in parentheses.

mobility and density was significant ($F(1, 170) = 6.73$, $p < .01$, $\eta^2 = .04$).

The choice of unique options

We expected that non-movers would be motivated to choose unique options if they felt negatively about sitting with others and that this would be more evident in crowded conditions than in uncrowded conditions. In contrast, the reverse should be true for movers. These expectations were confirmed, as shown in the bottom half of Table 1. Non-movers were relatively more likely to choose the unique t-shirt in crowded conditions (35%) than in uncrowded conditions (17%, $\chi^2 = 3.44$, $p = .06$), whereas movers were relatively less likely to do so (8% vs. 21%; $\chi^2 = 3.11$, $p = .08$). The interaction of distance and mobility conditions was significant ($\chi^2 = 6.13$, $p < .01$).¹

Discussion

Experiment 1 confirmed the assumption that the discomfort that individuals experience as a result of their physical proximity to others is not due to their proximity alone. Rather, it results from their perception that others have intruded on their personal space. Therefore, physical proximity led participants to choose unique options when others moved into the area they already occupied. When participants moved into the space that was already occupied by others, however, this did not occur. Rather, participants appeared to interpret their approach behavior as an indication that they were attracted to others. Consequently, they decreased their choice of unique options.

Experiment 2

Because participants who were asked to change their seats in Experiment 1 had a choice of where to sit, they presumably had a sense of control over their proximity to others. It was nevertheless desirable to obtain more direct evidence of the difference in perceived control that was responsible for the

¹ The effects of our manipulations on participants’ product choices were presumably mediated by participants’ feelings about their neighbors. However, the dichotomous nature of choice data precluded standard mediation analyses. (Correlational analyses are normally inappropriate when the mean and variance of the variables being correlated are confounded.) Furthermore, the limited variation in dichotomous data also prevents standard mediation analyses from being reliable.

effects we observed in the earlier experiment. Experiment 2 provided this evidence.

In this experiment, all participants occupied seats that in one condition were close to others and in a second condition were some distance apart. In some cases, however, they chose where to sit whereas in other cases, their seat was assigned by the experimenter. We expected that when the seats were close together, participants who were assigned seats would feel that their personal space was violated and that this would be reflected in an increased tendency to choose unique products in the choice task they performed subsequently. In contrast, we expected that participants who chose where to sit would interpret their behavior as an indication of their attraction to others and consequently would be less disposed to choose unique products when their seats were close together than when they were further apart.

Method

Participants and procedure

One hundred eighteen undergraduate students from a large public university participated in this experiment for pay of \$5. The study employed a 2 (crowdedness: crowded vs. not crowded) by 2 (seating condition: voluntary vs. assigned) between subjects design.

Subjects participated in groups of ten. They arrived at the setting expecting to participate in a market research study. Upon entering the room, participants in *voluntary seating* conditions were told to choose any seat they like. In contrast, participants in *assigned seating* conditions were simply assigned a particular seat by the experimenter. In the *crowded* situation, however, all seats were .5 m apart, whereas in the *uncrowded* situation, they were 1.5 m apart.

Participants were then given six scenarios, each of which involved a choice among several options. Two target questions were embedded among the others. In one of these items, participants were asked to imagine that they were doing some shopping online and saw four pictures of coffee cups. Three cups had an oval shape and were identical except for minor variations in size and the shape of the handle. The fourth cup had the shape of a cone that differed from that of the three cups. (Pretesting revealed no preference difference across these four cups.)

The second target item described two types of endangered animals, a Sumatran Tiger and an Amur Leopard, and called for donations to protect them. Participants were informed of the percentage of people who had donated money to preserve each type of animal (69% vs. 31%). Pretesting revealed no systematic preference for either type of animal, and the particular percentage associated with each animal was counterbalanced within each experimental condition. Participants then made a choice of the animal they would choose if asked to make a donation.

After making their choice, participants were asked to indicate the crowdedness of the room along a scale from 1 (not crowded at all) to 9 (very crowded). They also indicated their relationship with others in the room by two items “to what extent do you think you and the other people present in this room belong to the same

group?” and “to what extent do you think you are similar to the people present in this room?” Responses to these items were correlated .79 and were averaged to provide a single index of participants’ perceptions of the closeness of their relationship to others. Participants also indicated the extent to which they had freedom to choose a seat while doing this experiment. This served as a manipulation check for the seat choice. Each item was answered along a scale from 1 (not at all) to 9 (very much).

Results

Manipulation checks

Our manipulations were successful. Participants perceived the room to be more crowded in crowded conditions ($M=4.98$, $SD=1.99$) than in uncrowded conditions ($M=2.81$, $SD=2.00$; $F(1, 114)=34.32$, $p<.001$). In addition, participants indicated that they had more freedom to choose a seat in voluntary seating conditions ($M=8.03$, $SD=1.92$) than in assigned seating conditions ($M=5.98$, $SD=2.18$; $F(1, 114)=29.91$, $p<.001$). No other effects were significant.

Perceived relationship with others

Participants’ perceptions of the closeness of their relationship to others are shown in the top section of Table 2 as a function of crowdedness and seating condition. When participants were assigned to seat in the room, they felt they were less related to others in crowded conditions ($M=4.98$, $SD=1.78$) than in uncrowded conditions ($M=6.25$, $SD=1.79$; $F(1, 114)=6.55$, $p<.01$, $\eta^2=.12$). However, the reverse was true when participants chose a seat voluntarily ($M=5.73$, $SD=1.83$ under crowded condition; $M=4.85$, $SD=2.04$ under uncrowded condition; $F(1, 114)=3.48$, $p=.06$, $\eta^2=.05$). The interaction was significant ($F(1, 114)=9.85$, $p<.01$, $\eta^2=.08$). These results suggest that participants who were forced to sit with others would react to the crowdedness by claiming that they were not related to others, whereas those who voluntarily chose their seats would not experience feelings of discomfort and would, instead, infer their relationship with others from the proximity.

Table 2
Choice of unique option as a function of perceived control and density—Experiment 2.

	Assigned seating	Voluntary seating
Perceived relationship with others option		
Crowded	4.98 (1.78)	5.73 (1.83)
Uncrowded	6.25 (1.79)	4.85 (2.04)
M_{diff}	-1.27	0.88
The likelihood of choosing unique cup		
Crowded	19%	3%
Uncrowded	3%	17%
M_{diff}	16%	-14%
The likelihood of choosing unique animal		
Crowded	59%	44%
Uncrowded	34%	67%
M_{diff}	25%	-23%

Note: Standard deviations are provided in parentheses.

The choice of unique options

The interaction of crowdedness and seating conditions was significant in analyses of both cup preferences ($\chi^2=5.29$, $p<.05$) and animal choices ($\chi^2=6.60$, $p<.01$). In particular, when participants were assigned to seat in the room, they were more likely to choose the unique option in crowded conditions than in uncrowded conditions. This was true regardless of whether choices referred to cups (19% vs. 3%, under crowded and uncrowded conditions, respectively, $\chi^2=3.32$, $p=.07$) or animals (59% vs. 35%, respectively, $\chi^2=3.45$, $p=.06$). However, the reverse was true when participants chose a seat voluntarily and this was also true regardless of whether choices pertained to cups (3% vs. 17%, under crowded and uncrowded conditions, respectively, $\chi^2=3.25$, $p=.07$) and animals (44% vs. 67%, respectively, Wald $\chi^2=3.28$, $p=.07$).

General discussion

The tendency for consumers to make distinctive choices is clearly influenced by their physical proximity to other persons who happen to be present in the decision situation. As our research indicates, however, the nature of this influence can vary. When consumers are physically closer to one another than they would like, they may feel that their individuality is threatened and these feelings may stimulate them to reassert their individuality by making product choices that are unique or distinctive. However, this tendency is reversed when participants personally intrude on others' space rather than being intruded upon (as in Experiment 1), or when they have free choice of where to sit (as in Experiment 2). In the latter cases, participants apparently inferred from their behavior of approaching others that they are motivated to affiliate with people in general. Consequently, they are more likely to choose options that are similar to those that others are likely to prefer.

Our findings could have broader implications. For example, when consumers voluntarily eat at a crowded restaurant, they might infer that they like being with others and therefore might increase their choice of entrees that others are ordering. On the other hand, if they enter a restaurant that is initially uncrowded but is suddenly invaded by a large number of other customers, they may feel that their personal space is violated and might be inclined to choose unique entrees in order to reassert their individuality.

Several factors should be considered in evaluating the generality of our conclusions. First, although participants were randomly assigned to conditions, some of them may have been acquainted before arriving at the experiment. To this extent, participants who had a choice of where to sit may have based their selections on their a priori liking for the individuals that were close to them. It seems unlikely that this factor could account completely for the effects we observed in these conditions. Nonetheless, the potential contribution of this factor to our results should be kept in mind.

Another alternative interpretation of our findings surrounds the possibility that our findings were mediated by the need to reassert control *per se*, independently of the desire for individuality and uniqueness. Individuals whose personal space is invaded for reasons beyond their control may experience reactance (Brehm,

1966) and consequently may be motivated to reassert this control. However, although this motivation could decrease the tendency to choose options that conform to others' preferences, it seems unlikely to be the primary determinant of our findings. For one thing, participants who were not allowed to choose their seats (non-movers in Experiment 1, and those in assigned-seating conditions of Experiment 2) had no control over their behavior regardless of whether they were seated close to others or further apart. Thus, if feelings of being out of control were itself the determinant of judgments in these studies, its effects should have been evident in both crowded and uncrowded seating conditions. Thus, although a general effect of perceived control on product choices in our studies cannot be discounted, the critical factor underlying our findings was the control that participants had over their proximity to others and not their control *per se*.

The constraints imposed by the proximity of others are somewhat analogous to the constraints imposed by one's physical surroundings. Levav and Zhu (2009), for example, found that individuals chose a greater variety of products when they participated in a constrained physical environment. They assumed that when individuals felt that their freedom was restricted by their physical surroundings, they experienced reactance (Brehm, 1966) and reasserted their freedom by choosing a greater variety of options in the product choice task. A disposition to choose products that differ from those that others are likely to choose could reflect a similar motive.

A distinction should nevertheless be made between the motivation to reestablish freedom that is restricted by one's physical environment and the motivation to reassert individuality and uniqueness that results from close proximity to others. The latter motivation, which has no implications for variety-seeking *per se*, may exert an impact over and above any constraints imposed by one's physical environment. In fact, the evidence that proximity to others decreased participants' tendency to make unique choices when their closeness to others was partly under their control suggests that in our study, restrictions on freedom *per se* did not play an important role. Nevertheless, similarities and differences in the effects of physical space restrictions and the effects of personal space violations may be worth considering in more detail.

Several other factors can also affect people's feelings that their personal space is violated. Eye contact, like physical proximity, is often interpreted as an expression of intimacy or closeness, and there is a tradeoff between eye contact and physical proximity in determining the conditions in which one feels comfortable (for detailed analyses, see Patterson, 1976; Wyer & Carlston, 1979). This suggests that participants' perceptions that their personal space is invaded may depend not only on their physical proximity to others but the eye contact they are forced to maintain. Thus, individuals in a restaurant or shopping center may feel more intruded upon if they make eye contact with other customers than if they do not.

Two further considerations are of interest. First, a question arises concerning the extent to which one's attempt to express individuality by choosing unique options is stimulated by an attempt to communicate one's uniqueness to others or alternatively, reflects a more general tendency to reaffirm one's uniqueness to

oneself. In the studies we reported, participants communicated their choices to an experimenter. Although their reports were anonymous, they may nevertheless have been influenced by a desire to express their individuality to others. More interesting is the possibility that persons' expressions of individuality are the result of a desire to reestablish their perception of themselves as independent regardless of others' awareness of their responses.

Second, although our findings show clearly that individuals are *relatively* more likely to make distinctive choices when they perceive that their personal space is violated than when they do not, the absence of a baseline condition prevents the detection of more general preferences for distinctiveness that might influence product choices. Individual and cultural differences could exist in the overall level of distinctiveness that consumers prefer over and above the factors we considered. Although Asian cultural representations typically have interdependent self-concepts (Markus & Kitayama, 1991), they were nevertheless motivated to seek uniqueness when they felt that their physical proximity to others was beyond their own control. On first consideration, this might seem surprising. However, Asians are more inclined than Westerners to make in-group vs. out-group distinctions (Triandis, Bontempo, Villareal, Asai, & Lucca, 1988). They might therefore be more inclined to perceive others who happen to sit close to them as out-group members and to feel that their personal space is invaded. To this extent, they might be even more disposed than their Western counterparts to choose unique options to emphasize their individuality. This and other questions raised by the present study may be worth examining in future research.

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