Reactions to Personal Space Invasions in Enclosed versus Open Environments

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**Abstract**

This study will examine the effects of environment on reactions to personal space invasions. Previous research conducted has defined personal space and answered several questions about how people react to personal space invasions. My proposed research question is how does the environment effect reactions to personal space invasions? My hypothesis is that an enclosed environment will have the strongest reaction when compared to the control and open environments. Participants will be students attending a rural, liberal arts university. Participants must be alone, stationary, not using a mobile device such as a cell phone or iPod, and not have any visible handicaps such as a wheelchair, walking aids, or being blind. A trained confederate will invade a participant’s personal space will a trained observer records the reactions on a provided checklist. I believe my hypothesis will be supported with enclosed environments having the strongest reactions and the open environment having the weakest.

Reactions to Personal Space Invasions in Enclosed versus Open Environments

Personal space refers to the area around our bodies that people prefer that other people remain outside of (Hayduk, 1978). Personal space is comparable to a bubble, an area which keeps others at a reasonable distance following societal guidelines of propriety and politeness (Hayduk, 1978). Personal space size varies from person to person; some people have large personal spaces while others have proportionately smaller personal spaces. A personal space invasion is when one or more people intrude into a person’s bubble. The edge of the bubble was found, by Leslie Hayduk in 1981, to start at approximately two feet from the body of the person being invaded. According to Felipe and Sommer (1966), such invasions can cause either an aggressive response such as becoming angry or defensive and verbalizing this to the invader or a passive response such as subtle moving away from the person who is invading the space. Leslie Hayduk (1981) adds that those with larger personal spaces will be the ones to react more aggressively when their space is invaded as they will be affected more strongly to an invasion within two feet, when their personal space is for example five feet, than someone whose personal space is only three feet. Proportionately, a person with a larger personal space will be experiencing a much larger invasion and will therefore physically react more strongly to the invasion. Hayduk (1981) also comments on how personal space is not an empty rigid space, but rather is a filled space with regularly increasing resistance. This means the closer the invasion becomes to a person’s body, the increasingly stronger the reaction will be.

This study can help make the work environment a more calm and productive space. By discerning how the type of environment (open, enclosed, or medium) affects a person reactions to personal space invasions, work spaces can be set up in a way to not only create less opportunities for invasions but also in a way to give the workers more room to feel less crowded. This experiment can also help in teaching special needs persons who lack the ability to read social cues ways to avoid invading the personal spaces of others. They can be taught how to avoid invasions in environments that would elicit a stronger response that could become emotionally or physically harmful to them.

Many experiments on personal space invasion, or crowding, have been done in the past. They have been done in controlled laboratory settings as well as in observational settings. A study done by Cochran, Hale, and Hissam in 1984 tested whether or not being outdoor or indoors effected how large a personal space a person preferred to have, similar to my proposed experiment. I wanted to go more in depth into this subject by using more defined environment sizes, rather than just indoors and outdoors.

Previous studies I have read on this topic have had interesting findings from their studies. Hayduk (1978) highlights several theories on personal space that state what personal space is and why we have personal space. Greenberg and Baum (1979) found that when personal space invasions, or crowding, are anticipated, the person will withdraw from the social circle he is in. Although my study does not include the variable of biological sex, several findings on biological sex and personal space have helped further our understanding of how personal space works. It was found that biological sex had little to do with reactions to personal space invasions when there was short term crowding by studying people waiting to use an automatic teller machine (Kaya and Erkip, 1999). This means that when a person is in a crowded area it really doesn’t matter who is invading you space, just that your space is being invaded. Another study determined that women who are socially isolated at work will have a larger personal space than women who regularly interact with others at work (Gifford and Sacilotto, 1993). This study suggests that regular isolation from others will cause a growth in size of personal space. These studies help to give a more solid background to the subject of personal space for me to build my own experiment on.

Harris, Luginbuhl, and Fishbein’s (1978) experiment is also one from which I drew from for my own experiment. I plan to use a similar methodology of observers and confederates to gauge to responses to personal space invasions. These previous studies have all created new ideas for future studies.

The question I am asking is whether or not people react more strongly to personal space invasions in an enclosed environment as compared to an open environment. I believe that the reactions will be stronger in an enclosed environment as many people can find enclosed environments to be stressful (Greenberg & Baum, 1979). Also when space is limited, a person may be less likely to want what little space they do have to be invaded. In my experiment, a trained confederate will invade a personals personal space in one of three differing environments.

**Methods**

**Participants**

Participants in this study will be approximately 75 students at a rural, liberal arts university. To be considered a potential participant, the student must be alone, not using a mobile device such as a cell phone or iPod, and must not be visibly handicapped in any way (using crutches, in a wheel chair, blind, or having a service animal). The participant must be stationary and either standing or leaning. Participants will not be aware that they are being observed.

**Materials**

A checklist will be used to record each participants’ reactions to the personal space invasion. The checklist, similarly to that used by Harris, Luginbuhl, and Fishbien (1978), will include: change in facial expression, glances or looks at the confederate, shifting of position or posture, movement away from the confederate, verbal response, other.

**Procedure**

This will be an observational study with a post-test only design. There will be three levels to the independent variable: open environment (outdoors), medium or control environment (medium to large indoor room), and enclosed environment (elevator). As participants cannot be randomly assigned to an environment, three different locations within each environment will be observed to ensure a random sample. For example the enclosed condition would be performed at three elevators in three separate buildings.

A confederate will be selected to invade the participants’ personal space and record their physical behavioral reactions. The confederate will be trained how to invade a participant’s personal space safely. The confederate will be a female college student of moderate attractiveness and average height. She will be wearing casual clothing in neutral colors, tennis shoes, and will have her hair loose. Only one individual will serve as the confederate throughout the study. Two observers will be present for the medium and open environments at a discreet distance. Only one observer will be present for the enclosed environment as an elevator is a proportionally smaller space.

The confederate will choose a participant that fits the requirements of the study. The confederate will approach the participant and remain within two feet of the participant’s shoulder and silently count out 30 seconds. When invading in the enclosed environment, the elevator, she will remain in the participant’s personal space for the duration of the elevator trip or at least three floors. When observing in the open environment, weather conditions will be moderate and consistent. If at any point in time during the observation the participant becomes overly agitated or demands the confederate to back away, the confederate is to do so immediately, otherwise the confederate will leave at the 30 second mark. The participant will not be informed of the study prior to or following participation. No identifying information will be recorded by the observer, only the behaviors present on the checklist.

Participants will be scored by number of checks on the checklist. The higher the amount of checks, the stronger their reaction was.

**Results**

This study is a posttest only, between groups design. I will perform a one way Analysis of Variance (ANOVA). I predict that the enclosed environment will have a higher mean than either the open or medium environments, but the medium environment will also have a higher mean than the open environment. See Figure 1 for a graph of these predicted results.

**Discussion**

I expect that my hypothesis, that reactions to personal space invasions will be stronger in an enclosed environment than they would be in an open environment, will be supported. The findings of this experiment will possibly help to make the business world a more comfortable space by allowing for specialized training on how to recognize when you are invading someone’s personal space and also how to avoid doing so. If we can associate more enclosed environments, such as office cubicles, with a strong reaction to personal space invasions, then employers can use that knowledge to expand the environment to create a more comfortable atmosphere for the employees. Increased comfort will, hopefully, lead to greater productivity. Although, what a participant is doing at the time of the invasion could contribute to their reactions. If a participant is texting or playing a game on their cell phone during the invasion they may not notice the invasion as much as they would when not using a cell phone.

Possible threats to the internal validity of my experiment are observer bias and instrumentation. These can be solved by using blind observers and by training the observers on what to look for. A strict method of coding the behavior of the participants will be used. My experiment may become difficult if the confederate becomes recognized after several trials have been performed. Also, certain social etiquette rules may interfere with the data collection in the enclosed environment. The enclosed environment, an elevator, has its own subset of rules that a majority of people follow such as making no eye-contact, speaking very little, and if you do speak, it is quietly, and no crowding when possible. These rules being broken could account for the stronger reactions observed during the personal space invasion rather than the invasion itself.

An addition to my experiment could be to vary the biological sex of the confederate invading the participant’s personal space. By doing so I could gather data on whether or not the biological sex of those involved in the invasion could have any correlation on how strong the reaction is. It would be interesting to discern if the reactions of females are stronger when the invader is male rather than a female, as well as how a male would react to an invasion of personal space by the opposite biological sex.

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*Figure 1.* Estimated means of discomfort scores for each environment. The enclosed environment was found to have a higher mean of discomfort than both the open and controls environments. The control environment also had a higher mean of discomfort then the open environment.