

The Sky is the Limit:

**Testing how Retail Ceilings Replicated as the Sky Influence Consumer Behavior and
Purchase Decisions**

-Reflective Critique-

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Introduction

For my capstone research project, I created three immersive virtual reality retail environments to test how a ceiling replicated as a blue sky with white clouds influences consumer behavior and purchase decisions. To do so, I created three virtual reality retail stores that were fully stocked and high definition. Each retail store is identical, with the exception of each having a different ceiling. One ceiling was plain and white, as seen traditionally in stores, while another was blue with white clouds, and the last was a grey, gloomy sky. The white ceiling served as the control and the gloomy sky served as a third element of comparison. This third element allowed me to analyze whether it was having a different ceiling, other than white, that influenced the consumers or if it was in fact the blue sky with clouds that was the actual influence of trends, if any, to be seen in the blue-sky retailer. The designs of the sky are stationary and are able to be replicated in a real store.

Methods

I tested each of the immersive environments I created among 72 subjects, or consumers, with research methods including observation and a survey. With the data collected from these methods, I analyzed the time spent in store, the time the respondent felt they spent in the store, the brand recall of the store, the moods and emotions felt before, during, and after being in the store, the products purchased, revisit intentions, impulse purchase behavior, and among other measures. After analyzing and drawing conclusions, I found that the blue sky with white clouds does influence consumer behavior and purchase decisions positively, more so than the traditional ceiling and gloomy sky ceiling.

Importance to the Field of Marketing

Filling in a Gap in Knowledge

My research is the first to take an element of weather, the sky, and study its influence on consumer behavior experimentally in a retail environment. This project also contributed to how virtual reality, or VR, can be used within marketing research. Marketing has been reluctant to adopt VR as a main method of research, sticking to traditional methods of natural and contrived environments for research. Natural environments include such scenarios as observing customers within a brick-and-mortar store and contrived environments include such scenarios of observing customers in a test store set up for the study. These methods have limitations, such as cost and a strong tradeoff between internal and external validity. VR is able to mediate the tradeoff between internal and external validity by being a controlled environment, yet also replicating a real-life environment through the subject's point of view, enabling it to create both internal and external validity.

Even as other fields begin to utilize VR as a mainstream method of research within each respective industry, such as psychology, marketing has still been reserved with its use of VR. My study, in addition to the contribution of new knowledge regarding sky ceilings to fill in a gap in knowledge on design, marketing, and weather elements that be used to positively influence consumer behavior, also exemplifies how VR can be used to conduct efficient research with valid and reliable results.

Publication and Presentations

Due to the nature of my project, I was asked to present it to the Board of Visitors at Radford University and was also accepted to present and publish at the Appalachian Research in Business Symposium. In addition, I also presented at the Capstone Showcase and have plans to continue my project to be first author alongside three other co-authoring professors across the country for publication in a marketing journal.

Importance to Society, Industries, and the Field of Marketing

The factors that led me to conduct this study are the death of retail and job loss in America. Approximately 80,000 brick and mortar stores are expected to close by 2026 (Meyersohn, 2021) and Euler Hermes estimates that half a million jobs will be lost by 2025 (Unglesbee, 2020). These were my motivating factors from big box stores, department stores, specialty retailers, and small businesses alike, because brick and mortar stores are suffering from the chokehold that online retailers have on American consumption behaviors.

This has led to fierce competition and constant augmenting of stores to try to gain a competitive edge and consumer attraction, especially given that consumers are desiring an experience when shopping, meaning ambience and atmospherics mean more than ever to consumers on where they choose to shop (Ndengane, R.M., Mason, R.B., & Mutize, M., 2021). There have been numerous studies on how colors, textures, sounds, and fragrances can be used to increase differentiation, consumer attraction, competitive edges, and to persuade consumer mood and purchase intentions. These factors are due to the implicit and explicit signals consumers receive from these different aspects that persuade how long the consumers will be in store, what they will want to buy, and other factors. However, when it has been researched so much and

implemented so heavily across stores, it no longer carries that competitive edge when every store uses it. This is how my research can be used to help mitigate the negative impacts from online consumerism in America on brick-and-mortar stores and its associated job loss.

Strengths and Limitations of the Project

My project does have strengths, and limits, however; all projects do. My project gives plenty of opportunities for improvement, but also has many strengths that will allow it to be used more progressively in the future.

Strengths

My project sets up a foundation for the use of VR in the future, whether that be a continuation of my project or a new study. My VR stores will last indefinitely, which allow the project to be continued or picked back up in the future with the same conditions I created, or new ones can be added. It also shows how different interactivities can be set up and how VR can be used and established to conduct marketing research.

Findings

Regarding the data from the project itself, the strengths include how I found that the blue-sky ceiling produces higher positive affects and lesser negative affects when compared across the three, even in the standard ceiling we see in retail today. The summary results are as follows:

- Impulse purchase desire
 - Highest in the blue-sky ceiling
 - Lowest in the traditional ceiling
- The feeling of happiness in the store

- Highest in the blue-sky ceiling
 - Lowest in the traditional ceiling
- The strength of neutral emotions
 - Highest in the traditional ceiling
 - Lowest in the blue-sky ceiling
- The time respondents felt they were in the store
 - Highest in the traditional ceiling
 - Lowest in the blue-sky ceiling
- Produce, whole foods purchases
 - Highest in the traditional ceiling
 - Second highest in the blue-sky ceiling
- Processed, packaged foods purchases
 - Highest in cloudy ceiling
 - Lowest in blue sky ceiling
- Frozen foods purchases
 - Highest in the traditional ceiling
 - Lowest in the blue-sky ceiling
- Health and beauty purchases
 - Highest in the blue-sky ceiling
 - Second highest in the traditional ceiling
- Meat, deli, and bakery purchases were highest in the cloudy ceiling
- Store recommendation was highest in the blue-sky ceiling and second highest in the traditional ceiling

The project's strengths are also the combined internal and external validity using my VR scenarios. Allowing for a controlled environment in a study and also the resemblance of a real scenario for the subject show how behaviors exhibited in this study will be reflective as if that store existed in reality. Other strengths of the study include how the subjects were allowed to see the entire store and carry out the purchase behavior without interference by the researcher. This research shows how retailers and marketers can use the blue-sky ceiling to affect consumers in a positive manner, which is beneficial for the store itself, the brands within the store, and the aspect of keeping customers shopping in-person, rather than online, which can also influence increased purchases. These factors can help lead to a reduction in the death of retail and job loss in America.

Another strength of this study is that not all respondents reported noticing the different ceilings. This might seem as a limitation, but it plays more to being a strength. This is because even though some respondents reported not noticing the ceiling, the survey data gathered concluded that they were more positively influenced in the blue-sky ceiling and felt sadder and negatively influenced in the gloomy ceiling and traditional ceiling. This means that even though not all consciously notice the different ceiling, they still experienced its influence and were impacted by it.

Limitations

Limitations of my study include my underestimation of how respondents would react in the stores. I found that some respondents were overly excited to be in my store, which is a benefit, but some were more interested in testing the limits of the VR store, rather than conducting normal behavior. I had a few respondents try to climb shelves and the building itself. This was less than ideal, but I was still able to gather valuable observation data and survey data

from them. This also let me understand how I should impose more boundaries within the store, such as making certain locations inaccessible to respondents, such as climbing shelves and the building. This is something I did not think I would need to impose but learned of this crucial improvement from my study. While this limited my collection of observation data for these particular respondents, it gave insight into future changes to make if the study was to be conducted further. A way to mitigate respondents' excitement of being in VR is to pre-task them with a completely unrelated task in a completely unrelated environment. This way they can get their "wow-factor" out and then be able to be more focused in the actual research scenario. This is directly linked to how much time and money you have as resources, though.

Having respondents start inside is also a limitation within itself. I had wanted them to start outside the store, but was not able to afford, financially, to build a realistic outside area. The building itself was realistic from the outside, and it was in a parking lot, but I did not have any more funding left from creating the store to be able to create other buildings and a better parking lot. This meant the respondents had to start inside. If they had started outside, this would have created error, as they would only see the store in the middle of an empty parking lot with no other buildings in sight, which might have led them to be less likely to like that store. With more funding, this error could be eliminated to create a realistic shopping area so respondents can start outside. This would also improve the measurement of brand recall of the store name, as they could see it from outside the building on the front, how I initially intended, instead of a sign on the inside.

Another limitation involves gender of respondents. I had difficulty recruiting female respondents for this study. Moving forward, figuring out how to better motivate females to participate in this type of study is important. I believe it was predominantly male because the VR

world has a strong connection to gaming, which is primarily a male dominated industry. Finding out how to motivate non-males to participate will be a goal for the future.

How this Study Fits within Existing Scholarly Work

My research fits within the existing scholarly work by filling in a gap in knowledge regarding how skies placed within a retail environment impact consumers. There has been abundant research conducted proving that blue skies with white, fluffy clouds positively impact consumer purchase behavior and the desire to shop in a physical store, whereas grey, gloomy skies and weather show an increase in online purchases and negatively impact consumer purchases in physical stores (and their related affects of chroma, hue, value, and other visual and haptic properties). There is also a large body of knowledge detailing how different colors (alongside hues, saturation, and contrast), patterns, textures, and ambiances impact consumers within physical stores on purchase intentions, time spent in stores, and brand recall. The research I have conducted contributes new and original data and findings to the field of marketing regarding these concepts, of which have never been explored.

There has been no research conducted to study how placing a sky inside of a retail store will impact consumers. My study helps to fill in this knowledge to better examine how retailers and marketers can increase purchases within stores, aids in understanding which products sell better under these design considerations, increase purchases made in store, improve brand recall, and other positive affects from within this design consideration. The design of my VR sky ceilings allows for the understanding that the results can be expected under any form of installation of this ceiling, whether the sky design be painted on or an LED display.

Conclusion

In conclusion, I researched how a blue sky with white clouds, being replicated as a ceiling in a retail store, influences consumer behavior and decisions. While this study found significant trends of positive behavioral influences in the store that has the blue sky with clouds and more negatively impacted consumer behavior in the gloomy sky store, as both compared to the white ceiling as control, there are strengths and limits to my study.

My primary strengths involve the new contribution of knowledge that had not been explored or studied prior to my research, the ability of my study to be used indefinitely with the same conditions or improvements, and how my study sets an example of how VR can be used within the field of marketing research. My main limitations involve not being able to pre-task respondents and not having a lot of gender diversity in the respondent pool I obtained.

My study contributes new knowledge on an idea that had not been thought of or studied before. It fits within the existing body of knowledge by expanding upon how elements of weather, color, and ambience can be used to positively influence consumers in retail environments and also help brick and mortar stores find continuing success and prevent job loss. Further, it details how VR can be used in an effective manner to conduct research in marketing to obtain valid and reliable data that is internally and externally valid.

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