

Questions

Versions

1. Has COVID impacted people's likeness of sitting next to one another?
2. New Question: How close are people willing to sit next to one another and how, if at all, has that distance changed over COVID?
3. Potential Problem to be solved
 - a. How could UCF change the ways in which they design lecture halls and classrooms to accommodate the decreased social bubble that is the offspring of COVID-19?
 - b. How might the lessened social bubble from COVID-19 have affected drop-out rates and how can future lecture halls accommodate?

Current

How close are people willing to sit next to one another and how, if at all, has that distance changed over COVID?

Researching

Citation of Choice

- APA

Bee

Lebrun A.M., Corbel R., & Bouchet P. (2021) Impact of Covid-19 on travel intention for summer 2020: a trend in proximity tourism mediated by an attitude towards Covid-19. *Service Business*, 16, 469-501. <https://doi.org/10.1007/s11628-021-00450-z>

This article establishes a link to the impacts of COVID-19 to how French tourists of varying ages travel, to where, how, and most importantly for our purposes to what proximity they are willing to travel to other people. Within this article it is established that people have a distinct perception of how dangerous COVID-19 is depending on their destination and their method of travel which is relevant to our research question because we would like to see how both of these factors affect the distance at which someone is willing to sit to one another. The authors of this article have multiple other papers looking at travel trends depending on other factors, factors like the ones looked at in this article, and are also published in a credible journal.

Gabe T., & Florida R. (2021). Impacts of Jobs requiring Close Physical Proximity and High Interaction with the Public on U.S. Industry Employment Change During the Early

Stages of the COVID-19 Pandemic. *The B.E. Journal of Economic Analysis & Policy*, 21, 1163-1172. <https://doi.org/10.1515/bejeap-2021-0052>

This article takes a look at a specific time period (April-September 2020) and analyzes the change in employment based on several variables, such as amount of interactions with the public, proximity to public, how large employment in that sector is, how essential the service is, and many more. By looking at how employment is changed by specifically “Close Physical Proximity” and “High Public Interactions” we can see that both of these factors contribute a negative growth rate which is relevant to the question we are attempting to answer.

Leoni E., Cencetti G., Santin G., Istomin T., Molteni D., Picco G.P., Farella E., Lepri B., & Murphy A.L. (2022). Measuring close proximity interactions in summer camps during the COVID-19 pandemic. *EPJ Data Science*, 11, 5. <https://doi.org/10.1140/epjds/s13688-022-00316-y>

This article reports on data collected using both bluetooth and ultra-wideband radios on how close campers, counselors, and others were willing to get to one another during a summer camp for the purposes of helping policy makers make effective policies. In this article it was established that both the longer and closer someone was to somebody exposed to COVID-19 the higher the probability that you yourself would also become contagious. It was also established that during this summer camp campers were willing to get within close proximity to one another for long periods of time which is very different from other data points we have found. In conclusion, the authors of this article concluded that there were possible ways to establish long close proximity interactions given the right precautions were taken. The authors of this article have a few other articles of related topic, other papers on bacteria and viruses and their effects, and are published in a credible journal.

Mark

Hall, Edward T. (1966). *The Hidden Dimension* (pp. 7-40). Doubleday.

The above book is an introduction to the study of proxemics and human interaction with space and each other. In the pages mentioned he explores a multitude of studies that look to solve the ways in which animal overcrowding leads to increased stress amongst themselves and how it can even lead to shock. This became the main cause of death and not underfeeding or anything else related. In the studies he analyzes he finds that many of them follow that when overcrowding occurs, the animals are found to have increased stress and adrenal gland weight. The only issue with the source is that it might be entirely out of date with modern studies as it was published in the late 60s and could fail in modern times. As well, it is not peer reviewed and is only a book that introduces the concept of what was studied *previously*. However it does introduce a baseline understanding to how communities could function, however this would need to be validated against other sources. It led me to question the effects of overcrowding in college lecture halls and whether it plays any effect on drop-out rates.

Lisi, Scattolin, M., Fusaro, M., & Aglioti, S. M. (2021). A Bayesian approach to reveal the key role of mask wearing in modulating projected interpersonal distance during the first COVID-19 outbreak. *PloS One*, 16(8), e0255598–e0255598.
<https://doi.org/10.1371/journal.pone.0255598>

This article analyzes the preferred interpersonal distance between them and another person who is wearing a mask, not wearing a mask and who is positive, negative, or unknown for COVID-19. The study also analyzed many other factors, those being “perceived vulnerability” to the disease, the “perceived severity...in their country,” “physical and virtual contact” before participation, preferred moral style, “attitudes towards quarantine,” and altruism (p. 2-3). Although these other factors held “non-zero” effects, they were still too small to accurately find a pattern. The study did find that there’s a correlation in the distance when the other party is or is not wearing a mask and when the other party is positive, negative, or unknown for COVID-19. This being an increase in IPD (Interpersonal Distance) when not wearing a mask and an increase in IPD when positive for COVID-19. It too held when unknown there was a middle ground between positive and negative, possibly representing reliance on the other party having “a 50% chance of being infected.” This article is both up to date, published in August of 2021, and peer reviewed. The only downside is that it could provide an overkill towards the correlation in distances that the other party holds when a threat of disease is possible. That being it could be difficult to analyze a paper so heavily involved in statistical methodologies.

Hayduk. (1978). Personal space: An evaluative and orienting overview. *Psychological Bulletin*, 85(1), 117–134. <https://doi.org/10.1037/0033-2909.85.1.117>

This article from 1978 analyzes over 100 previous studies and articles to solve for the gaps in understanding in “Personal Space.” It finds four major theories on personal space, all being understudied and not understood, and a general understanding on how it can be constructed in three dimensions. However it does provide a two separate general understandings of personal space: personal space defined by potential threats and personal space defined by intimacy levels attempting to reach an equilibrium between “eye contact, the interaction distance, the intimacy of topics discussed, and the amount of smiling” (pp. 120). The paper does define personal space based on their own understanding however notes that the definition is still in need of experimentation. The paper itself is peer reviewed, and even with its age it is still used in modern papers to study phenomena like COVID-19 to better understand how personal space should be defined and understood.

Sorokowska, Sorokowski, P., Hilpert, P., Cantarero, K., Frackowiak, T., Ahmadi, K., Alghraibeh, A. ., Aryeetey, R., Bertoni, A., Bettache, K., Blumen, S., Błażejewska, M., Bortolini, T., Butovskaya, M., Castro, F. ., Cetinkaya, H., Cunha, D., David, D., David, O. ., ... Stamkou, E. (2017). Preferred Interpersonal Distances: A Global Comparison. *Journal of Cross-Cultural Psychology*, 48(4), 577–592.
<https://doi.org/10.1177/0022022117698039>

The study conducted above solves many of the problems that arose from previous studies by widening the study scope and sphere of experimentation. Creating a total study group of 8,943 participants. In each taking note of age, country, and sex as inputs and analyzing the preferred “social distance,” “personal distance,” and “intimate distance” and asking participants based on their preferred distance to a “stranger,...an acquaintance, or a close person,” respectively (pp. 581). Specifically finding a mean social distance of 135.1 cm, a mean personal distance of 91.7, and a mean intimate distance of 31.9. However this mean was not the focus of study, much more had been found. (1) That IPD to a stranger had increased when in colder climates and the IPD of a stranger had decreased when in warmer climates (pp. 585). This finding questions the idea whether this applies on the micro scale as well, in local classrooms and office buildings. How does the temperature of a room modify the preferred distance to a classmate? The finding also found that age plays a role into IPD, specifically that “older people...prefer greater distance to an acquaintance” and “with people they consider close.” With that sex too played a role in determining IPD, in that “women prefer greater distance toward strangers” and “a greater distance with people they consider close.” These findings brings to question whether any form of hidden discrimination could be at play inside the classroom when creating lecture halls that could create an avoidance in attending classes when the student is older or female. This study is peer reviewed and contains 8,943 participants across 42 countries, and contains some interesting information on how IPD differs among countries, and brings to question how those same findings might be prevalent along the micro scale as well, specifically in classrooms.

Welsch, von Castell, C., & Hecht, H. (2019). The anisotropy of personal space. PloS One, 14(6), e0217587–e0217587. <https://doi.org/10.1371/journal.pone.0217587>

The article above studies the specific and discrete discomfort levels when participants intrude or “extrude” on their personal space. Extrusion used “for lack of a good term” (pp. 3). Acquiring 24 participants, they analyzed the discomfort levels based upon an analog scale using a joystick to measure the amount of discomfort participants gained through the “stop-distance” approach in finding a participants personal/interpersonal space. They found that the slope for intrusion carries a steeper gradient in discomfort increase while extrusion carries a decreased slope gradient, slope of 1.35 points per cm vs 0.46 points per cm, respectively. Where “points” are some abstract measurement that symbolizes discomfort. The following graph that is created, follows a U or V-shape in that the V-shape is most likely more accurate as the U-shape “is an artifact” (pp. 7-8). This being the following diagram symbolizing discomfort follows a V-shape that holds a great slope towards a lower IPD and a lesser slope towards a greater IPD, where the mean holds at 88.33 (pp. 8). It can be, seemingly, described as such:

$$d(x) = \begin{cases} -1.35(x - 88.33), & x \leq 88.3 \\ 0.46(x - 88.33), & x > 88.3 \end{cases}$$

Where $d(x)$ is the comfort level in terms of distance.

Note: This figure was developed by me and this equation is not the exact findings the original article notes and is based upon the discrete figure they present (converted to a continuous function), however it is interesting to represent how we perceive discomfort against our IPD.

Jason

Moya, Cristina, et al. "Dynamics of Behavior Change in the Covid World." *American Journal of Human Biology*, vol. 32, no. 5, 2020, <https://doi.org/10.1002/ajhb.23485>

The major point of the article is to observe how COVID impacted human behavior in terms of cultural, social, and political contexts. This article is important because it dives further into understanding why and how social and economic constructs shape human actions. This kind of research in human sciences is relevant to our question of human proximity because it describes the two specific ways that humans learn: learning from people with high status and learning from people that are like-minded to us. This information can help shape our proposal because it provides valuable information about the psychology of humans during COVID. Our group plans on conducting research by observing different studies performed by established journals that have been peer-reviewed. The source is credible because it is a peer-reviewed article that has been collaborated on by different universities all across the globe. This article will be useful to our team's document because it allows us to key in on specific social information that affected our willingness to sit next to one another even after COVID has died down.

Jetten, Jolanda, et al. "Covid-19 and Social Psychological Research: A Silver Lining." *Asian Journal of Social Psychology*, vol. 24, no. 1, 2021, pp. 34–36., <https://doi.org/10.1111/ajsp.12465>

The key idea that the article wanted to get across was that COVID brought around a new mindset and way of thinking about social psychology. Furthermore, people with different religious and cultural backgrounds around the world have found new and unique ways to adjust in a socially relevant manner. The study found that the way we do social research post-COVID has a greater focus on context, collaboration, and engagement. The article is credible because it was peer-reviewed and had been published by the *Asian Journal of Social Psychology*. The information posed by this article is relevant to our question of human proximity because it shows how humans have changed the way they communicate and collaborate due to COVID's impact on social life. With the implementation of physical distancing naturally comes the question of how it impacts things like mental health, relationship/trust building, privacy, etc. and I think that this article does a good job of describing how each of those was affected.

Annotated Bibliography

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