

THE CHALLENGE  
2020

# Front Office Solutions



Team SPA

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The Challenge 2020

June 22<sup>nd</sup>, 2020

# Define the Problem

- The highly infective nature of the virus along with the fact that no cure or vaccine has been developed yet for COVID-19 forces people to take precautions to prevent the spread of the virus for the sake of those individuals who are high risk. It also forces people to be more aware of their surroundings and others.
- It is limiting the types of interactions that people can have between each other. This could affect the way that teachers interact with their students in classes that require in person interaction. For example, some types of demonstrations such as labs can not be conducted anywhere else but in a safe lab environment.

# Location: Front Office

- The chosen space is used by students and teachers alike as well as parents throughout the whole school day. Students and teachers interact with each other and the office employees in this space.
- The chosen space is on average twice the size of the average classroom.
- One challenge is that many people have tasks they need to carry out, however, distancing rules might not allow them to fulfill them at the same time."
- The reception part of the space along with the nurses section need to be maintained to keep it functional.

# Possible Solutions

**Idea 1:** Hand sanitizer at the counter for use before and after touching surfaces/supplies

- Make sure people's hands are disinfected
- No way to regulate if someone used it or not
- Costly
- Reduces chance of spreading germs
- Hard to come by

**Idea 2:** Schedule a time with the office to limit people allowed in the office area (day, time)

- Might not work with individuals schedule if the time they need to meet is taken
- Limits # of people and distance is maintained
- Triage (most to least important office meetings?)
- Elect for Zoom meetings instead of in-person meetings

**Idea 3:** Limit number of people allowed in the office at one time and have others wait outside, 6ft apart

- Look into automation
- Parent pick up/drop off
- Facial recognition software/security cameras
- Students need to print
- Rearrange the room to allow people to stay 6 feet apart

# Possible solutions

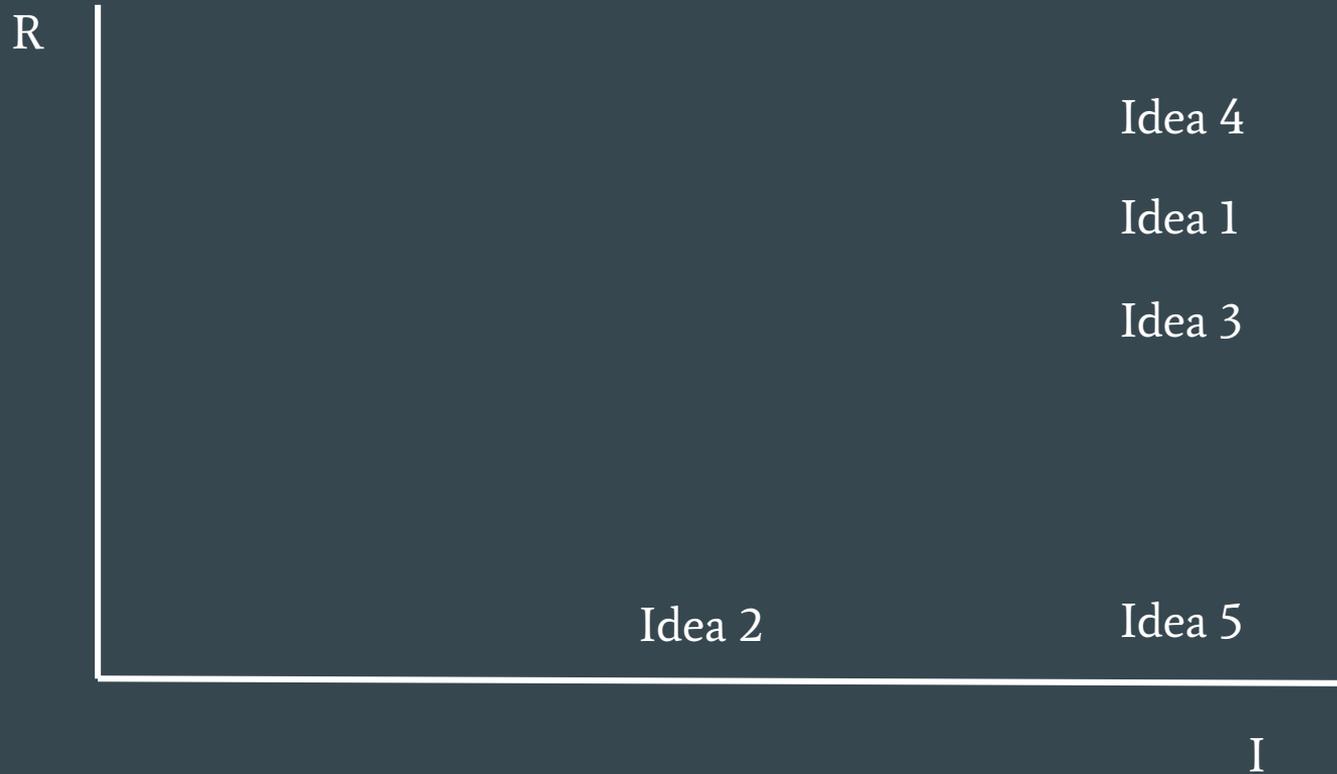
**Idea 4:** Added barriers in between office desks and public counter

- Helps limit contact/air contact
- Costly depending on size and number of barriers
- Low tech, but implementable

**Idea 5:** Keep doors open

- Greatly reduces the need to come into contact with surfaces that others have touched
- Could limit the amount of privacy in other rooms such as the principal's office

# Resource/Impact analysis



# Define your solution

- We first thought of problems that needed to be fixed in order to make the offices at school safe from COVID-19. Then we proceeded to form ideas based on how to eliminate those problems with the least amount of cost and went from there.
- The physical parts of our solution include having hand sanitizer, having doors open at all times, rearranging the office space, and having barriers implemented. The digital parts of our solution include having a schedule where people who want to access the office need to make appointments and the tracking system system to keep track of who enters the office and when.
- Our solutions consist of hand sanitizer at the counter for use before and after touching surfaces/supplies, scheduling a time with the office to limit people allowed in the office area, limiting number of people allowed in the office at one time and have others wait outside, staying 6 feet apart, adding barriers in between office desks and public counter, and keeping doors open.

# Implementation

- We will need industrial engineers, biomedical engineers, material sciences engineers, and computer engineers to carry out our solution.
- These solutions could change the way that schools arrange their offices in the future as well as the type of systems that they will implement going forward.

# Discuss Barriers to Design Implementation

- Some of our solutions have very low costs such as implementing a schedule and appointment system, as well as keeping doors open. However, other solutions that we have come up with may cost more such as implementing barriers and rearranging the office.
- There are no barriers to equipment, but some items may be harder to get due to a higher demand for them during the pandemic.
- The size of the space is a large barrier because there is not unlimited space so we have to take that into account when deciding the safe number of people that will be allowed into the space.

# Discuss How Your Solution will Change the Space

- Stakeholders will be less liable in case someone gets sick because they took the necessary precautions in order for others not to get sick. If one worker in the space gets COVID-19 without any symptoms then they are in less danger of getting others sick.
- The space will become cleaner and safer overall without too much inconvenience to the people who work there. A negative change will be that things inside the workspace for teachers and students alike will move slower overall.
- The function of the space will change greatly. Students will not be able to meet with teachers in person as often in the office space. Additionally, they may not be able to interact with the office workers for certain tasks such as printing things out. Also, things will move slower due to less people being allowed in the space at once.

# Discuss What You Learned and How You Worked as a Team

- We overall worked as a team very well. We both equally contributed to this project which made it far easier to complete.
- The only failure we had as a team was scheduling when we were going to meet.
- We learned that communication is very important when working as a team to decide on what ideas we want to move forward with.

# Works Cited:

Why hand sanitizer is effective:

<https://www.fda.gov/drugs/information-drug-class/qa-consumers-hand-sanitizers-and-covid-19#:~:text=The%20best%20way%20to%20prevent,least%2060%25%20alcohol.>

How effective are barriers:

<https://ncceh.ca/content/blog/physical-barriers-covid-19-infection-prevention-and-control-commercial-settings>

How effective is staying 6 feet apart:

<https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/social-distancing.html>

Cost of hand sanitizer:

<https://www.amazon.com/Hand-Sanitizers/b?ie=UTF8&node=2265897011>

Why doors should remain open:

[https://www.cdc.gov/coronavirus/2019-ncov/community/pdf/Reopening\\_America\\_Guidance.pdf](https://www.cdc.gov/coronavirus/2019-ncov/community/pdf/Reopening_America_Guidance.pdf)

Infection rates in AZ:

<https://www.azdhs.gov/preparedness/epidemiology-disease-control/infectious-disease-epidemiology/covid-19/dashboards/index.php>