Bottom of the Bell Curve

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How Covid-19 affects schools and internet usage around the globe?

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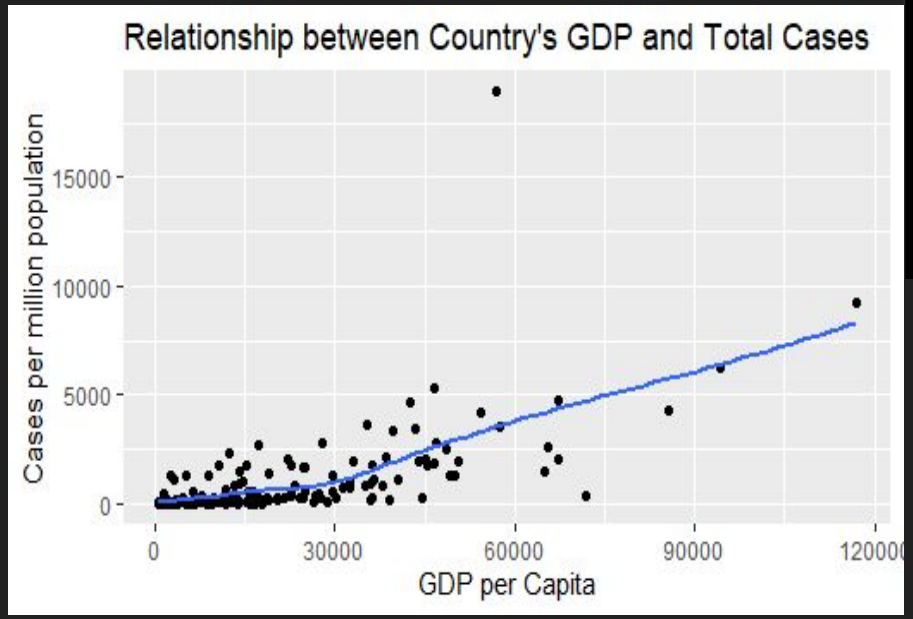
Overall relationship between Country's GDP and Confirmed Cases




```
Call:
glm(formula = total_cases_per_million ~ gdp_per_capita, data = covid)

Deviance Residuals:
    Min       1Q   Median       3Q      Max
-3731.3   -541.4    -31.9    232.0  15798.3

Coefficients:
                Estimate Std. Error t value Pr(>|t|)
(Intercept)    -2.968e+02  1.516e+02  -1.958   0.0518 .
gdp_per_capita  6.058e-02  5.499e-03  11.017   <2e-16 ***
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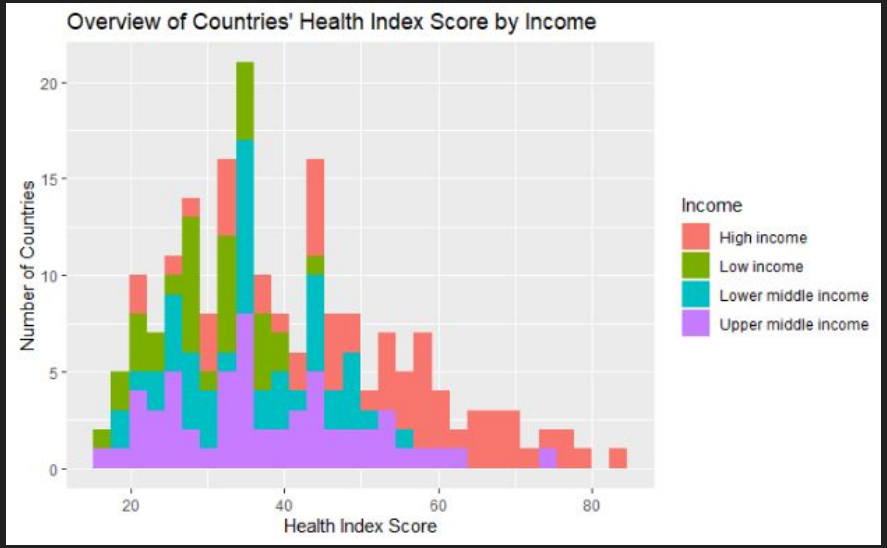
```

From the graph we can see that as the GDP per capita increases, the more total cases per million population increases as well.

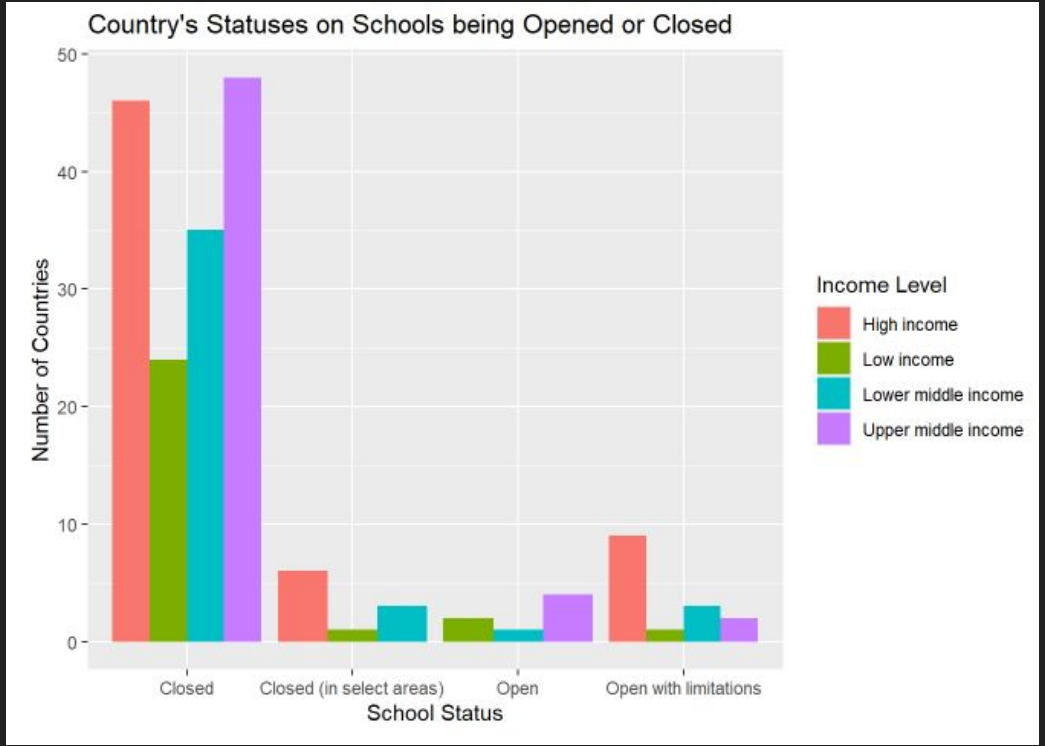
Health Index Scores

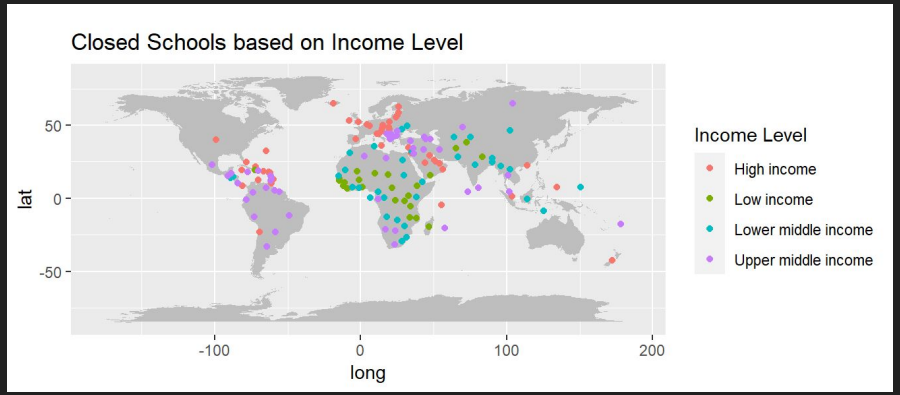
We gathered data on countries' health index score and saw that the majority of countries with higher score were also the ones that are considered high income. Comparing that to our previous graph, the countries with the higher GDP are the ones with more confirmed cases.

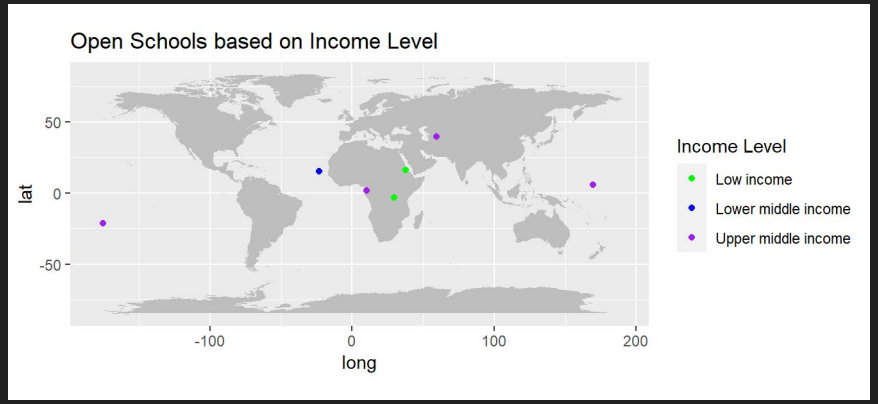


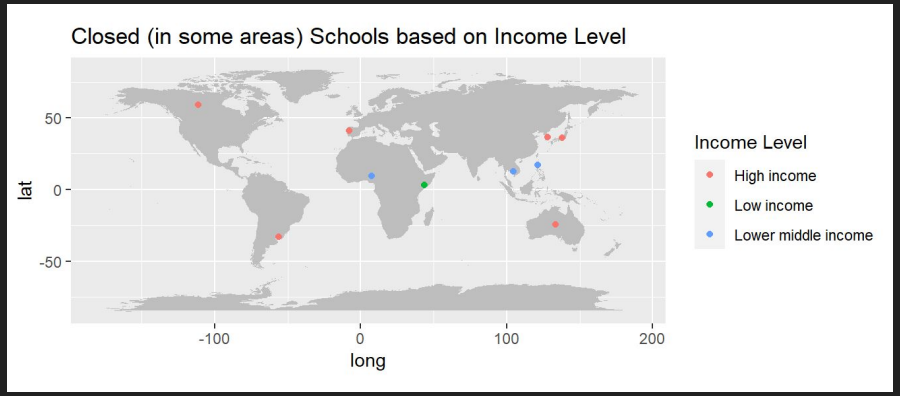
What are Countries Doing to Prevent Contamination?

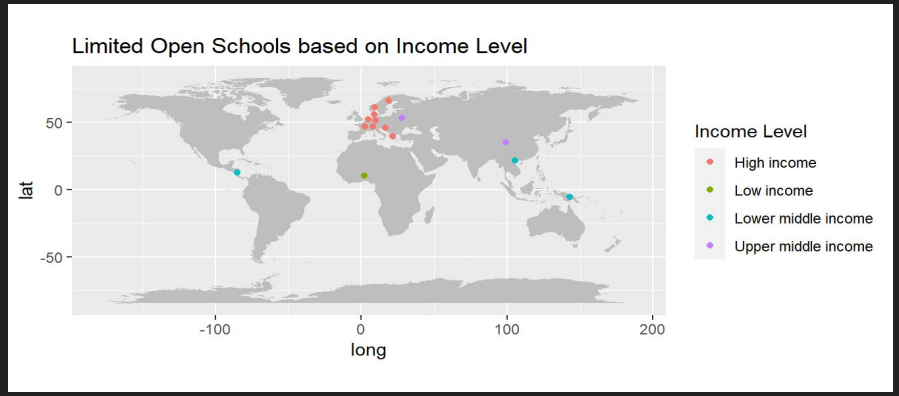
We can see that the majority of countries, regardless of income, have decided to close schools. There are a few countries still have schools going at limited or full capacity.











Quite a few European countries, including Germany, France, and scandinavian countries, are the majority of countries that are open in limited capacity.

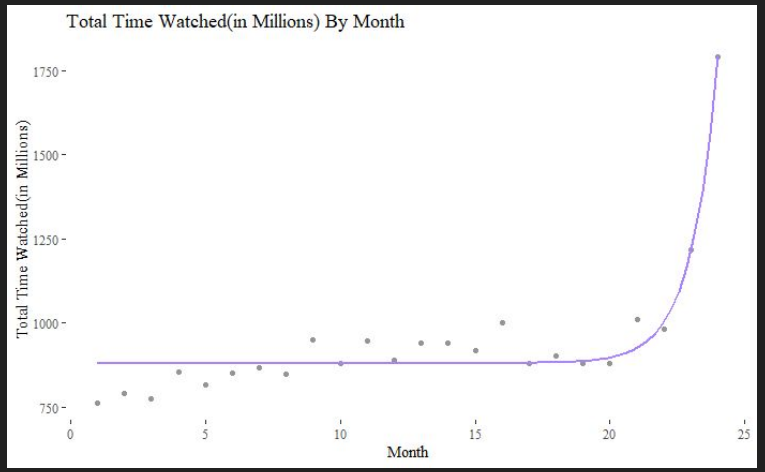
Twitch Data

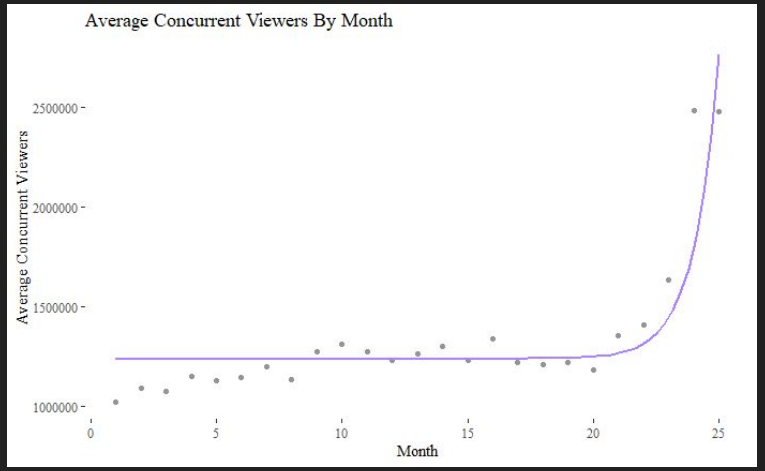
We wanted to look deeper into student aged individuals and see what they are doing away from school.

A typical site young individuals look up is Twitch.tv.

We can see during the last two months of the outbreak there was a drastic increase in time watched and concurrent viewers.

Note: Due to COPPA of 1998, internet sites are not allowed to gather data on individuals younger than 18. We are making the assumption





Relationship between Time Watched and Average Concurrent Viewers

```
        Durbin-Watson test

data:  lm(Twitch_without_Last_Month$Time.Watched ~
Twitch_without_Last_Month$Avg..Concur..Viewers)
DW = 2.9982, p-value = 0.9933
alternative hypothesis: true autocorrelation is greater than 0
```

```
Call:
lm(formula = Twitch_without_Last_Month$Time.Watched ~
Twitch_without_Last_Month$Avg..Concur..Viewers)

Residuals:
   Min     1Q Median     3Q    Max
-76.26 -12.62  11.65  17.45  30.09

Coefficients:
                                                 Estimate Std. Error t value Pr(>|t|)
(Intercept)                                     2.198e+01  2.379e+01   0.924    0.365
Twitch_without_Last_Month$Avg..Concur..Viewers 7.122e-04  1.804e-05  39.476   <2e-16

(Intercept)
Twitch_without_Last_Month$Avg..Concur..Viewers ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 24.6 on 22 degrees of freedom
Multiple R-squared:  0.9861,    Adjusted R-squared:  0.9854
F-statistic:  1558 on 1 and 22 DF,  p-value: < 2.2e-16
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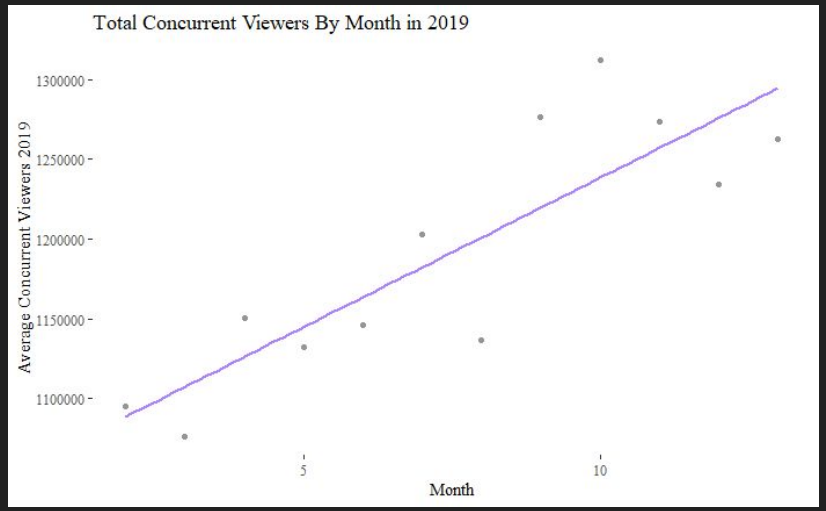
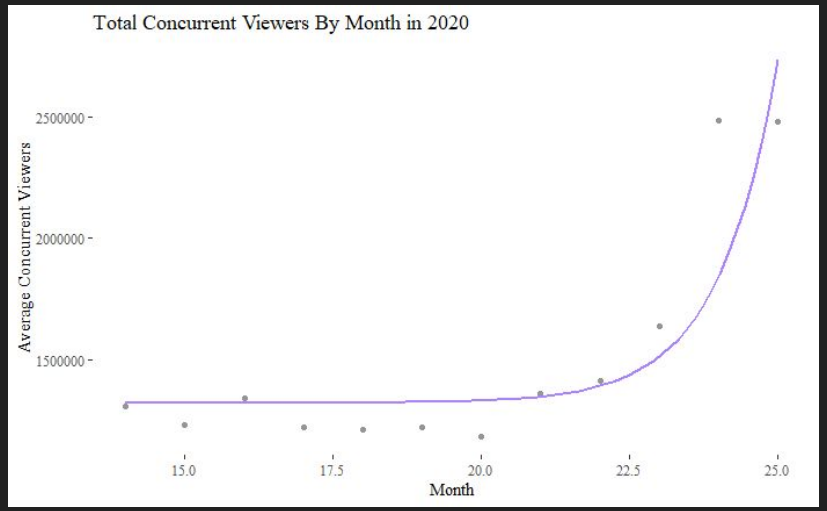
Comparing 2019 Data To 2020 Data





- 2019 Seems to follow a linear model
- 2020 Seems to follow an exponential model

Other Factors

- Twitch recently had a special partnership to release access for the game “Valorant” on April 7th, this may have boosted twitch viewership in a way that is unrelated to Covid-19
- By removing the viewers for that specific game, we can still witness a large increase of total concurrent viewers for the site.