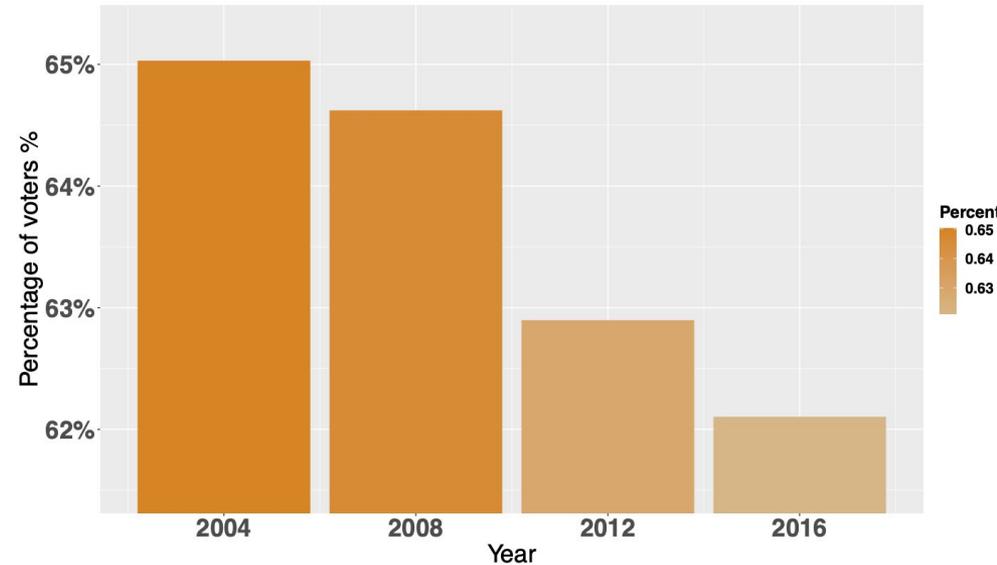


# Targeting Low Voter Turnout through Statistical Analysis

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# Background

- Low voter turnout has been a growing issue in America
- This abysmal rate has led America to rank 26th out of 32 in the list of OECD nations in terms of voter turnout
- Total voter turnout for the 2004 presidential election was 65.03% (Figure 1)
- This percentage **has dropped** most recently to 62.1% in 2016 presidential election (Figure 1)



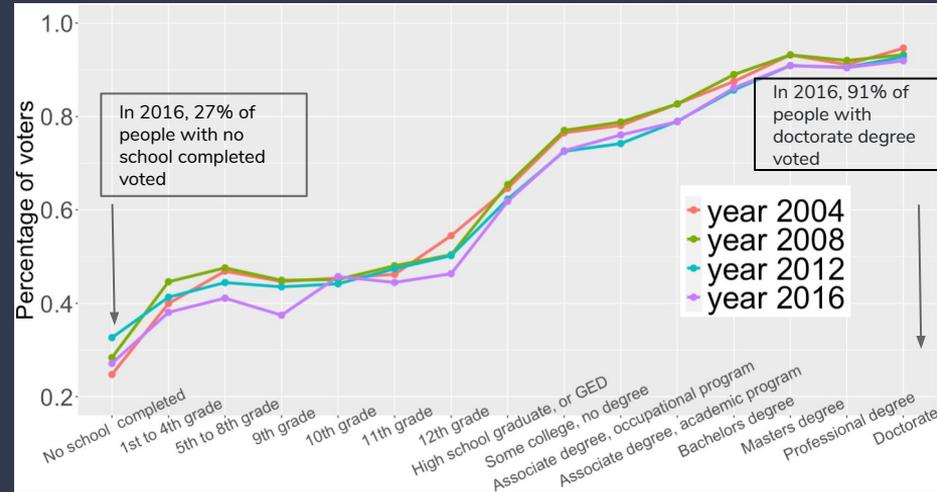
**Figure 1.** Voter turnout for the 2004-2016 General Elections (IPUMS-ASA U.S. Voting Behaviors dataset)

# Target factor: Level of education attained

Although many variables contribute to low voter turnout, we decided to focus solely on the association between education level and voter turnout during the general elections from 2004-2016

Figure 2 shows that **the higher a person's education level is, the more likely he/she was to vote.**

The establishment of this very strong correlation was more significant than the weaker associations seen between other contributing factors (ex. age, gender, citizenship, employment status, marital status, and race).

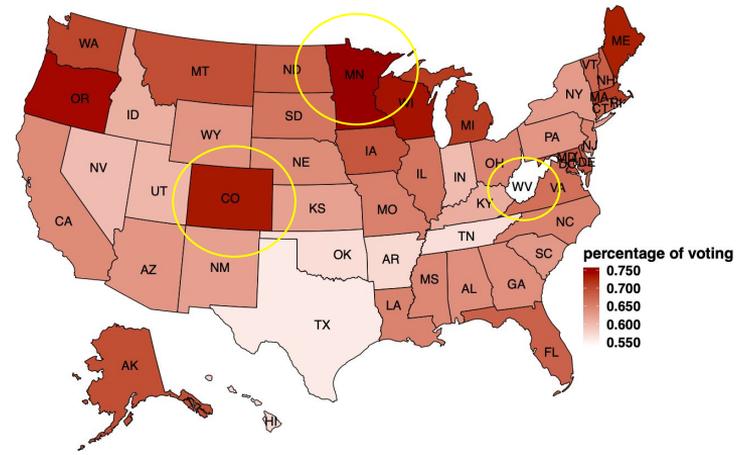


**Figure 2.** Percentage of voting for each education level in presidential election from 2004 to 2016 (IPUMS data)

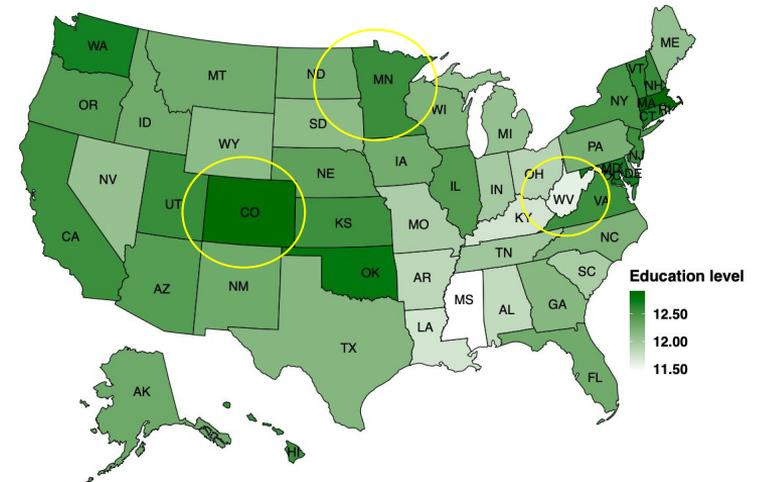
# Our mission

As seen in Figures 3 and 4, the darker states indicate areas with high average education level and high average voter turnout. States such as **Colorado** and **Minnesota** are significantly darker than their neighbors, while **West Virginia** is the lightest state in both graphs.

With these observations, we decided to target the three states mentioned above as they are clear examples of the correlation between voter turnout and education level. Our mission is to focus on supporting states or specific population with lower education to increase voter turnout through specific analysis.



**Figure 3.** Percentage of voting for each state in presidential election from 2004 to 2016 (IPUMS data)



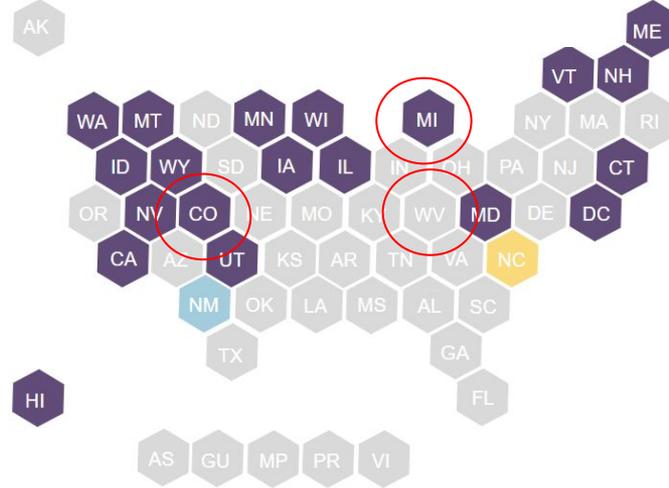
**Figure 4.** Average education level for each state in presidential election from 2004 to 2016 (IPUMS data)

# Implementation of Specific Voting Systems

We investigated the voting systems and procedures implemented by states with high voter turnout (Colorado, Minnesota) to see if there is a specific system that helps draw voters to the booths.

What we found:

- **Both Colorado and Minnesota** implement same-day voter registration and online voter registration (Figure 5)
- **Colorado implements** an all-mail ballot system for all elections (Figure 6)
- **West Virginia has none** of these systems in effect (Figures 5, 6)
- These systems have simplified voting, allowing states like Colorado and Minnesota to maintain high voter turnout



**Figure 5. States with same-day/election day voter registration**

**Purple:** states that allow voters to register to vote as late as election day.

**Gray:** states do not offer this option. (Figure from: <https://www.ncsl.org/research/elections-and-campaigns/same-day-registration.aspx>)



**Figure 6. States that utilize an all-mail ballot system**

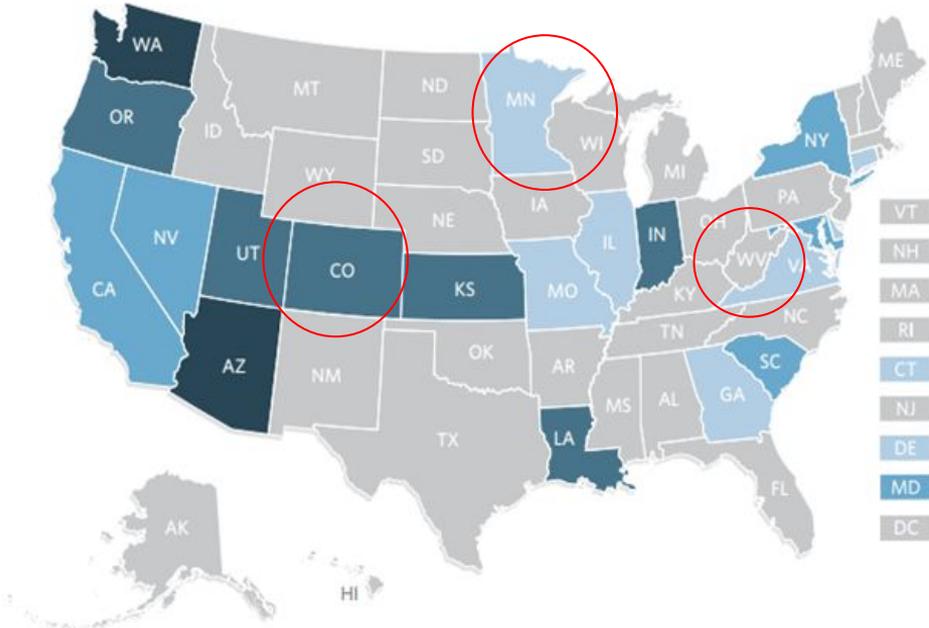
**Blue:** ballots allowed for all elections  
**Yellow:** counties decide whether to allow for specific elections

**Green:** Some elections are only done through mail (Figure from:

<https://www.ncsl.org/research/elections-and-campaigns/absentee-and-early-voting.aspx>)

\*All figure circles added by slide authors

# Implementation of Specific Voting Systems Cont.



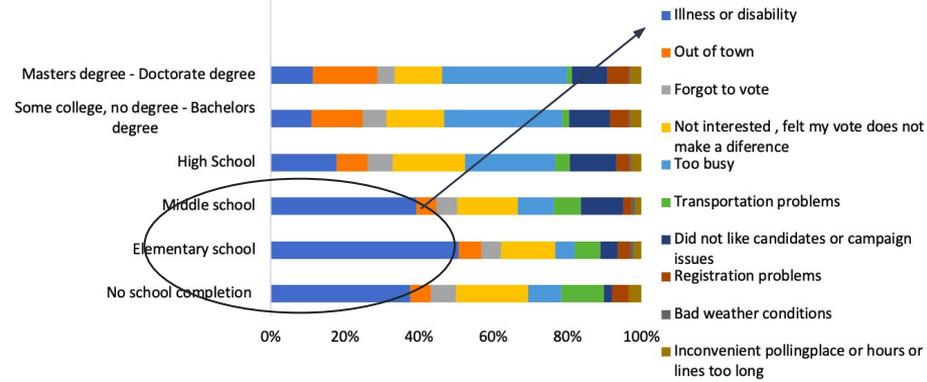
**Figure 7.** Online voter registration implementation from 2008-2014  
The darker a state's color, the earlier they implemented online registration. Gray states have indicated no such a system in place. (Figure from: <https://www.pewtrusts.org/en/research-and-analysis/issue-briefs/2015/05/online-voter-registration>) \*Circles added by slide authors

- Connection to people with low education:
  - People with low education (high school or less) are more likely to work at jobs with lower salaries
  - Such jobs are likely to **include long hours** (ex. taxi driver, cook)
  - **Difficult to take time off** to vote
- Benefits of 3-system implementation:
  - Mail-in ballot: Ability to vote on own time (avoidance of long polling lines)
  - Online voter registration: Registration is less **time-consuming** (can be done from home)
  - Same-day/election day registration: Avoidance of strict/forgettable registration deadlines

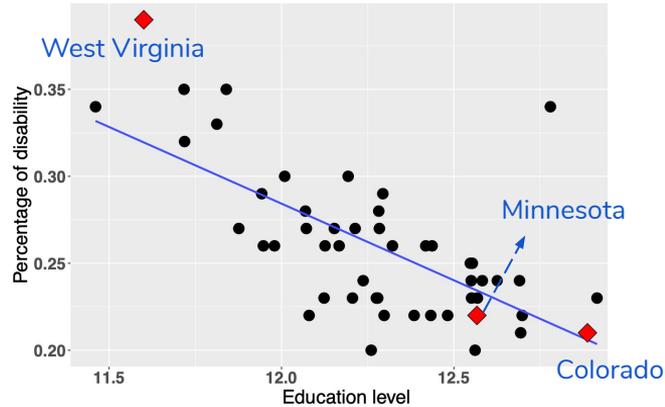
We recommend that all states currently labeled in gray (Figures 5-7) implement this 3-system approach to improve overall voter turnout.

# Disability

To increase voter turnout, we can also target specific populations that have some of the lowest voting impact, such as the disabled population. As shown in Figure 8, **illness/disability is the biggest reason for not voting among people with low education in America.**



**Figure 8.** Percentage of each reason why people don't vote for each education attainment group (IPUMS data)



**Figure 9.** Association between average education level and percentage of disability for all 50 states. Each dot represents one state. The average education level data is from our calculations based on the IPUMS data (greater values mean a higher education level) and disability percentage data is gathered from CDC reports. (CDC: <https://www.cdc.gov/hcbddd/disabilityandhealth/impacts/index.html>)

## Statistical Analysis

Performing the linear regression  
t-test for the slope



P-value =  $9.8 \times 10^{-8}$



P-value < 0.5

There is an association between the disabled population percentage of each US state and average education level.

Figure 9 shows that the lower average education attainment is, the higher the likelihood of disability occurrence.

# Solutions to help disabled people vote

## Benefits of implementing a 3-system approach:

- All mail-ballot system helps the disabled avoid polling stations (which may not have adequate accommodations)
- Same-day voting and online voting registration help the disabled avoid early voter registration deadlines (easy to miss)

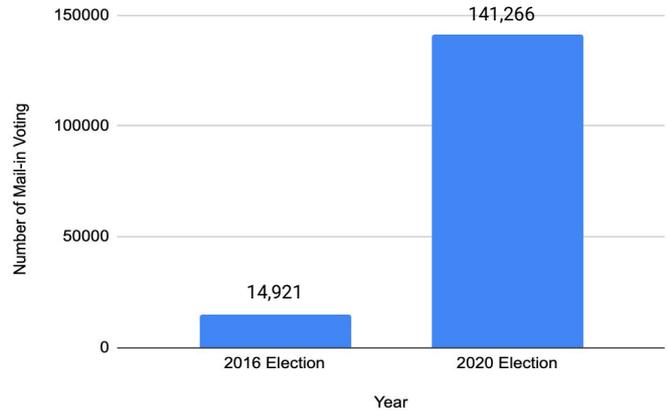
If voting procedure changes are implemented slowly or if certain states are unwilling to implement these changes, we can focus on improving polling location accommodations for the disabled as a short term solution.

## Improvement of Polling Stations

- **Parking**
  - Area marked with traffic cones: creates accessible routes
  - Temporary ramp: provides access to the sidewalk
  - Temporary parking: must be located in the available floor area and be as close to an accessible entrance as possible
- **Entrance**
  - Should be leveled/wide enough for a wheelchair to pass
  - Special entrance: intended solely for disabled voter use
- **Voting Area**
  - At least one voting room that is 30-48 inches minimum (wheelchair width)
  - Enough clear floor space for wheelchair to go through

# 2020 General Election Connection

- In 2020, due to COVID-19, mail-in voting has skyrocketed with 30 states + DC allowing mail-in voting to be more accessible
- One state that made this change: West Virginia
  - There was an increase of 946.76% in ballots casted by mail from 2016 - 2020 (Figure 10)
  - **The voter turnout rose by 4.5% from 2016 to 2020 (Figure 11)**
- In 2020, the majority of American voters (41%) chose to mail their ballot compared to the 29% of voters who voted in person on Election Day and the 30% of voters who chose early-in person
- This suggests that the mail-in voting system could be a significant causal factor of record high voter turnout for the 2020 General Election (as it eliminates restrictions for not voting in person (ex. disability, too busy to wait in long lines, and fear of COVID-19))

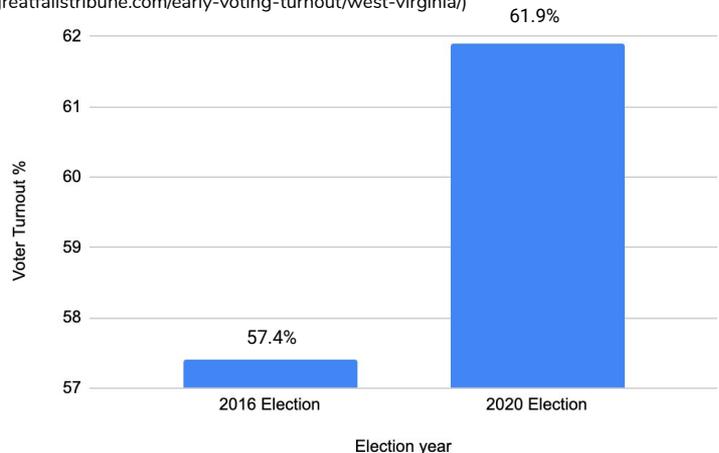


**Figure 10.** West Virginia Mail-in Voting in 2016 vs 2020

(Information on data:

<https://www.wdvt.com/2020/10/17/secretary-of-state-reports-over-85000-ballots-cast-in-west-virginia-early-voting/>

<https://data.greatfallstribune.com/early-voting-turnout/west-virginia/>)



**Figure 11.** West Virginia Voter Turnout in 2016 vs 2020

(Information on data: <https://sos.wv.gov/elections/Documents/HistVoteTurnoutDocs/2016General.pdf>

<https://sos.wv.gov/elections/Documents/VoterRegistrationTotals/2020/Oct2020.pdf>)

Information on easier absentee voting in 30 states +DC:

<https://abcnews.go.com/Politics/states-changed-rules-voting-amid-coronavirus-pandemic/story?id=72309089>

Information on vote type in 2020:

<https://www.npr.org/2020/11/03/929478378/understanding-the-2020-electorate-ap-votecast-survey>

# Summary

