What Do We Really Know?

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Team Number 20

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Executive summary

In the past couple of months, we have been working hard to make our project work. In the start of the year we started out with a project that was somewhat inconceivable. We realized this a month or two into the project, we then went on to a brainstorm to find out what we were going to do. We both knew that we wanted to do a project about psychology, so we thought long and hard. Then it came to us, we wanted to do a project about the Mandela effect, we both thought it was an interesting topic and we both believed that we could do a simulation about the Mandela effect. Unfortunately, we realized that the Mandela effect was not going to work with any kind of simulation, but we knew that we still wanted to do something similar, so once again we brainstormed. We then thought we could do a project about the spread of misinformation. After we finally concluded, we started to think about how we would do our program. We thought about this a little bit before so we knew the basic outline for the programing. Then it was on to doing research about the spread of misinformation, one of our means of getting information was a survey. In the survey, we asked a couple questions like; What sources of news do you use? (social media, word of mouth, etc.) We also asked how trustworthy there most used site was? We then compiled this information into a google sheets document, we planned to use are for data analysis but we soon realized that this was not needed. Then we come to our programing, with the programing we planned to have turtles, represent people, and misinformation would be passed along in the different medias of news that we set up, but all the people were connected through word of mouth. Then we are brought back to the data, this was important because we had known how many people were going to be connected to another media so that we could properly see how the misinformation could travel from one media to the other. After the programing happened we ran tests on the programing by using the behavior space provided by Netlogo to get our results. So, in conclusion, the entire year did not go well but in the end, we persevered and finished our project.

Problem

When we look back at the last election one thing that must be mentioned is the fact that fake news and the spread of misinformation was at a high. There were quite a few stories about what on candidate did and why it had any relevance to the electron. In fact, there was a story

about Hillary Clinton Fake News or Misinformation has immense potential to highly Influence the election and several other important events. So how does this fake news/misinformation spread so quickly and rapidly? At first, we were looking at the Mandela effect, specifically we wanted to look at what caused the Mandela effect. We soon realized that this topic was a little too broad to tackle such a topic. So, we decided to go in a slightly different direction in which we looked at how information was spread in a variety of different sources.

Description

Our project is centered on the spread of information through a system when implanted from different sources of news. We have done a survey among 226 people asking what news sources they use, and how much they believe in their sources. We used this information to make our code closer to reality with the separate values. This model could be used to simulate real humans and how they react to information from different sources.

Verified and Validated

Our code is verified by taking the information we learned from our survey and research and using that information to dictate how the different aspects of the code work. Through this, we have established that the “people” in our code act like real people. The way they act are like real people in the way that they react to information being received. They choose whether a source is reliable somewhat randomly. This helps to add realism to the code. When someone has a high resistance to being misinformed, they have a chance to “re inform” the person with the information. This helps by showing that people are susceptible to misinformation even after they are

Results

After running our program several thousand times, we determined that the most common source of media easily believed is a mix of television news along with Social Media. The fact that Social media is so easily influenced yet so easily believed is an easy explanation of why most the population misinformed. Therefore, so many people can lie to the population and be believed no matter if they are true or not.

Conclusion

The three main sources used in our area of science are all electronic. This fact helped us realize how easily influenced people are and why information spreads as easily as it does. The code was run a little over 16000 times to see the spread of news in our model, this allowed us to view how and when people receive news.

Significant Achievement

Brendan Kuncel: My most significant achievement is all the work I have completed on the code. This is the first year of the challenge that I have not been writing code on the drive up or even at finals.

Quentin Dye: My most significant achievement is how much my writing has improved over the year.

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Appendix

Code

```
breed [people person]
undirected-link-breed [personal-links personal-link]

people-own [infected? gullibility]

to setup-sliders
 if Source-value = 1 [set Source "Social-Media"]
 if Source-value = 2 [set Source "Newspaper"]
 if Source-value = 3 [set Source "Word-of-Mouth"]
 if Source-value = 4 [set Source "News-Radio"]
 if Source-value = 5 [set Source "Talk-Radio"]
 if Source-value = 6 [set Source "Magazine"]
 if Source-value = 7 [set Source "News-Websites"]
 if Source-value = 8 [set Source "Tv-News"]
 if Source = "Social-Media" [set initial-infected 0.3613333333]
 if Source = "Newspaper" [set initial-infected 0.1457777778]
 if Source = "Word-of-Mouth" [set initial-infected 0.128]
 if Source = "News-Radio" [set initial-infected 0.1555555556]
 if Source = "Talk-Radio" [set initial-infected 0.1022222222]
 if Source = "Magazine" [set initial-infected 0.03333333333]
 if Source = "News-Websites" [set initial-infected 0.2626666667]
 If Source = "Tv-News" [set initial-infected 0.4253333333]
End

to setup
 clear-all
   ask patches [
   set pcolor (blue - 1)
 ]
 set-default-shape people "person"
 create-people 2 [
   set color blue
   create-personal-link-with one-of other people
 ]
 create-people (population - 2) [
   set color blue
   create-personal-link-with (one-of [both-ends] of (one-of personal-
links))
 ]
 ask people [
   set infected? (random-float 1 < initial-infected)
   set gullibility (precision (0.128 + ((random-float .6) - (random-
float .1))) 3)
   update-color
 ]

 repeat 20 [
```

```
   layout-spring people personal-links 1 1 1
 ]
 reset-ticks
end

to go
 if not any? people with [not infected? and gullibility > .05 and any?
personal-link-neighbors with [infected?]] [
   stop
 ]
 ask people with [infected?] [
   infect-cure
 ]
 tick
end

to infect-cure
 ask personal-link-neighbors with [not infected?] [
   ifelse random-float 1 < gullibility [
   set infected? true
   ]
   [
     set gullibility (gullibility * (1 - ((random-float .5) - (random-
float .4))))
      ask personal-link-neighbors with [not infected?] [
     ask personal-link-neighbors with [infected?] [
        ifelse random-float 1 < gullibility [
   set infected? false
   ]
   [
       set gullibility (gullibility * (1 - ((random-float .5) -
(random-float .4))))
       ]
     ]
   ]
     ]
   update-color
 ]

end

to update-color
 set color ifelse-value infected? [red] [scale-color green gullibility
-0.5 1.5]
End
```