THE VIDEOGAMES HELPING US UNDERSTAND HEALTH

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As a researcher in the field of epidemiology my first response to the pandemic, like many of my colleagues, was feeling the need to do *something* to help. Anything, to give the feeling that we might be able to help the situation in some small way. First, my lab group Dynamic Genetics worked with Public Health Wales to produce a map of communities which we considered to be the most vulnerable (https://covidresponsemap.wales), and I continued working with them to produce a report on how the pandemic has affected the health of the homeless population (working paper). However,

since my specific area of epidemiology, - and my passion - is understanding complex problems through videogames, I wondered how this might be applied in the case of the current pandemic. It could be argued that "turning the pandemic into a game" would trivialise the issue. However, my belief is that knowledge games are designed to help us understand and solve serious real-world problems. Rather than being played for fun, they are played for their potential contribution to problem-solving.

Games for good (http://www.games4good.co.uk/) currently hosts five projects which have been used in public engagement activities and research. It is a collection of knowledge games which is widely accessible to the public for use, development and collaboration.

My Anti-Vaxx series of games deal with the issue of anti-vaccination and anti-mask wearing movements. I use a short puzzle format to demonstrate how these movements threaten public health. The three games under this series have been featured at Research Without Borders public engagement festivals (2019; 2021).

Mendel is a space-themed game in which players solve public health problems by suggesting interventions. This game was developed as part of my PhD and was found to be extremely effective in engaging participants for longer (on average 15 minutes longer!) than other games. I hope to build on this concept in future since it has the potential to help researchers collect more data, and to collect it in a novel and engaging way.

Lastly, OutBreak is a game we developed as part of a global team of volunteers for EndCoronaVirus.org. Players navigate an economic model of lockdown to find the sweet spot between safety, a thriving economy, and a happy populace. This project began by creating an experimental game which was delivered to policy aides, and developed into a public-facing game launched on their website. Far from trivialising the pandemic, I advocate for the use of games because they motivate us to solve problems in a new way. Not only can they make complex problems easier to understand, in addition, players' responses can teach us about the problems we are trying to solve with our research. My games are designed as templates which can be modified, and therefore may provide a useful tool for other researchers to investigate and communicate their own research.

BIOGRAPHY

Chris Moreno-Stokoe is writing up his PhD in understanding complex network data in health science. Prior to this he worked with the NHS alongside his academic studies. As a result of this experience he developed a fascination with the design of everyday things. In particular, he has designed digital services for NHS general practice and has focussed his studies on understanding why we interact with computers the way we do. He is currently researching game-based ways of understanding health information, including COVID-19 and the spread of misinformation online. You can contact him and see his work at www.morenostok.io