



Pandemic Simulation

Dana Michael Harsell
Associate Professor of Political Science and Public Administration
University of North Dakota

With additional content provided by:

The Center for Leadership Gaming & Simulation (CLGS)
Frank Batten School of Leadership and Public Policy

and

The Network of Schools of Public Policy, Affairs, and Administration (NASPAA)



Overview

- I. Instructional View and Preparation
- II. Gameplay
- III. Educational Objectives, Evaluation and Assessment
- IV. Example -- Post Simulation Exercise

Why Simulations?

Robust body of literature suggests efficacy of learning through computer based simulations

Linked to increased confidence and competence in the workforce

Application to practice





Preparation

- From 2 to 20 players (I have run simultaneous games to accommodate bigger classes)
- Class debrief suggested about one hour prep time was sufficient
 - Batten voice over PowerPoint / Student manual
 - Passed out materials / assigned readings
 - Discussed cabinet roles & policy options
 - Demonstrated simulation interface, run time
- Assigning Groups
 - Game Code, Country, Cabinet positions (names), and Position description
- On Campus or Online

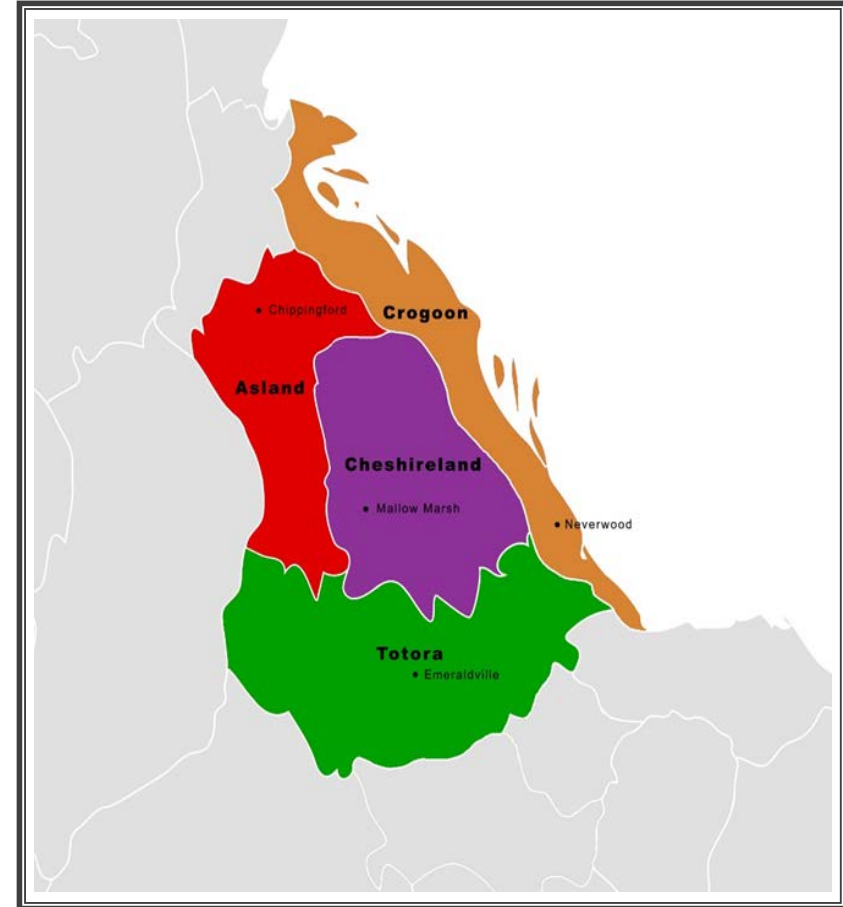


Pandemic Simulation

- An interactive, stochastic, and continuous game spanning 175 days in accelerated time
- Participants forecast and commit to difficult public policy decisions on behalf of their country
 - Participants have limited information
 - Their decisions affect health and mortality, politics, and the economy
- Ideally, participants interact and negotiate with other countries

Five Broad Policy Options

- Social distancing,
- Travel restrictions within the country,
- Travel restrictions outside of the country,
- Distribution, and
- Revenue Generation





Policies and Policy Trade offs

- Based off of policies that were enacted or proposed in past epidemics and in preparedness reports
- Impacts based on data collected in scientific studies, surveys, and reports
- Policies don't always do what you'd expect:
 - Closing schools
 - Can backfire, harm economy
 - Quarantine
 - Expensive and not always effective
- Vaccines
 - Seasonal vaccines don't protect against new strains
 - Not all vaccines develop effectively
- Gloves, masks, and hand sanitizer
 - The flu virus can survive longer on gloves than on skin
 - Viruses are small enough to go through most masks
 - Distributing hand sanitizer can cause a condition of Risk Compensation

Instructions

Leave Game

World1

Asland

Prime Minister

50 days left

WORLD MAP

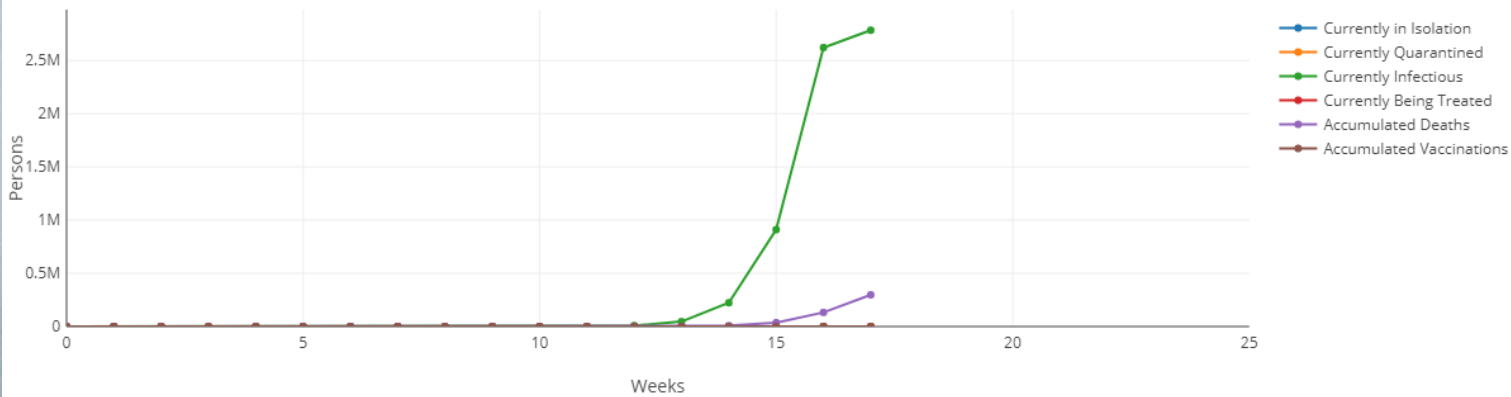
BACKGROUND

DECISIONS

DASHBOARD

COMMUNICATIONS

Epidemic Course +/- 5%



1,753 Cumulative Mortality per 100,000 population

1.75% Portion of Population Who Have Died So Far

116.383.666 ▼ 14.500.000 Amount of budget remaining

News Feed

Comcast and Verizon explore possible merger reducing consumer choice yet again.

Retailer WallMarket shuts 200 stores. Local stores make a come back.

Crogoon business school ranked the best in the region.

Artificial Intelligence can now predict what snacks you prefer.

Rock band Fish announces 14 night run at the Monroe Quadratical Yard.

Solar Energy investments up region-wide.



Educational Objectives

- **Cooperation and Consensus Building:** issues like pandemics are global and cannot be solved by a single country; teams with conflicting interests must cooperate to resolve the situation
- **Crisis Management:** participants must learn to make effective decisions while the clock ticks down
- **Solving Complex Problems:** simple solutions or simplistic thinking cannot capture the complexity of a policy issue
- **Critical Analysis of Data:** participants are required to make decisions with limited information
- **Public Health Policy:** give participants a sense of the concerns and what tools are available
- **Interdisciplinary Approach:** public policy and science should complement one another



Assessment

- **Ways to Assess**
 - Direct observation of student performance
 - Group presentation
 - Reflective paper / journal entries / policy brief / policy analysis
 - Peer evaluation of student performance
 - Pre and post survey questionnaire
- **NASPAA Universal Competencies and Program Mission Specific Goals**



NASPAA Competencies

- Lead and Manage in Public Governance;
- Participate in and contribute to the public policy process;
- Analyze, synthesize, think creatively, solve problems, and make decisions;
- Articulate and apply public service perspectives; and
- Communicate and interact productively with a diverse and changing workforce and citizenry

Policy Analysis Assignment

- Defining the Problem
- Establishing Evaluative Criteria
 - Technical feasibility/ Economic feasibility / Political viability / Administrative viability / Legal and ethics
- Developing, Comparing and Selecting Alternatives
- Evaluating Efficacy of Policy Proposals

