

# The Diaries During and

After the

# Lockdown Project

## Building a System Dynamics Curriculum for Communicating COVID-19 Dynamics to the Public

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**Project Synopsis:** In April of 2020 we began a project designed to communicate insights from a system dynamics model of the COVID-19 project to a non-modeling audience. We began with a simulation model, CORONA1, built by Ali Mashayekhi and calibrated to Iran. We wrote and published 20 stories in a blog-like format under the title of “Diaries During Lockdown”. Another 6 were published as “Diaries After the Lockdown”. The current model exists as 11 modules that develop insights about the pandemic in a step-by-step process. We have experimented with several social media platforms and are currently engaged to an effort to transform the project into curriculum aimed at system dynamics students.

**Focus of This Paper at the ISDC (4 of 4):** We have prepared two applications papers and two work-in-progress papers to present this work at the 2021 ISDC. The four paper foci are (1) A Description of our overall story telling approach, (2) A presentation of the technical details of the 11 modules in our current model, (3) A report on several experiments with social media and online presentations, and **(4) A proposal to develop curriculum aimed at students of system dynamics (this paper).**

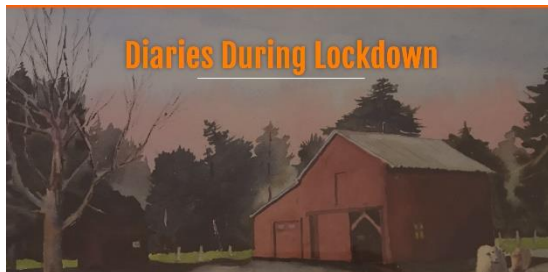


Figure 1: Logo of the Diaries During Lockdown Project

This Work in Progress paper describes a current curriculum development effort undergoing as part of the *Diaries During and After Lockdown* project.

Our project began working with the CORONA1 model, a running model preliminarily calibrated for the nation of Iran as constructed by Ali Mashayekhi. Before we published that model in its .mdl form on our website along with the three PowerPoint slide shows describing its structure and behavior, Dan Gordon reviewed and edited

all of this material.

However (and as described in the companion piece in this conference on “Technical Model Details”), over time new structure was added to this initial model as the Diary Entries themselves worked through new developments from the pandemic. As new data became available, the initial base model was gently recalibrated to reflect new knowledge, especially as it related to whole population reactions in surges and recessions in the death rate. What emerged was a layered presentation of the overall model that built in added layers of complexity on a step-by-step basis.

This project uses the blog and storytelling as its main communication means aiming to reach non-modeling audiences. However, while stories are easily accessible to general public, the CORONA1 model requires

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background knowledge in system dynamics. We saw this as an opportunity to develop a system dynamics curriculum as part of this project.

### **Target Audience**

We envision four groups of target audiences. First is the **general public** with basic math competencies. While they can relate to the stories told in the blog, they don't have the background knowledge to understand the CORONA1 model and therefore they are limited in understanding the model based insights offered in the blog. Second is **students of an introductory system dynamic course**. While the pandemic offered a rich learning environment and application opportunities for the basic system dynamics concepts they have learned, this group of audience needs more guidance in exploring the CORONA 1 model and its implications. Third is **intermediate to advanced system dynamics students and modelers** who want to learn more sophisticated aspects of the CORONA 1 model and experience how the model evolved as the pandemic unfolded. Finally, we hope to invite **those in the public health and epistemology field** to explore the insights system dynamics can offer. Our first set of learning modules plan to focus on the general public and the early system dynamics students.

### **Learning Outcomes**

The learning outcomes will be different for our different target audiences. For the general public, we hope to provide some basic system dynamics concepts to help the audience understand the pandemic dynamics in a science-and-fact-driven manner. We hope to provide an analytical framework that can help them discern facts from opinions, identify assumptions and scenarios, assess public policies, and make their day-to-day decisions. For early system dynamics students, the curriculum will guide them to replicate the CORONA 1 model and strengthen their system dynamics skills. They will also experience how their system dynamics knowledge relates to a real life problem.

### **Means of Delivery**

Each teaching module will be linked to a specific story in the blog and a specific sector in the CORONA 1 model. We plan to use Google Slides as the central platform to explain various system dynamics concepts, offer hands-on activities and lecture videos, and link to external system dynamics resources. This format has been tested in an asynchronous online System Dynamics course with undergraduate business students at California State University, Chico, and it was extremely well received both by students and by instructors who benchmarked the format.

### **Potential Value Adds**

By offering a quality curriculum, we hope to increase visitors to the blog and make system dynamics tools accessible to a broader audience. We believe this is a meaningful step towards expanding our community. As a society, we may be able to adopt better behavioral modes and policies in relation to the pandemic.