# Rearranging the Deck Chairs on the Titanic A Simulation Model Of Behavioral Resource Utilization Under Crisis

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SUMMARY

- This work presents a compartmental differential equation model that explores the interplay of stress response and action efficacy in group survivability during a crisis
- Highlights that calming but even marginally effective mitigation activities can stabilize or improve crisis outcomes, while a calming but totally non-effective mitigation activity can severely worsen outcomes
- Provides framework for future examination of balancing the expenditure of human resources as a function of both effect of actions on offsetting system decay and how those actions affect the stress response of those in the evolving crisis

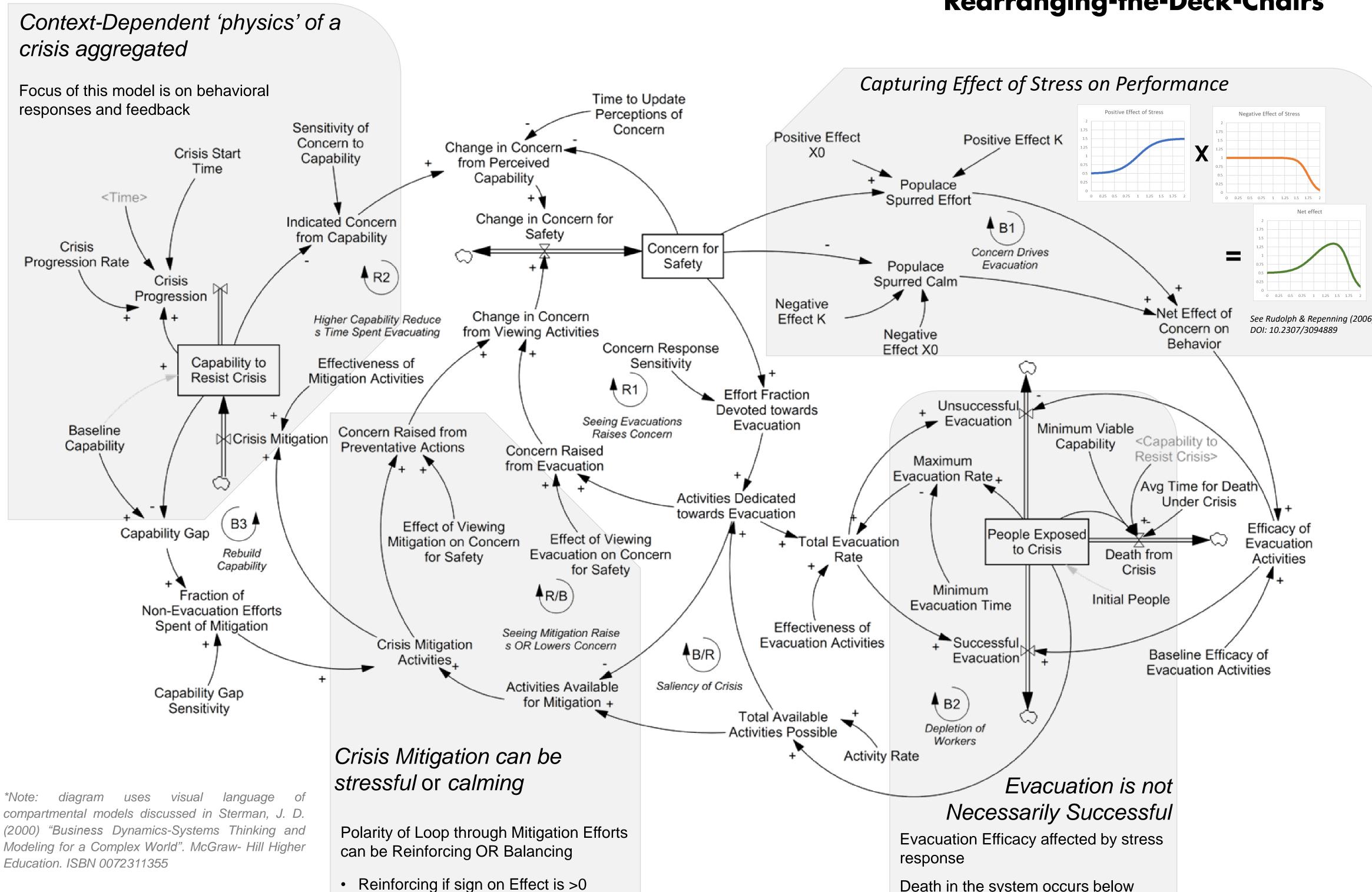
# Varying Crisis Exposed to Crisis Died from Crisis Died Evacuating (b) Faster Exposed to Crisis Died from Crisis ■ Died Evacuating

### MODEL STRUCTURE AND KEY MECHANISMS

Model Files and Additional Documentation at: https://github.com/jpain3/ Rearranging-the-Deck-Chairs

Death in the system occurs below

critical capability threshold

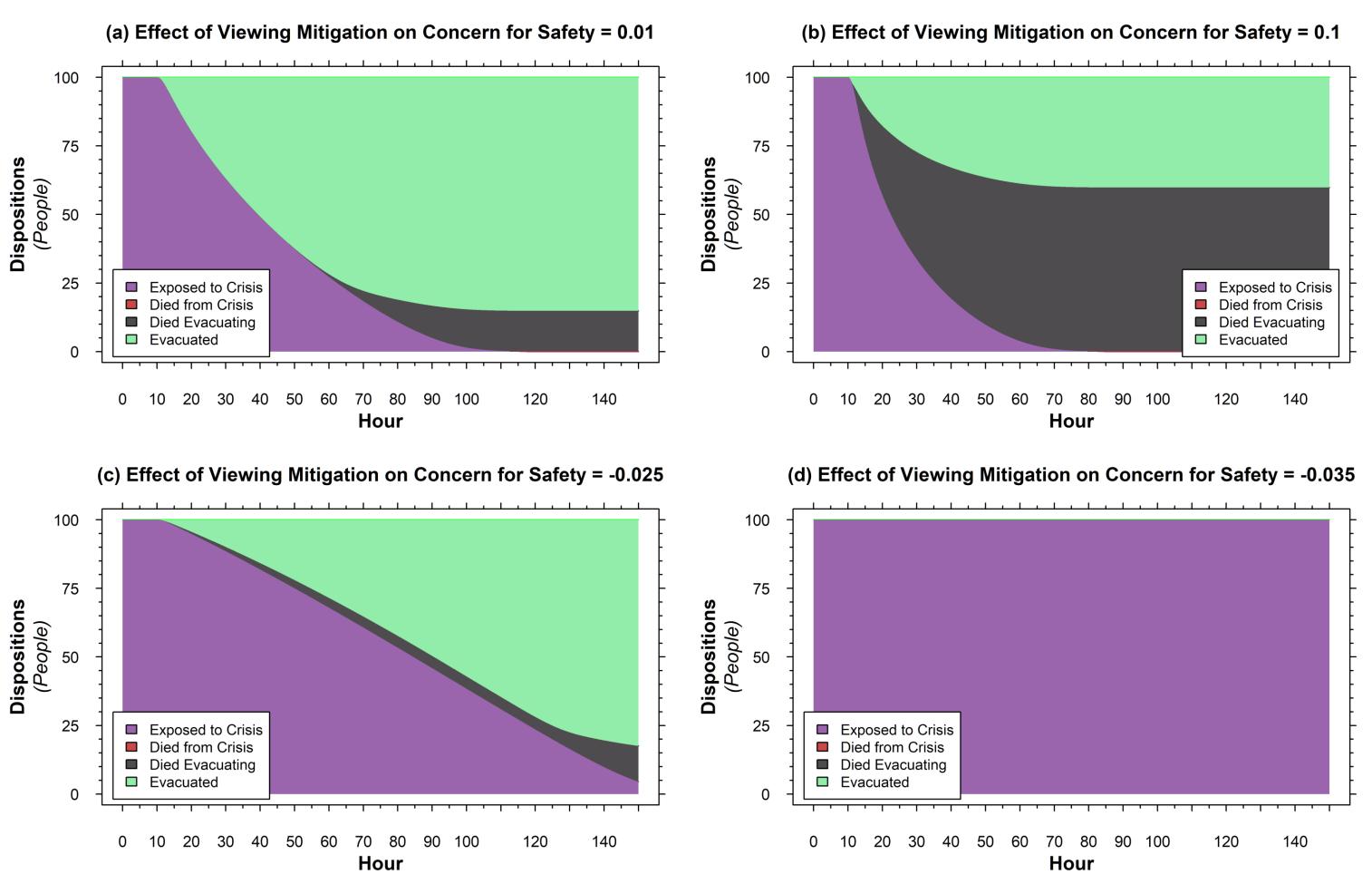


### BACKGROUND

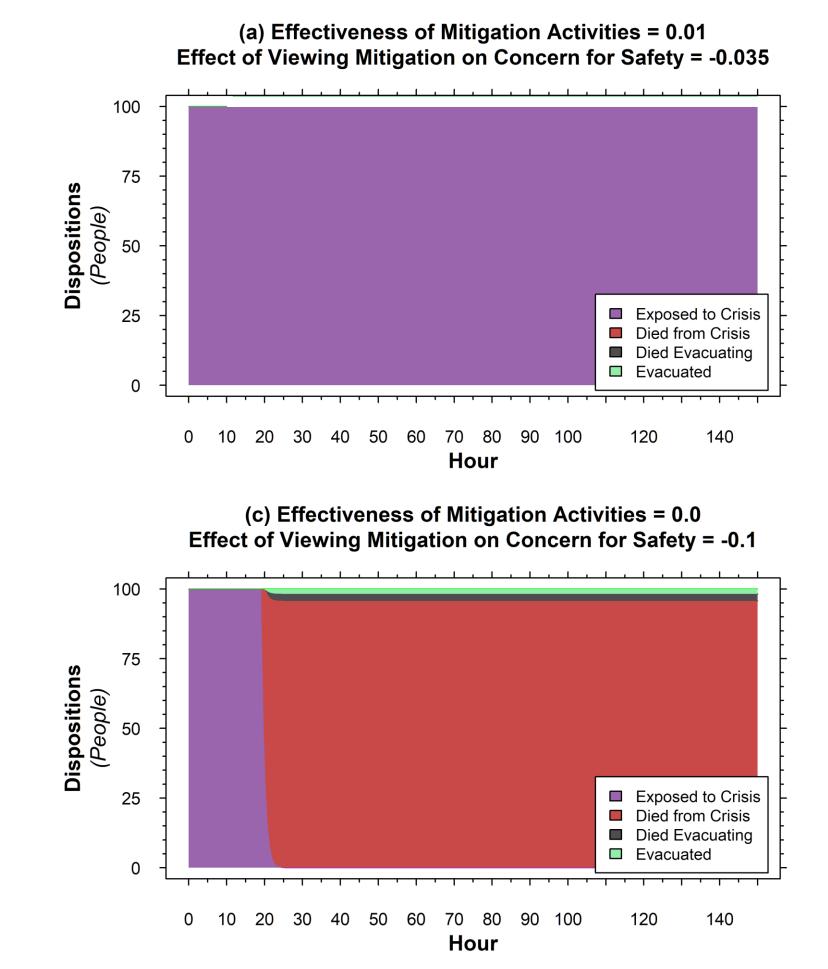
- "Rearranging the deck chairs on the Titanic is used metaphorically "to occupy oneself with some trivial activity while ignoring something much more important."
- Mitigation activities during crisis can have two purposes: buying time and calming people down.
- Under what circumstances could "rearranging the deck chairs" or any possibly preventative, even seemingly trivial, activity during a crisis be helpful?
- During an actively unfolding crisis, the ability to identify activities as 'trivial' versus essential can be unclear. What mechanisms separate different outcomes during crisis management?

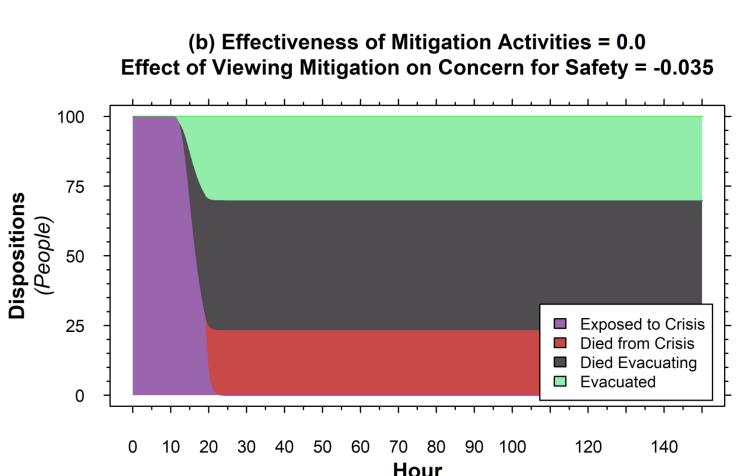
# Varying Effect of Viewing Mitigation

Balancing if sign on Effect is <0</li>



## Marginally Effective vs Non-Effective Mitigation





#### Positive effect of calming mitigation lost when mitigation is totally ineffective

- For very calming mitigation, can get 'head in the sand' outcome with negligible evacuation
- This is 'rearranging the deckchairs'