“What is your SD/STory, Raafat Zaini?”

Interviewee: Raafat Zaini

Interviewer: Christine Tang

Interview Date: 2020/03/08

Introduction

Hello, SD-cast listeners. My name is Christine Tang. I am an Interdisciplinary PhD Student in System Dynamics (SD) at Worcester Polytechnic Institute (WPI) and am the WPI SD Social Media Manager. In this podcast, I will interview someone in the System Dynamics/Systems Thinking community. This series is called “What is your SDory?”

This is Episode 1. Titled: “What is your SDory, Raafat Zaini?”

Biography

Raafat Zaini is currently a research scientist in the Social Science and Policy Studies department at Worcester Polytechnic Institute (WPI) where he earned his PhD. He is currently working on simulation modeling of learning and cognition theory and exploring theory modeling in groups. He is co-founder of the Collective Learning Meetings (CLMs), which is a weekly peer-to-peer mentoring meeting for students to share their work in progress.

Thank you, Raafat, for joining us today.

Raafat: Thank you, Christine, for having me.

Interview

Q: When and how did you ‘discover’ system dynamics (or systems thinking)?

A: It was around 2009 or 2010 when my brother Raid, whom you know, introduced me to Peter Senge’s book *The Fifth Discipline* and probably a year or two years after that in 2011, I started my PhD journey in System Dynamics and Organizational Behavior

Q: What was the first model you encountered?

A: I am not sure. Of course through Senge’s book there were causal loop diagrams but the concepts of stocks and flows were I think in a book called *Thinking in Systems* (by Donella H. Meadows and edited by Diana Wright) that I read. That was where I first looked at the system dynamics terminology or representation.

[Christine diverged from the interview questions]
Q: I remember you have a masters in aerospace or a bachelors in aerospace or aeronautical engineering?

A: My masters was in aeronautical engineering. Yes.

Q: And then did you work after that and then come to WPI or…

A: Yes. Yes, I did..and funny that you reminded me. When I was doing my bachelor degree in Mechanical Engineering, I studied a class called “System Dynamics and Control” and it was about the modeling and simulation of physical systems. I loved that class at the time. When I saw system dynamics, I thought it was the same thing but I discovered it’s different; however, it’s all about also modeling and simulation. So the most accurate probably answer to your question (What was the first model you encountered) was system dynamics as a term I came to know about it in the early 90s.

[End of diverging]

Q: What was the first model you built?

A: I think the first model I built was in a class. The SD 550 at WPI. I think the class was called System Dynamics Foundation: Managing Complexity. It was a one stock model that does an averaging process. I was thrilled to get it to run...or to press the button to see the simulation [and what] comes out. So that was my first mini little model.

Q: What are you currently working on?

A: Currently, I am working on modeling learning theories and also supported with data from online learning environments about science that teaches kids about science and we're exploring the role of emotion into the learning process. I'm collaborating with a group of learning scientists, subject matter experts. I'm using the tools of system dynamics to put the learning theories in a simulation model because the learning theories inform the data collection that the learning scientists have been pursuing. We're trying to see how putting all these models that come from the data in a coherent system dynamics and see which interventions are more helpful are more helpful than other [interventions] in supporting student's emotions. I am very excited about this work. It has been going [on] for the past couple of years. We're about to come up with a first version of that model and the collaboration between those two fields--the system dynamics and the learning sciences

Q: What wiSDom do you have for students/those new to SD/ST?

A: I like the word wisdom. That's probably too big for me [Christine doesn't think so...which is why Raafat is the first interviewee of this podcast] but something that I learned along the way is to try to focus on a problem description-- "What [am] I trying to do?"-- and the conceptualization phase-- "What are the important variables to consider in building or constructing a very small model without much detail?" Because especially for modeling newbies it is very easy to get distracted by trying to get as [many] variables as one can [into the model] and drift into thinking about all what could happen and all what could influence the phenomena in question rather than really thinking-- "What is the problem?"-- and then try to think of the reference mode-- "Is this something that is decreasing? Or increasing? Or oscillating? What is really happening?"--and try to build a model that addresses that and get it to run. Then see if that is enough or if you need to add more detail. In a nutshell, going through this allows one to create/build more models and get better at it rather than get bogged [down] with details and thinking of the problem and creating endless variables that would just make things very complicated. When I say "complicated," it's of course different from "complex." Complex means really capturing the phenomena that is creating the problem that we have. Rather than being complicated by adding so [many] variables that would hinder people's progress. And that's one of the drivers behind starting the Collective Learning Meetings, the CLMs, is that--to share one's work in progress, minimize drift and minimize going into too much detail without progressing. So that's my little wisdom, if you can call it [that]. Just try to focus on trying to build small models as much as you can and learn from them.

Q: Last question, do you have any fun(ny) SD/STories that you are willing to share?

A: It could be funny or it could be a sad story depending on where you look at it. When I was exploring my research question and trying to find an area of contribution or topic I want to work on, I was mesmerized by building models for any concept that I learn about and I feel excited about. I recall that I was reading the book called *Dissent in Organizations* and I felt that this is going to be my work. I built a small model for the phenomena that is happening in dissent and I called my PhD committee for an urgent meeting. I think it was a Friday at noontime or something because that was a time everybody [could] afford to come on a short notice. I fired up model. I built an interface and I showed them what's happening in dissent using a small model that I liked. They were kind enough to listen and suddenly my advisor, Professor Khalid Saeed, asked me "So what are you trying to answer here?" My answer was...I kept showing him different scenarios [Laughter] because I was so attached to the model and to the work I did. Only to hear him saying, respectfully, "I need to go get some lunch." [Laughter] That was the time that I realized that "Uh oh, I think I have done something wrong" and this was the end of the meeting. [Laughter] The funny thing is...I think a year later I took another class, I think it was Latent Structures, with Prof. Saeed and one of the homework assignments came up and I had that model in my mind. At that time I was better suited with better knowledge about the process and also about my thinking and I created a simple model that evolved into a conference paper that was accepted to be on a plenary session at the International System Dynamics Conference and it created the core of my dissertation, which was about organizational dissent. At that time, I reflected [on] how the beginning was and that sad story that I couldn't sleep over that weekend because of it and it turned out to be a success later on. I don't know how you categorize this story. I think it probably has the funny and the sad and also the thrilling part but yeah that's a story that I remember.

Ending

I would also like to credit Raafat Zaini for the name of this podcast, for inspiring me and teaching me about podcasts and other media. He and other WPI SD Club members paved the way for this work. Their support and guidance are priceless. Below is a poem I wrote about Raafat.

Dr. Raafat “The Boss” Zaini

Is from Saudi and innovative
He is very handy and creative
Studied ME, aero and SD
(I didn't know you minored in IE)
He knows many modeling and media apps
And now we plan on making podcasts
He taught me how to Tweet
He is someone you'd want to meet
(He and his family are very sweet)

Please subscribe to SD/ST-cast to hear more SD/STories.

Email me, ctang@wpi.edu, if you would like to be on SD/ST-cast or recommend someone who would be.

See below for the WPI SD Social Media accounts:
https://twitter.com/WPISDclub
https://www.linkedin.com/groups/1916314/

Music

I cut out 1:00-1:20 of the music track to fit the dialogue better and shifted the music to continue at the end.