Foundations of NetLogo Homework

In this homework, you will be developing an agent-based modeling that explores how different types of individuals explore their social networks in the context of job loss. This model is similar to the model that was used for the following academic paper:

Smith, E. B., & Rand, W. (2017). Simulating macro-level effects from micro-level observations. *Management Science*. https://pubsonline.informs.org/doi/abs/10.1287/mnsc.2017.2877

We will be building this model in steps. You will be able to find one solution to each step on Complexity Explorer. However, there are many ways to solve this problem, so the solution that is their is just one potential solution.

1. *Create Workers Who Earn Wealth* - Create a set of workers in your model that have wealth and have jobs and earn wealth over time. Jobs mean that the workers have some sort of earning rate, where the amount of a Worker's increases each time step based on the earning rate. Don't forget to modify the GO procedure so the Workers earn money. The initial wealth and earning-rates should be random. Of course, don't forget your SETUP and GO buttons as well. You might add a parameters for the number of Workers, and potentially for the wealth and earning rate distribution.
2. *Create a Social Network* - Create a social network between these workers, so that each worker is connected to a subset of the other workers. You might want to set up the world so links do not wrap around the edges.
3. *Create Unemployment and Job Seeking* - Create a procedure where each turn some of the Workers become unemployed and then have to find a new job. This new job will alter the structure of the social network, because the Worker will create a link to the employer. Essentially being unemployed means that the Worker's earning rate becomes 0. Job seeking means that the Worker get a new earning rate from one of the other Workers.
4. *Create different ways of finding jobs* - Set it up so that Workers who have a high relative wealth to the other Workers look at the friends of their friends for a new job and take the best paying one (i.e., copy the earning rate), Workers who have a low relative wealth just copy the earning rate of a random one of their friends. Remember that when you construct the turtle-sets that the Workers are searching over that you do not include the focal Worker
5. *Graph the Results* - Create a histogram of the Distribution of Wealth in your model. Don't forget to make sure that the histogram axes are set so that you can see the whole histogram.

These Bonus steps include commands and concepts we did not talk about in the tutorial.

BONUS 1: Make it so every turn the Workers talk to one of their neighbors, then change it so the worker's with below average wealth ask the people that they talk to the most for a job.

BONUS 2: Change who Workers talk to by biasing toward users who they have talked to more in the past.