System Dynamics Literature Reviews: A New Method for Theorizing

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Introduction

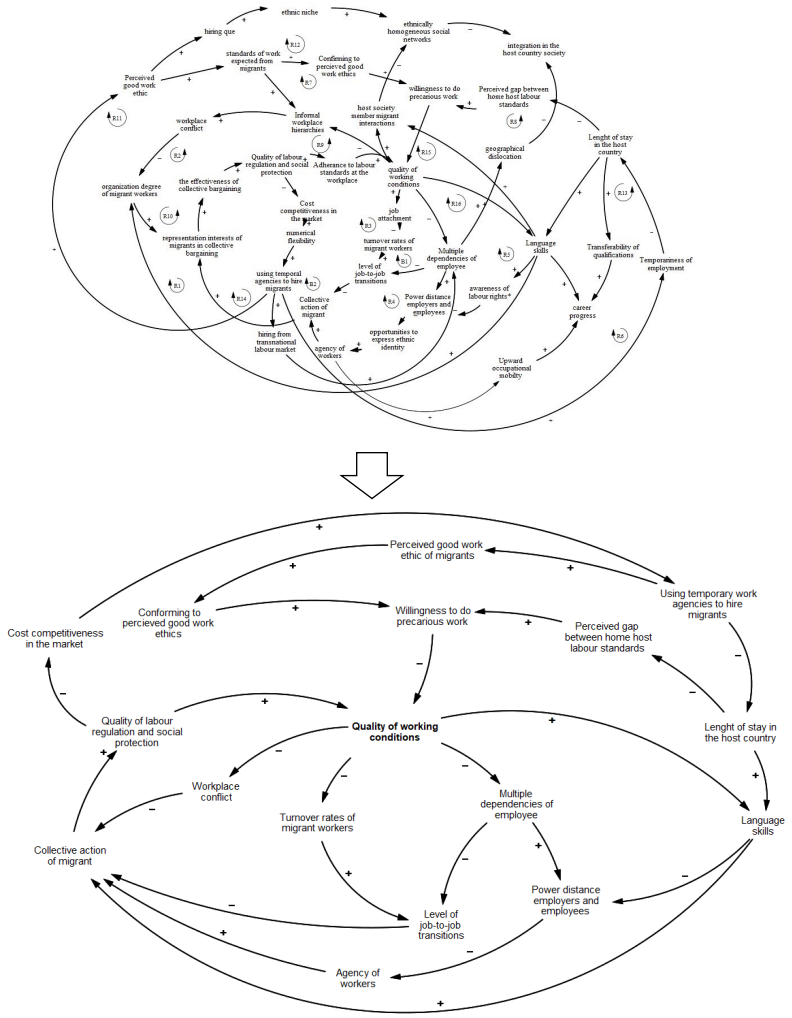
Systematic literature reviews integrate knowledge on complex social problems, but do not go beyond the linear understanding of systems that inform the literature. As a result, literature reviews often overlook the dynamic character of complex problems. And qualitative system dynamics models are often based on empirical data rather than literature (Luna-Reyes et al., 2003; Newberry & Carhart, 2023). We need methods to integrate knowledge derived through systematic literature reviews, in a causal loop diagram of systems underpinning complex social problems. This papers contributes to theorizing complex social problems, by exploring how qualitative system dynamics modelling can complement the shortcomings of systematic literature reviews.

Results

We identified six stages of a system dynamics literature review and illustrate how they can be used to build a causal loop diagram on the quality of labour of migrant workers.

Conclusion

1. Building system dynamics models is also possible based on secondary qualitative data next to traditional primary data, such as interviews, focus groups or group model building sessions (Luna-Reyes & Andersen, 2003; Newberry & Carhart, 2023; Vennix, 1996).
2. System dynamics literature reviews can provide a comprehensive causal loop diagrams of complex problems when resources primary data collection are limited.
3. System dynamics literature reviews and the resulting causal loop diagrams may fulfil an important role in the development of system dynamics theories.



System Dynamics Literature Review Stages

Stage 1: Problem selection and definition

Assess whether the complex social problem studied is suitable to be understood through the lens of both systems dynamics and systematic reviews.

Stage 2: Literature search, screening, and selection

Determine the inclusion and exclusion criteria, formulate search terms and search queries, search databases, screen the search results, build a preliminary sample of articles and conduct backward and forward reference screening to establish the final sample.

Stage 3: Coding the literature

Identify concepts in the literature, transform these into variables that can increase or decrease, and to detect linkages between the variables.

Stage 4: Distilling causal loop diagrams

Distill causal loop diagrams through group model building with independent facilitator and coders as participants.

Stage 5: Validating by counter reading and falsifying

Remove linkages if there is contradicting evidence in the literature or if coders disagree that a certain excerpt supports them.

Stage 6: Simplifying the causal loop diagram

Reduce the number of variables and linkages in the causal loop diagram.

References

Luna-Reyes, L. F., & Andersen, D. L. (2003). Collecting and analyzing qualitative data for system dynamics: methods and models. *System Dynamics Review*, *19*(4), 271-296.

Newberry, P., & Carhart, N. (2023). Constructing causal loop diagrams from large interview data sets. *System Dynamics Review*.