



Group model building and causal loop diagrams

What it is

Group model building is a systems-based, collaborative, facilitated process which guides participants through the process of creating a causal loop diagram.

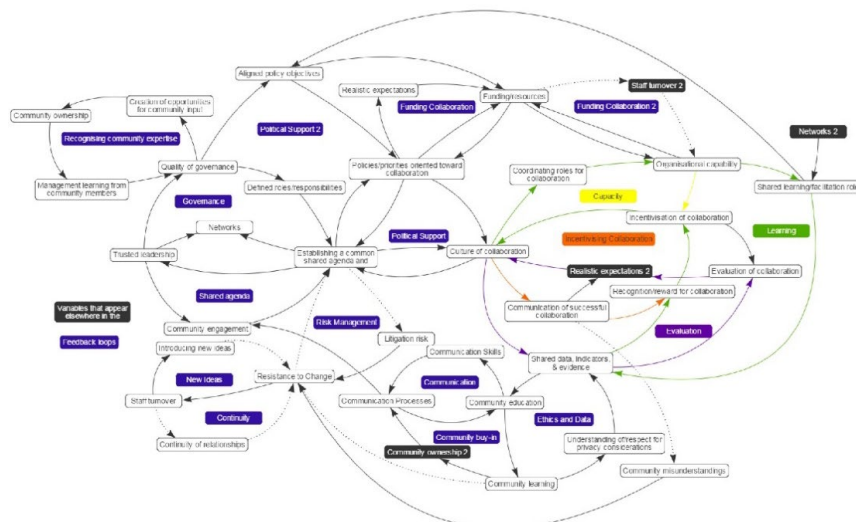
Causal loop diagrams are a **systems dynamics** tool that illustrate **mental models** highlighting causality and feedback loops. **Feedback loops** provide insights into why the system behaves the way it does, and what factors exist which keep the system stable. They can be either **reinforcing** (they strengthen the problem as a vicious cycle) or **balancing** (they keep the problem the way it is).

Causal loop diagrams are a visual way to help explain the role of such loops within a given system. Causal loop diagrams are often developed in a participatory approach.

How we applied it

We engaged a team from the Global Obesity Centre at Deakin University to facilitate group model building workshops in each of the Prevention Tracker communities. The group model building workshops aimed to explore a local problem identified by the participants. For example, a local problem identified in one of the communities was, "The lack of skills, processes and commitment to collaborative practice undermines our ability to achieve a healthier community".

Participants at the workshops then developed a causal loop diagram in which they identified the drivers of the local problem, in this case collaborative practice, in their community. Each variable in the diagram represented a concept or issue that participants believed was an important driver of the local problem. Arrows between the concepts illustrate the ways the concepts interact with each other, for example in this case it was identified that when a community learning increases, community ownership (of health) also increases (solid arrow), whereas when community learning increases, resistance to change decreases (dotted arrow). The blue labels highlight the feedback loops that participants identified within the model, illustrating how concepts or issues interact with each other continuously, to maintain or reinforce existing conditions within the whole system. An example of the causal loop diagram developed at one of the workshops can be seen below:



Map produced using STICK-E software © Deakin University

What we learnt about how to use this method

This method has been used in mapping the causes and drivers of problems such as obesity.² We demonstrated that this method can also be used to map other systemic problems such as those identified in the Prevention Tracker project.

It is important to have diverse perspectives and stakeholders in the workshop to build the causal loop diagram. This approach built a shared understanding of the issues identified. It was clear from participants' comments that learning about the system worked best by participating in the creation of the causal loop diagram, rather than viewing the causal loop diagram once it had been created.

What we learnt about the system

This tool enabled us to learn more about the causes and drivers of the local problems identified in the Prevention Tracker communities. Participants in the group model building in each community were able to draw on their rich understanding of the local environment to contribute insights into the prevention system, as well as the wider community systems which impact on prevention. The process of creating the causal loop diagram led to participants identifying, discussing and in some cases contesting the role and significance of factors in the system, as well as the dynamic relationships between the parts of the system. Having a range of perspectives ensured a more robust process.

Where to go if you need more information

Visit our website to access a series of factsheets on the Prevention Tracker project covering topics such as group model building, key informant interviews, social network analysis, system action learning. Click on the Resources tab at: <https://preventioncentre.org.au/our-work/research-projects/learning-from-local-communities-prevention-tracker-expands/>

If you require more information on group model building, contact The Global Obesity Centre at Deakin University: www.globalobesity.com.au

References

1. Williams B and Hummelbrunner R. Systems concepts in action: A practitioner's toolkit. Stanford, CA: Stanford University Press. 2010.
2. Allender S, Owen B, Kuhlberg J, Lowe J, Nagorcka-Smith P et al. A Community based systems diagram of obesity causes. PLOS ONE. 2015:10(7).



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Systems and solutions for better health

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