

## Vennix, Jac A. M. (1996): Group Model Building: Facilitating Team Learning Using System Dynamics

Group Model Building is described by Vennix as a method to elicit differences of viewpoints and to initiate a team learning environment to tackle strategic and messy problems. The three basic goals of GMB can be summarized as follows: 1. Enhance team learning. 2. Foster consensus. 3. Create commitment.

GMB is mainly based on two assumptions. The first one states that people are limited by their information processing capability and the second assumption assumes that people think more in terms than in causal structures. GMB is tackling both disadvantages of both assumptions. Hence, sharing mental models in teams provides the ability to capture a more holistic view of problems and enables to uncover causal processes by building networks of variables in a big range of different mental models.

Different requirements are demanded to create shared definitions of problems and potential solutions to develop a so called shared social reality. Important of the Group Modeling process is, that consensus should first be reached after sufficient deliberation has taken place. Furthermore it is important that the group create a feeling of ownership of the model during the GMB workshops to enhance acceptance for it.

### Chapter 1

- Information selection of humans is biased and involves simplifying heuristics. → In groups are multiple realities existing. → Construction of System Dynamics Models can create effective learning atmospheres to share mental models to foster a common understanding.
- People often see things what they expect to see. → Social and behavioral bias based on past information, experience and circumstances. → Personal memory reconstructs the past to fit current beliefs and opinions.
- Inventory example: Sales manager: Inventory should be high to avoid delivery delays so that customers are satisfied. Production manager: Inventory should be low to avoid high inventory costs. → Different viewpoints from different perspectives.
- Self-fulfilling prophecies on micro and macro level. → Creation of reality the way how it is perceived.
- “Planning means changing minds, not making plans.” (de Geus; 1988)
- Messy problems as “one shot operation” → No equal past case.
- Unbalanced paths → Two paths from a policy to a goal variable with opposite signs.
- Established mental models are difficult to change. → Crisis as chances.
- CLDs can make mental model transparent and discussable.

### Chapter 4

In this chapter several relevant questions of the different steps to conduct GMB projects are discussed. Introduced guidelines help to make important choices for designing them.

Important questions:

- Is SD appropriate?
- Should a preliminary model be used?
- How much structure is necessary (working with documents, interviews, questionnaires and/or workbooks)?

Choices to be made:

- Structure in communication → NGT, Delphi, workbooks, tasks
- Number of sessions

- Location, room layout, equipment

Guideline for the facilitator (steps during GMB sessions):

1. Optional introduction into SD.
2. Check consensus on the problem.
3. Summary of previous session (if it is not the first one).
4. Communicate what is expected from the group.
5. Ensure there is a group memory (white board, computer).
6. Back and forth cycling between problem and model.
7. Plan breaks.
8. Ensure everybody has the feeling the session was worthwhile.
9. Record insights and finding of the session.

### Chapter 7

In this chapter an example of a quantitative system dynamics project is discussed. The case is examining from the perspective of a housing association the dynamics of the housing market under a liberalized free market (new law made associations independent). The outcome of the GMB project should be a computer-based learning environment in which the robustness of different strategies to deal with the new situation can be explored. For this purpose a SD model was built in several GMB sessions. The time of the project took about one year.

Two main insights after the modeling process:

1. On the one hand the involved associations wanted to control parameter values by themselves, than to have a “automatic pilot” which generated them via feedback loops.
2. On the other hand the feedback perspective helped to change the perspective of the clients from a complex view to a more abstract one of the main underlying dynamic processes.