

Using Decision-making Scripts in Group Model Building Workshops

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Abstract

Group model building (GMB) workshops, as a participatory method for involving stakeholders, emphasise the interactive engagement process with stakeholders. GMB workshops are demonstrated as being useful to facilitate communication, commitment, and users' insights about the system. However, models, simulated or not, are limitedly adopted and thus have a limited impact on participants' decision-making. Also, to what extent do GMB workshops support decision-making is limited investigated. One approach to further explore and advance GMB workshop's role in supporting decision-making and increase model adoption is to rethink the designing and structuring of scripts, which are basic elements of GMB workshops. This paper first reviews the history of the development of the script. The review suggests that existing GMB workshop scripts often focus on system mapping, resulting in restrained space to explore decision alternatives in workshops. Then two decision-making scripts drawing from organisational decision-making theories are proposed. Proposed scripts are planned to be tested through a case study with a UK-based non-profit housing association to investigate the impacts. Future work will evaluate how proposed decision-making scripts can be used in the GMB workshops to support decision-making.

A brief review of GMB workshop scripts

Group model building (GMB) workshop, as a participatory method for involving stakeholders, is often used to develop formal system dynamics simulation models with stakeholders. GMB workshops and similar formats which emphasise the interactive engagement process with stakeholders have demonstrated their effectiveness to support decision-makers indirectly through increasing team learning, communication, consensus, and commitment. One approach to further investigate GMB's role in supporting decision-making is to rethink the designing and structuring of scripts, which are basic elements of GMB workshops. System dynamics modeling involves three types of group tasks: eliciting information, exploring courses of action, and evaluating the situation (Vennix et al., 1992). Andersen and Richardson (1997) explicitly suggested that scripts are basic elements to help modelers build up small-group activities. Scripts were divided into five categories: defining the problem, conceptualizing model structure, eliciting feedback structure, supporting equation writing and parametrization, and policy development, with script examples listed. Ackermann et al. (2011) then introduced the ScriptsMap as a framework to structure the designing of mixed-method policy-making workshops. This framework illustrated an approach to structure the sequence of scripts and linking each scripted activities' inputs and outputs. For the documentation of scripts, Hovmand et al. (2012) developed a script template aiming to standardize the documentation of scripts. The script template included 19 elements such as description, script purposes, inputs, and outputs. Following that, an online handbook Scriptapedia listing a collection of scripts for small group exercises was developed (Hovmand et al. 2011),

which is another milestone in the GMB scripts history. Figure 1 listed current available established and promising scripts drawing from the Scriptapedia.

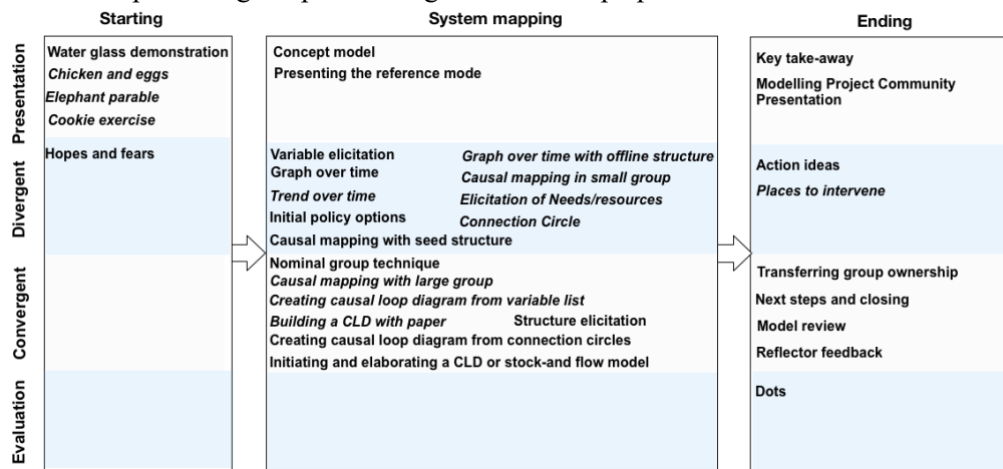


Figure 1 Available scripts supporting the starting, system mapping and ending of GMB workshops.

Proposed scripts

Each decision involves two essential elements: factual and value judgments (Simon, 1957). Unlike *factual judgments* which are statements about the observable world, *value judgments* are assertions of “oughts”, which describe more of ethical propositions or premises of the issue. The review of scripts suggests that available GMB scripts, particularly the ones on variable and structural elicitation, focus on eliciting the information about factual judgments of the system, leaving out opportunities to understand the decision-makers’ value judgments. Also, decision-making involves both intellectual and design activities (Simon, 1960), (Simon 1996). However, very few scripts directly support design activities that elicit decision alternatives, restraining the GMB workshops’ influence on decision-making. Also, the decision-making literature suggests that the focus of attention decides the focus of decision-making, and attention is limited. This is initially proposed by Simon (1957) describing attention as a scarce and limited resource in organisational settings. Ocasio (1997) then proposed the notion of the attention-based theory of the firm. This re-examination of attention brought back the emphasis on how social structure channel such as rules, resources, and communications influence the organisational attention distribution, which are the basis for formulating decision alternatives. Drawing from organisational decision-making literature, here we propose two scripts drawing from decision-making literature: 1) a value judgment script that elicits value judgment information in addition to factual judgments, asking participants how they value certain things in the system; and 2) an attention alternative script, as part of design activities, asking workshop participants how would they distribute their daily attention.

Conclusions and limitations

The process of reviewing scripts showed the importance of transparency of GMB workshops documentations. Tools such as ScriptMap (Ackermann et al., 2011), Scriptapedia (Hovmand et al., 2011), (Hovmand et al., 2015), and existing review of scripts (Andersen and Richardson, 1997) enormously helped the development of new scripts. However, methodologies of developing scripts are limited in the literature. This piece of work demonstrated that scripts can be developed with an explicit theoretical lens, adding the robustness and rationale of scripts development. Since proposed scripts have not been tested yet, the conclusions are limited. Another limitation is that this paper’ review of scripts is mainly based on Scriptapedia; case studies that used decision-making scripts but not included in Scriptapedia potentially are missed. A further detailed review of relevant case studies will be needed to the robustness of developing new scripts. Future work also includes the testing and evaluation of scripts with a UK-based non-profit housing association.

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