



An evaluation framework for participatory modelling

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Strong arguments for participatory modelling in hydrology can be made on substantive, instrumental and normative grounds. These arguments have led to increasingly diverse groups of stakeholders (here anyone affecting or affected by an issue) getting involved in hydrological research and the management of water resources. In fact, participation has become a requirement of many research grants, programs, plans and policies. However, evidence of beneficial outcomes of participation as suggested by the arguments is difficult to generate and therefore rare. This is because outcomes are diverse, distributed, often tacit, and take time to emerge.

In this paper we develop an evaluation framework for participatory modelling focussed on learning outcomes. Learning encompasses many of the potential benefits of participation, such as better models through diversity of knowledge and scrutiny, stakeholder empowerment, greater trust in models and ownership of subsequent decisions, individual moral development, reflexivity, relationships, social capital, institutional change, resilience and sustainability. Based on the theories of experiential, transformative and social learning, complemented by practitioner experience our framework examines if, when and how learning has occurred. Special emphasis is placed on the role of models as learning catalysts. We map the distribution of learning between stakeholders, scientists (as a subgroup of stakeholders) and models. And we analyse what type of learning has occurred: instrumental learning (broadly cognitive enhancement) and/or communicative learning (change in interpreting meanings, intentions and values associated with actions and activities; group dynamics). We demonstrate how our framework can be translated into a questionnaire-based survey conducted with stakeholders and scientists at key stages of the participatory process, and show preliminary insights from applying the framework within a rural pollution management situation in the UK.