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# An ontology-based simulation model exploring the social contexts of psychostimulant use among young Australians

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# An ontology-based simulation model exploring the social contexts of psychostimulant use among young Australians

## **Abstract**

The principal anthropogenic factors driving reef degradation have been known for years, if not decades. Overfishing, sedimentation and nutrient loads are just some of the key impacts of human activities in and around reef communities. Therefore, the future of reefs does not rely on generating new knowledge, but rather on implementing and integrating the knowledge we already have. This will require creating effective links between researchers, managers and communities to promote mutual learning, negotiation and collaborative action for reef management. Combining agent-based models and role-play games, through a technique known as Companion Modelling (ComMod), creates a dynamic and interactive setting that can contribute to research, education and participatory goals across diverse stakeholders. Incorporating the decision-making processes of individuals into each time step, through the role-play game, means that socio-economic rationalities are seamlessly integrated with the bio-physical dynamics embedded in the models. ComMod has been used successfully as a communication and learning tool in participatory workshops in both the Mesoamerican Reef (Mexico) and the Bolinao-Anda reef complex (Philippines). These experiences demonstrate that simple, generic ecological dynamics are very effective in communicating key conservation messages to a lay audience. However, a comprehensive understanding of local cultural, economic and social characteristics is crucial to develop a coupled model/role-play game that can successfully engage stakeholders.

## **Keywords**

australians, young, among, psychostimulant, simulation, contexts, ontology, social, exploring, model

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**“An ontology-based simulation model exploring the social contexts of psychostimulant use among young Australians”**

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**Abstract**

The reported prevalence of psychostimulant use in Australia is among the highest in the world. Despite considerable research efforts, little is known about the social contexts of psychostimulant use and related harms. In order to better understand the influence of social contexts on psychostimulant-related harms, a multi-site ethno-epidemiological approach was used to iteratively inform a simulation model, called SimAmph. Model development followed three principles: (1) collective design, (2) incremental design and (3) inductive validation.

A conceptual model gradually emerged from site-specific representations and finally evolved into an ontologybased

generic model. The ontology describes how social norms and health-related experiences influence individual inclinations to partying, drug use and ‘bingeing’. Probabilities of physical and mental harm are derived from our ethno-epidemiological evidence. Finally, intervention scenarios are being tested, including the introduction of pill-testing facilities to reduce harm among young drug users.

To be presented by:

**Pascal Perez**