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## **Enhancing experiential climate-change learning methods through debriefing**

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The inviting abstract for this session seems to intimate that emphasis will be placed on participative and experiential approaches to learning about climate change (CC) – "approaches and resources that adopt integrative learning objectives and pedagogically effective practices. . . . websites, lab demos, serious games, pedagogic research, course design, citizen science, filmmaking, art"[\*]. This is greatly welcomed.

In this paper, we will argue that meaningful and significant learning derived from experiential methods can be greatly enhanced by implementing full and structured debriefing. Indeed, from a learning standpoint, it can be argued that debriefing is an indispensable element in the pedagogical sequence, a key to unlock meaningful learning. It is particularly important in any leaning activity that involves learner engagement, such as simulation/games, filmmaking, learner research, field work, internships, school outings, problem-based activities and so on. CC simulation/games have garnered a wide audience in recent years[§].

Debriefing is the time during which participants in a learning activity are able to look back on, share, discuss, build an understanding of and extrapolate from their (jointly negotiated and managed) learning experience, and also to relate it to the theory, research and reality of CC. It is in the debriefing that participants learn (the most), and on different levels: cognitive, affective, social and behavioural. Learning facilitators who fail to debrief their participants fully, or who only pay lip service to debriefing, are failing in their responsibilities towards participants and themselves, and towards institutions and their geo-profession; they also stumble in their quest to help humanity to combat CC.

Engagement and participation (as opposed to traditional talk-and-talk classrooms) tend to generate strong emotions, especially in such areas as climate stakeholder decision making, environmental ethics, resource depletion, deforestation, pollution, sea-level rise, over-fishing, climate refugees and many others. It is also the engagement and affective dimensions of such learning activities that contribute to deep and meaningful learning and that need to be debriefed in order to evacuate strong emotions, thus allowing proper clarification of underlying issues and dynamics.

In this paper, we will outline some basic principles related to debriefing learner participants in CC learning activities. We will illustrate them by referring to specific simulation/games, and by showing some debriefing protocols that can easily be adapted to a wide range of CC learning situations.

\* Matthews et al. 2018;

§ Wu & Lee 2015; Eisenack & Reckien 2013; Crookall 2013.