Chapter 4

Designing and Analyzing Social Dynamics for Sustainable Educational Development

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ABSTRACT

This chapter details the basic design of the social processes involved in the five-level negotiation game "Surfing Global Change" (SGC). Through its communicational design, this web-based game elicits characteristic collaborative behavior in student groups, which is then statistically analyzed by using several sets of university students. The architecture of SGC has already been explained in other articles and gives a framework for "game-based learning" along five interactive game levels. The web-based arena of interaction induces student collaboration; the quality of which is assessed here. The statistical analyses suggest that the SGC game rules didactically enhance anticipated processes of social self-organization. Motivation for a good grade (function of collected rewards) in this sense impacts team size, attitude towards work, and individual affinity for sticking to personal convictions. The rules trigger two distinct processes: social dynamics in the class and the striving for course grades; these targets do not necessarily match.

1. PROCEDURES AND DEVELOPMENTS ALONG THE FIVE LEVELS OF SGC

1.1. A Symbolic Time Plan for the Game SGC

Implementation of the game SGC (see Öttl, et al., 2014; Vogler, et al., 2013; Ahamer, 2004a, b, 2005, 2013a, b, c, d; e, 2017a, b, c; Ahamer & Schrei, 2006) in dozens of courses to date have followed the timescale of the scheme as notated in Figure 1 (Ahamer, 2019). The shape of the different symbols explained in the legend describes the dramatic characteristic of the single activities involved. Each phase starts with its preparation (triangle). The reason for the overlapping of the five phases is to enhance understanding of the interconnections between the levels and to allow students to ponder about their future tasks at an early stage.

1.2 Processes of Self-Optimisation Planned to Steer Social Dynamics in SGC

This article builds upon earlier publications and reflects how the set of rules contains self-optimising subsets that are ultimately more capable of steering learning processes than mere directives. Experience derived from the game's implementation shows that different student groups may find quite different approaches to be a function of their preferences, which are co-determined by their different curricula and hence values of behaviour.

In general, SGC's design favours the optimisation of *feedback circles* rather than *explicit directives* and interdictions for the establishing of a social structure (Ahamer, 2011a).

1. The team size for levels 3 and 4 is planned to be governed by the following antagonistic mechanisms:
   a. The more members a team has, the higher its potential to elaborate on profound standpoints and to incorporate actors suitable for various discussion phases.
   b. The fewer members a team has, the higher the individual share of the rewards won by the team, as the formula says: team points / members = player's points.
2. Anonymous web postings in the 8-4-2 game of Level 1 encourage unconventional contributions as no damage to personal interest need be expected.
3. At Level 2, the degree of collaborative vs. confrontational behaviour when reviewing, as well as the effort required for a high-quality review, is directed by the potential rewards a reviewer can receive.

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