Towards computational learning science: modeling creative problem solving in child-robot interaction through behavioral learning analytics

Margarida Romero, Frédéric Alexandre

To cite this version:

Margarida Romero, Frédéric Alexandre. Towards computational learning science: modeling creative problem solving in child-robot interaction through behavioral learning analytics. ISLS 2023 - Annual Meeting of the International Society of the Learning Sciences, Jun 2023, Montréal, Canada. hal-04124474

HAL Id: hal-04124474
https://hal.science/hal-04124474
Submitted on 10 Jun 2023

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L’archive ouverte pluridisciplinaire HAL, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d’enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

Distributed under a Creative Commons Attribution - NonCommercial - ShareAlike 4.0 International License
Towards computational learning science: modeling creative problem solving in child-robot interaction through behavioral learning analytics

Margarida Romero 1,2*, Frédéric Alexandre 2

* margarida.romero@univ-cotedazur.fr / https://margaridaromero.blog/
1. LINE & NeuroMod, Université Côte d’Azur, France
2. Mnemosyne Inria Team, France

We engage the participants in an ill-defined problem-solving task whose goal requires them to explore the four unknown cubes placed in front of them. The affordances are important in the process of understanding the material and its features to configure it in a way to solve the problem (the goal state).

Goal: “Build a vehicle moving from a red point to a black point”

The ANR CreaMaker and AIDE projects aim to better understand creative problem solving by analyzing the interaction between brain processes and problem-solving activity from a behavioral perspective. The CPS behavior (intentions + CPS regulation) is analyzed based on learning analytics generated automatically and also through human analysis of this activity based on coding schemes.

#CreaCube Big data corpus of creative problem-solving tasks (n>1300 experiments).
Each video is coded based on a behavioral learning analytics coding schema

#CreaComp is a research program in computational learning sciences for the advancement of the study of creative problem solving.

Levels of analysis of creativity (Romero, 2022) based on Lodge et al. (2017)