

# CHILDREN'S LEADERSHIP AND FORMS OF COLLABORATION IN A NOVEL LEARNING ENVIRONMENT

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## AIM OF THE STUDY

The aim of this study is to investigate the social construction of leadership in students' collaborative group work in a novel school-based making and design environment. Previous studies have shown that the nature of leadership and how it is distributed among the participants pivotally affects collaborative group processes and outcomes. However, little is yet known how leadership emerges during collaborative group work in contemporary making and design learning environments that engender different demands and possibilities for social activity than more traditional collaborative settings

## RESEARCH QUESTIONS

1. What kinds of leadership moves can be identified in students' social interaction during their making and design activity?
2. How do leadership moves mediate students' collaboration processes?

## THEORETICAL FRAMEWORK

In this study, leadership is defined as a reciprocal social process, where individuals coordinate or influence the activity of the group and its members. There can be several leaders and followers and these roles develop in the interaction between group members (Miller, Sun, Wu & Anderson 2013; Shin, et al. 2004; Yamaguchi 2001). Such socially emerging leadership is investigated by identifying *leadership moves* from group interactions. Leadership moves manifest themselves while group members make initiatives that are acknowledged and negotiated in the group. Hence, these interactional moves do not develop into leadership if others choose not to follow these moves (Li, et al. 2007; Miller, et al. 2013; Sun, et al. 2017).

This study follows a theoretical framework based on Barron's (2003) conceptualization wherein problem solving is divided into

*content space* and *relational space*.

Participants of a child group need to mediate and develop these two spaces simultaneously. The problem solving content space refers to the problem at hand. The interaction in this problem-solving space is related to the cognitive dimension of the task, such as providing possible solutions or developing arguments. The problem solving relational space refers to the opportunities and challenges in the interaction between group members. Interaction in this space can for instance relate to the roles of individual participants or the way in which the participants relate to each other. Hence, this study aims to investigate how identified leadership moves mediate collaborative group processes from the perspective these two spaces.

## STUDY OVERVIEW

The empirical data of this study draw on videodata of five student groups working in a school-based making and design environment, the FUSE studio. Four 4th-6th grade students worked in each group. Its' goal is to spark interest, promote engagement and develop the students' understanding of various STEAM –topics. The learning environment aims at supporting students' identities as thinkers, creators, and producers of knowledge (Vossoughi & Bevan 2014; Stevens, et.al 2016). It offers students with 24 different STEAM (*Science, Technology, Engineering, Arts & Mathematics*) challenges, which level up in difficulty. Figure 1 below shows a student view of the FUSE challenges on a computer screen. Choice is fundamental to the student's learning experience in the FUSE-studio. Children working in FUSE get to choose from a large variety of problem-solving tasks and choose with whom they worked or whether they preferred to work individually.

We collected altogether 83 hours of video material, over a period of one semester.

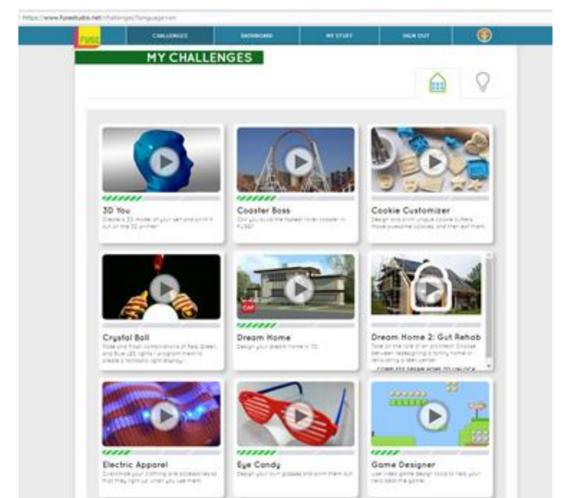


Figure 1. "My Challenges" view for the student

## FINDINGS

The results indicate that most of the leadership moves identified in the students' social activity concerned planning and organizing the group's work, which in turn, depicted the regulation of the relational space of collaborative work. Successful regulation of relational space seemed to interact positively and advance the students' problem-solving (i.e. content space). We could also identify leadership moves that concerned the development of ideas, advancing the students' collaborative problem-solving. These moves seemed to be connected to reciprocity of interaction and symmetrical roles between participants in the group. These in turn were regulated by various leadership moves. In some groups, more than one leader emerged. Reciprocity of parallel leadership moves seemed to advance collaboration and problem-solving.

## CONCLUSIONS

In sum, the study demonstrates that leadership is a pivotal part of children's collaborative work in novel making and design environments that deserves further research attention to ensure productive collaboration, including teacher support and interventions.