

# Structure for Agency: Possibilities and Challenges for Adaptive Collaborative Learning Support in Educational Equity Projects

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**Abstract:** Adaptive collaborative learning support (ACLS) has potential to support educational equity projects. We outline how student agency might be conceptualized in CSCL environments, discussing content-focused, inquiry-based, and dialogical learning environments. For each, we consider the potential and challenges of ACLS for supporting student agency and conclude with open questions for CSCL researchers who seek to program, design, and evaluate the role of ACLS in equity-oriented CSCL environments.

## Introduction: Structure, agency, and equity

In CSCL, there has been increasing interest in issues of educational equity. For example, consider Wise and Schwarz's (2017) provocations that ask whether or not CSCL should give up on educational change, or Rummel, Walker, and Alevén's (2016) discussion of what an adaptive support educational utopia should be. This reflects a political turn in the learning sciences broadly that seeks to understand what role learning research can play in improving lives and in social justice (e.g., Politics of Learning Writing Collective, 2017). This is a timely goal, particularly in light of the increasing need for global citizenship education (UNESCO, 2014).

We argue that when educational equity is defined as equitable access to ambitious collaborative practices that promote learner agency, dialogue, and identity development, CSCL's understanding of scripts and scaffolding has the potential for unique and useful contributions to educational equity projects. However, there is tension between viewing scripts as compromising learner agency versus viewing scripts as supporting new forms of learner agency (Wise & Schwarz, 2017). Building on a series of NSF-sponsored workshops, we explore the possibilities and challenges of ACLS for supporting student agency and educational equity projects.

## Adaptive support for agency

As Calabrese Barton and Tan (2010) illustrate, from a sociopolitical perspective, learning is about recreating "practices in socially and culturally situated ways that confer on one more (or less) agency with which to participate across communities" (p. 190-191). These approaches understand and position students as cultural-historical actors (agents), rather than the passive recipients of education (Freire, 1972; Vossoughi & Gutiérrez, 2017). We see agency as linked to identity development defined broadly, where in equitable learning situations students can take on and take up disciplinary identities rather than be rejected by them (Bell, van Horne, & Cheng, 2017). We also understand learner agency as including students' ability to question knowledge, including how that knowledge was generated and what purposes it has been and might be used for.

There is evidence that ACLS can support cognitive learning outcomes (e.g., Rau, Bowman, & Moore, 2017). One tension is the role of ACLS in learning when content is considered more fluid. Rummel et al. (2016) imagine a dystopian scenario for learning in a chemistry class where students (and teachers) have no way to override their school's ACLS technology, students are paired with frustrating partners because such pairs are marked by the ACLS as supporting "constructive conflict," and predictive mechanisms write off students' potential early. By contrast, in the utopian scenario, the teacher and the ACLS technology confer on next steps and the ACLS orients to the students in a more human way (e.g., by encouraging them to take a break as they feel frustrated). What is the same, however, is the content of each lesson: standard chemistry. We argue that a real concern by CSCL with issues of disciplinary agency must attend more deeply to questions about the content of learning. CSCL has long known that learning is especially productive when students engage in real-world problems, problems that are of personal meaning, or open problems in a discipline (Hmelo-Silver, 2004; Papert, 1980). For example, in a science class this could be sustained engagement with a science-based simulation (e.g., *Wallcology*; Slotta, Quintana, & Moher, 2018), in which scripted grouping and activity sequences support students in enculturating into a scientific community of practice.

While these approaches reposition students as problem solvers rather than recipients of knowledge, they pose significant problems for adaptive support. For example, it is much more difficult in such environments for ACLS to take on the role of "intelligent tutor," able to understand best pathways through known-answer problems and guide students to and through such pathways. Instead, we imagine that adaptive support can focus on collaborative practices. In this way, even when agnostic to content, support could help

students it understands as frustrated by prompting collaborative learning strategies or could, based on what it hears and sees, prompt teachers to visit groups that appear especially sullen or enthusiastic.

From a critical Freirian perspective, “Simply replacing the *content* of teaching (from hegemonic to counter-hegemonic ideas) does not unsettle the social and intellectual relations that sustain an unequal society” (Vossoughi & Gutiérrez, 2017, p. 141). With this in mind, it is also important that collaborative environments do not simply seek to support students’ agency through robust content, but rather also through fostering more dialogical forms of learning. For example, Kolikant and Pollack (2015) used the notion of “dialogical agency” to study the computer-mediated discussions between Jewish and Arab Israeli high schoolers as they analyzed loaded historical documents. They recognized that from a conception of collaboration that focuses on dialogue rather than convergence, “the role of the Other is to generate a dialogic agency in oneself” (p. 331). While we can imagine ACLS playing the role of an “other” in supporting dialogue and agency, we are weary of a “critical” classroom in which learners talk only to machines throughout the day. Additionally, there are significant technological barriers to creating ACLS that can respond to the wider range of comments students might make in dialogical rather than acquisitionist learning environments.

### **Conclusion: Challenges in structuring for agency**

Clearly, ACLS has immense potential for supporting content agency and disciplinary identification. Given ACLS’s ability to support teachers, it might also be especially transformative in under-resourced classrooms. Therefore, CSCL should not give up on educational change but instead consider how ACLS can (a) increase access to (b) learning environments that support deep rather than shallow learner agency. Moving forward, the CSCL community must therefore contend with how to program, design, and evaluate the use of ACLS for environments where content is not pre-determined and where dialogical forms of learning are valued.

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