Designing a Model for Deliberation-Based Learning

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Abstract: In political organizing, groups use *deliberation* to scope projects in which they will collaboratively design political actions and organizations. Despite its importance, we lack a model for teaching learners to scope highly open-ended political projects through deliberation. We designed, implemented, and evaluated deliberation-based learning (DBL), a novel model of learning environments that combines support for iterative design and deliberation, in a university design course. We found the learning environment supported students to choose political issues, form teams, and scope detailed project proposals from scratch, by completing iterations of proposing ideas, raising questions, suggesting improvements, planning to-dos, seeking information, and updating their proposals. This study contributes DBL, a novel, empirically grounded model of learning environments for scoping design projects through deliberation, which can be further refined through multi-case studies across contexts. By understanding DBL, learning scientists can engage students in political organizing in their communities—a key to sustaining democracy.

Just as learning scientists have long explored how to design learning environments for learning scientific inquiry as a method for explaining natural phenomena, in this paper, we explore how to design learning environments for learning deliberation as a method for scoping design projects in political organizing.

In political organizing, stakeholders design political actions and organizations to influence public policy (Bobo et al., 2001). For example, imagine a group of people who are concerned about air pollution from diesel trains that run through their community. Before they can design specific components of their actions, such as a phone banking script or social media campaign, they must *scope* their project. For example, the group must decide their policy goal: Do they want cash reparations, train tracks moved, or new electric trains? They must agree on a political strategy: Will they attempt to influence the train company, elected officials, or regulators? They must agree on whether to treat other organized groups—the public transit union, the local chamber of commerce—as allies or adversaries. And they must choose their political actions: Will they use protest, phone banking, social media campaigns? All of these scoping decisions, and more, may be contested by different community members. Yet community members often need to cooperate to build enough power to influence key decision makers (Bobo et al., 2001), so it is critically important to build consensus when scoping a new political organizing project.

To scope organizing projects with consensus, students must learn *deliberation*—a mode of collaboration in which different stakeholders listen to each other, learn about an issue, and build consensus to design a plan for action (Gastil & Levine, 2005). In this design-based research project, we asked: *How might we design a learning environment that gives college students practice deliberating to scope design projects in political organizing?*

Lack of learning environments for scoping with deliberation

Learning scientists do not yet understand how to design learning environments that give students practice deliberating to scope design projects. While learning scientists have studied many learning environments for design projects, few of these learning environments give students practice with scoping their own projects because scoping is not the central learning goal.

Learning scientists have studied learning environments across a diverse range of design domains, including architecture, advertising, graphic design, communication design, typeface design, industrial design (Sawyer, 2018), e-textiles (Kafai, Fields, & Searle, 2014), toy design (Holbert & Thanapornsangsuth, 2018), service design (Rees Lewis et al., 2018), and vehicles (Kolodner et al., 2003). Yet, these learning environments do not give students practice scoping their own projects. This is often because the *teacher* pre-scopes design projects as a scaffolding technique to help students engage with domain concepts (Kafai et al., 2014; Kolodner et al., 2003), experience the domain in an identity-affirming way (Kafai et al., 2014; Holbert & Thanapornsangsuth, 2018), and/or make progress designing solutions (Rees Lewis et al., 2018; Sawyer, 2018). For example, instructors often impose constraints to foster creativity, such as specifying that the students will create a nine-panel comic with at least two characters in which the panels are 2" by 2.5", drawn in ink (Sawyer, 2018, p. 155). In contrast, were students to scope their own projects, they would be the ones to impose such constraints.

While existing learning environments focus on other learning goals such as domain knowledge, identity, and other design processes, in political organizing it is particularly important to teach scoping. Successful organizing requires voluntary participation by many community members (Bobo et al., 2001), making it critical that students learn deliberation to scope projects that appeal to collaborators and not just themselves. If we want students to conduct real, personally meaningful, impactful projects in their communities, they must learn to manage the politics inherent in these projects by managing the needs and interests of different team members and stakeholders. This makes scoping a critical, unaddressed learning goal for learning scientists to support.

Designing deliberation-based learning: Research questions

We performed design-based research (McKenney & Reeves, 2019) to develop and test an empirically grounded theoretical model called deliberation-based learning (DBL), which explains how learning environments can support classroom deliberation that is authentic to the open-endedness of scoping real-world political organizing projects. Consistent with design-based research principles, we began by developing an initial model of DBL to test empirically (Easterday et al., 2017). The initial model had 7 key phases that students complete every week during one 60-90 minute class time (Fig. 1): **(1) Read background.** Students read a document with background information about key design decisions such as which policy solution to choose. **(2) Make proposals.** Students outline proposals by selecting 1 option for each key design decision or adding their name to another student's proposal. **(3) Rate proposals.** Students rate the quality of each proposal, enabling the teacher to form groups (3-4 students each) with different ratings to discuss disagreements. **(4) Discuss proposals**. Groups discuss the proposals and record actionable next steps (what information to seek, what revisions to make) on a Discussion Worksheet. **(5) Plan next steps.** Students add high-priority next steps to a Trello to-do list. **(6) Form teams.** Students decide whether they are ready to commit to their proposal as a team. **(7) Seek information and update proposals.** Between classes, students use the to-do list to seek and share new information.

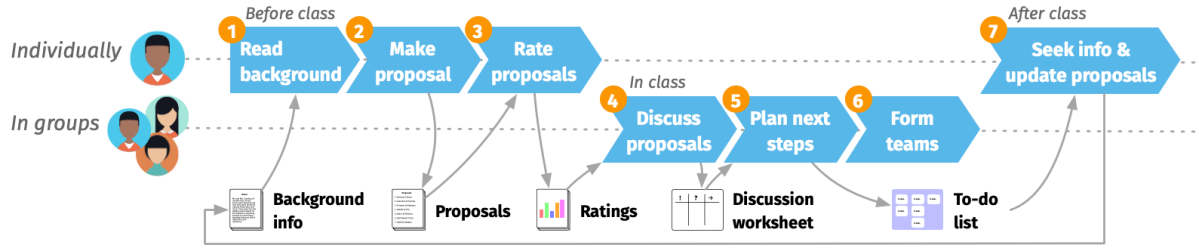

Figure 1. In each week of DBL, students complete a series of activities supported by tools.

DBL has two key theoretical components: the *task* of scoping a design project, and the *method* of deliberation. To understand whether DBL supports the task of scoping design projects, we can measure *iteration*—the process that enables designers to make progress on scoping and solving highly open-ended problems, which involves transitioning between design activities (such as gathering information, proposing solutions, critiquing solutions) to learn and refine the solution (Rees Lewis et al., 2018). To understand whether DBL supports deliberation (a democratic process in which all participants have a voice and influence), we can measure whether students contribute equally to these iterations and build on each other's ideas. To understand whether DBL achieves its intended outcome of supporting political organizing projects, we can measure whether students form teams (our way of operationalizing the early stages of organizing) and the quality of project proposals they develop. Therefore, we asked three research questions about this model:

- **RQ1.** Does DBL enable students to form teams and scope political organizing projects?
- **RQ2.** To what extent does DBL support *iteration* as a mechanism to form teams and scope projects?
- **RQ3.** To what extent does DBL support iterations that result from *deliberation* (vs. unequal influence)?

Methods

To investigate these questions and refine the model, we designed and implemented a novel deliberation-based learning environment (Fig. 1). In line with the principles of design-based research (Easterday et al., 2017; McKenney & Reeves, 2019), we revised our tentative working model of how the learning environment might work to align with our data to produce an empirically grounded model. We implemented the learning environment with 10 undergraduates (5 f, 5 m) in a 10-week civic design class. We collected data including field notes of the learning environment; log data from online collaboration tools (i.e., Google Docs and Trello); students' proposals; and photographs of discussion worksheets. We analyzed data using process codes (Miles, Huberman, & Saldaña,

2013) based on the model, which enabled us to test whether the model offered a plausible explanation for the data or needed to be revised (Easterday et al., 2017).

Findings

We found that DBL enabled students to form teams and scope detailed proposals (RQ1), that students achieved these outcomes by completing iterations (RQ2), and that these iterations resulted from deliberation in that all students influenced all phases of iteration (RQ3). The initial design model was broadly supported, but when we found that the ratings-based groups were hindering students' ability to make iterative progress with potential teammates week over week, we revised the design to let students cluster around their favorite proposals instead of the teacher forming groups using students' ratings to maximize opinion diversity.

Students formed teams and scoped detailed proposals from scratch

We found that this learning environment supported both key outcomes: forming teams and developing detailed proposals (**RQ1**). First, by the 4th week of the 10-week class, all students had formed teams—a first step in political organizing. Second, by the final week of class, all teams had scoped the initially vague issue of "money in politics" into detailed project proposals. While one team chose to tackle the original problem of money corrupting politics, the other two teams focused on voter education and voter registration, which they found more important and/or feasible to address—and still managed to develop detailed proposals. All three teams reached out to existing community organizations (without the instructor developing these partnerships) to understand their needs and identify opportunities for a partnership. One team identified multiple community organizations working on money in politics and helped to put them into contact with each other.

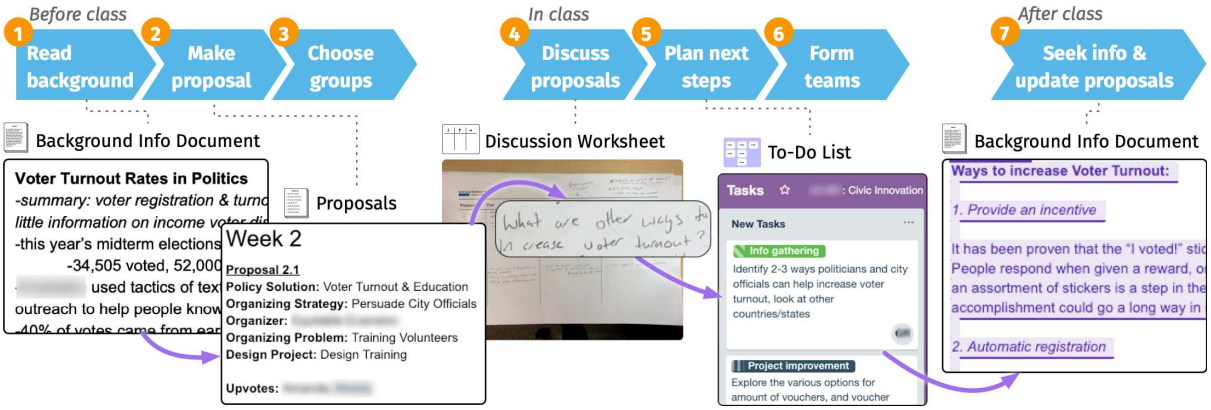

Figure 3. Example of one iteration, in which students used the background info to propose a project about voter turnout, identified questions during discussion about how to increase voter turnout, made a to-do to find info to answer the question, and added that info in their next proposal. Selectively blurred to preserve anonymity.

Proposals and teams emerged from iterations that all students influenced

How did students refine their proposals and form teams (**RQ2, RQ3**)? By analyzing the artifacts generated in each activity, we found that students made progress by completing *iterations* (e.g., Fig. 3) in which they referenced existing background information, drafted a proposal, raised questions or suggested improvements, created concrete to-dos, searched for external information, and revised the proposal. These iterations enabled them both to improve the quality of their proposals and adjust their proposals to satisfy multiple peers in order to form teams.

In a focused analysis across two weeks of DBL, we identified 29 iterations (15 one week, 14 the next week) which provide a plausible explanation of how students made progress on their proposals (**RQ2**). For example, in week 2 (Fig. 3), students proposed increasing voter turnout by training local volunteers to register voters; noted the question, "what are other ways to help increase voter turnout?" on their discussion worksheet; added the task "Identify 2-3 ways politicians and city officials can help increase voter turnout, look at other countries/states" to the to-do list; and later marked the task complete and added 1.5 pages of new information to the background information document, with five key ideas, including "provide an incentive," and "automatic registration." In later weeks, students formed a team around the idea of improving automatic voter registration. This example demonstrates how these iterations enabled students to make progress.

We also found that DBL supported *deliberation*, in that *all* students influenced project scoping by making substantive contributions throughout each phase of iteration and building on each other's ideas instead of a few,

vocal students exerting excessive influence (**RQ3**). In our focused analysis, all students submitted or endorsed a proposal based on the existing background information (10/10 students in wk1-2), nearly all students volunteered for a task (10/10 in wk1, 9/10 in wk2), and nearly all students followed through by contributing new information that was used to update a proposal (10/10 in wk1, 9/10 in wk2). By influencing these iterations, students influenced each other and built on each other's ideas. Most of students' information contributions (56%) in week 2 built on *different* students' contributions from week 1 (while 38% explored new ideas and 6% built on their own previous contribution), and multiple students often made complementary contributions in a given week to developing the *same* section of background information (44% of contributions in weeks 1 and 2). Given that these iterations explained the group's progress, as discussed above, this indicates that DBL gave students practice using deliberation to scope their projects, rather than working independently or allowing a few vocal students to dominate.

Conclusion

We found that this implementation of DBL supported deliberation in which students chose political issues, formed teams, and scoped detailed project proposals from scratch, by supporting iterations in which all students proposed ideas, raised questions, suggested improvements, planned to-dos, searched for information, and updated proposals. Unlike existing learning environments in which the teacher scopes projects as a scaffolding technique, DBL gives learning scientists a way to give *students* practice scoping their own design projects through deliberation, which is particularly important to teach in domains like political organizing where projects depend on consensus to succeed. By continuing to study deliberation-based learning, we can provide more students with experiences that enable them to take effective political action by organizing democratically with others. In this way, learning scientists can contribute to the generational project of sustaining democracy.

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Acknowledgments

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