

## Optional ERIC Coversheet — Only for Use with U.S. Department of Education Grantee Submissions

This coversheet should be completed by grantees and added to the PDF of your submission if the information required in this form **is not included on the PDF to be submitted**.

### INSTRUCTIONS

- Before beginning submission process, download this PDF coversheet if you will need to provide information not on the PDF.
- Fill in all fields—information in this form **must match** the information on the submitted PDF and add missing information.
- Attach completed coversheet to the PDF you will upload to ERIC [use Adobe Acrobat or other program to combine PDF files]—do not upload the coversheet as a separate document.
- Begin completing submission form at <https://eric.ed.gov/submit/> and upload the full-text PDF with attached coversheet when indicated. Your full-text PDF will display in ERIC after the 12-month embargo period.

### GRANTEE SUBMISSION REQUIRED FIELDS

Title of article, paper, or other content

All author name(s) and affiliations on PDF. If more than 6 names, ERIC will complete the list from the submitted PDF.

Last Name, First Name	Academic/Organizational Affiliation	ORCID ID

Publication/Completion Date—(if *In Press*, enter year accepted or completed)

Check type of content being submitted and complete one of the following in the box below:

- If article: Name of journal, volume, and issue number if available
- If paper: Name of conference, date of conference, and place of conference
- If book chapter: Title of book, page range, publisher name and location
- If book: Publisher name and location
- If dissertation: Name of institution, type of degree, and department granting degree

DOI or URL to published work (if available)

**Acknowledgement of Funding**— Grantees should check with their grant officer for the preferred wording to acknowledge funding. If the grant officer does not have a preference, grantees can use this suggested wording (adjust wording if multiple grants are to be acknowledged). Fill in Department of Education funding office, grant number, and name of grant recipient institution or organization.

“This work was supported by U.S. Department of Education [Office name]   
through [Grant number]  to Institution] . The opinions expressed are  
those of the authors and do not represent views of the [Office name]   
or the U.S. Department of Education.

## Designing Epistemic Games for Informed Civic Learning

Jeremy Stoddard, Jais Brohinsky, Derek Behnke, David Shaffer, Cody Marquart [jdstoddard@wisc.edu](mailto:jdstoddard@wisc.edu),  
[brohinsky@wisc.edu](mailto:brohinsky@wisc.edu), [dbehnke@wisc.edu](mailto:dbehnke@wisc.edu), [dws@education.wisc.edu](mailto:dws@education.wisc.edu), [cody.marquart@wisc.edu](mailto:cody.marquart@wisc.edu)

University of Wisconsin - Madison,

M. Shane Tutweiler, University of Rhode Island, [shane\\_tutwiler@uri.edu](mailto:shane_tutwiler@uri.edu)

Jason Chen, William & Mary, [jachen@email.wm.edu](mailto:jachen@email.wm.edu)

**Abstract:** In this paper, we describe the design for PurpleState, an internship simulation that applies the epistemic game model for informed civic learning. PurpleState places students in the role of interns at a political media firm and asks them to design a media campaign on a state level policy issue. Unlike the use of these models in STEM education, here we use the internship simulation to develop key skills, knowledge, and values *and* to ask participants to reflect on the simulation itself. In this way, we utilize PurpleState to help participants develop the argumentative thinking, epistemic cognition, and self-efficacy for informed citizenship and the reflective capacity to apply their understanding of the political ecosystem being simulated. The design of PurpleState contributes to the use of simulations in civic education by focusing on state level issues and using communities of practice as a model for learning and transfer to local civic engagement.

### Epistemic games for informed civic learning

Young people today are coming of political age in a world where websites and social media are the dominant source of news. In the US context, corporations and interest groups now fund massive political campaigns since the U.S. Supreme Court ruling in *Citizens United v. Federal Election Commission*. In this information ecosystem, national political and news organizations, corporations, and special interest groups influence local political contexts and constituents in powerful ways. They often do so through entities hidden from public view: media and political communications staff members and consultants hired to develop advertising campaigns.

Here, we describe PurpleState, our innovative computer-supported collaborative learning simulation that builds from previous work with epistemic frames and virtual internships to focus on developing informed citizens. Here we use the term citizen to denote any individual acting as a civic agent and not the legal status of a citizen of a nation-state. In this simulation, students work as political consultants on a fictitious political campaign using real news sources, polling data, and demographic and political resources available for their state. PurpleState thus puts students in the epistemic stance of informed citizens through gathering information from state and local news and other sources to understand how people in their state view important local issues. As a result, participants develop skills and knowledge that we argue are key for *informed citizens* to effectively engage in local and state issues they care about, including: (a) *argumentative thinking* for evaluating and using evidence to make and justify claims in context; (b) *epistemic cognition* for being informed citizens, including an epistemic understanding of the nature of political information and media ecosystems; and (c) the *confidence* to engage in civic action on issues (e.g., using media channels and persuasive messaging).

We designed PurpleState using the epistemic game model of virtual internships developed by Shaffer (2006a, 2006b). This model of learning employs two concepts: (a) epistemic frames and (b) communities of practice derived from real-life professions. The fundamental construct in epistemic frame theory is “the combination—linked and interrelated—of values, knowledge, skills, epistemology, and identity” (Shaffer, 2007, p. 160) that people have as members of a particular community of practice. A community of practice shares a common repertoire of *knowledge* and *skills*, as well as a set of *values*, that shape how skills and knowledge should be used. It also provides a set of *processes for making decisions*. Finally, a community has a shared *identity* exhibited both through overt markers and through the enactment of skills, values, and decision-making processes characteristic of the community (Brown et al., 1989; Lave, 1991). According to Shaffer (2006a) “epistemic frames are the organizing principle for practices” (p. 227) that lead to the development of expertise through modeling the relationship between discursive practices and structures of knowledge at the level of communities of practice.

This theory of learning through modeled professional practices is informed by studies of apprenticeship in which learners progress from a newcomer or novice within a learning context to an expert or full participant within a community of practice (Kirshner & Whitson, 1997; Wenger, 1998). Unlike the model of epistemic games and virtual internships developed to this point, however, which focus largely on the goals of developing a pipeline for STEM professionals, we use this frame as part of a classroom-based internship focused on developing informed citizens. The concept of epistemic frames provides a design model for helping students transfer academic experiences to their role as citizens outside of school (Bagley & Shaffer, 2009; Shaffer, 2006a, 2006b).

Note: The research reported here was supported by the Institute of Education Sciences, U.S. Department of Education, through Grant R305A190476 to University of Wisconsin - Madison. The opinions expressed are those of the authors and do not represent views of the Institute or the U.S. Department of Education.

## Informed civic learning

Here, we use the model of epistemic frames to work toward both cognitive and non-cognitive outcomes aligned with the skills, knowledges, values, and reflective practice of informed and engaged citizens active in complex media ecosystems. Our focus on informed citizenship focuses on outcomes related to argumentative thinking, epistemic cognition for informed citizenship, and self-efficacy for civic and media engagement.

Most research in civic education focuses on academic constructs related to engagement with texts and the utilization of evidence in reasoning (e.g., Parker et al., 2013), or a more action-oriented approach that focuses on modeling civic action (e.g., Kirshner, 2008). Our model of *argumentative thinking* incorporates argumentative reading and reasoning as described by Newell et al. (2011) but with a particular focus on the *epistemic nature* of evidence used in politics and an emphasis on understanding *the context and audience* of arguments. The context and audience are both important for understanding and constructing persuasive arguments and communications, as well as for understanding those who disagree in ways that reduce polarization and allow for more civil deliberation and shared decision-making on local issues (Levy et al., 2019).

In PurpleState, tasks are structured across the simulation to promote knowledge-seeking behaviors and processes toward the goal of informed citizenship. We build on the work of Chinn and colleagues to model *epistemic cognition for informed citizenship*, with a focus on epistemic aims, epistemic ideals, and reliable processes (Chinn et al., 2020). For example, epistemic aims are behaviors identifying and seeking out additional sources for the kinds of corroboration and contextualization—or attempts to understand opposing views—identified as key practices of an informed citizen. This includes seeking out corroborating sources and information from multiple sides or perspectives on an issue (epistemic aims), using a set of criteria for evaluating information (epistemic ideals), understanding what perspectives they represent and for whom it is intended, along with an awareness of the potential consequences (reliable processes).

Our project is particularly interested in the relationship between learning how to engage in civic behaviors—such as argumentative thinking and deliberation—and students’ confidence to engage in such actions – or their *self-efficacy* for *civic and media engagement*. We therefore see a strong relationship between students’ self-efficacy and skills and the likelihood to engage in these actions (e.g., Levy, 2011; Torney-Purta et al., 2004). The use of political self-efficacy in civic education research has primarily related to analyzing large national or international datasets on civic engagement. Fewer studies have focused on the impact of different classroom-based practices on students’ interest and engagement in politics and political self-efficacy (e.g., Levy, 2011).

Reflection and feedback loops are both build into the simulation itself and in spaces where students step out of the simulation to engage in reflective discussions on how what they are experiencing in the simulation applies to what they observe in their own local political environment. These practices are key for argumentative thinking in civic education and for reducing polarization (Levy et al., 2019). As part of the simulation we utilized review team protocols designed to engage in brief sessions focused on teams sharing their decisions and how they are supported with evidence and a round of feedback from a different intern group in the class. Therefore, we attempt to both model informed citizenship in the simulated system and tasks and ask students to reflect on how these ideas apply to their own lives as civic agents. We also ask them to critically examine the system itself.

## Designing an epistemic game for informed citizenship

PurpleState is modeled on how interns at political communications and public affairs firms are trained as part of a team to design media campaigns. We selected the epistemic frame of the political communications consultant as it met many of the goals we identified for the skills, knowledge, and concepts we believe were important if young citizens are to act effectively in our contemporary social context. Finally, we focus on a US state context to make the skills and knowledge developed in the simulation more transferable to local issues that students care about. Tasks, products, and concepts/terminology in the internship are derived largely from how interns develop expertise in these firms. The balance between authenticity and functionality, along with maximum participation and engagement of students, was prominent in our design principles. PurpleState was developed through a series of design-based iterations.

PurpleState takes approximately 10 hours to complete and can be done in class or in a combination of in-class and out-of-class time. Participants form collaborative teams of interns work with an account manager, played by their teacher. The “interns” begin by viewing a video from “Alex Stone” (non-player character), their boss at PurpleState. They then move into Phase 1 of the internship: onboarding.

### Phase 1

During Phase 1, the interns help another fictitious PurpleState design team with a series of tasks to create a

congressional campaign. Interns receive emails from the campaign’s account manager requesting they complete specific tasks. Using an *engagement first* approach, these tasks introduce interns to the campaign design process, the tools and data used in that process, and core concepts in political communications (Parker, et al., 2013). Engagement first refers to first having students engage with the problem and task and seek out resources needed to solve the task as needed. Tasks include, for example, using polling data and the map tool (Figure 1) to identify target audiences for their campaign. Interns are then asked to reflect on what they have done to also examine their own information ecosystems including how they curate and view their political information.

## Phase 2

During Phase 2, interns work in teams to design a campaign for a political special interest group on a key state level public policy issue: gun control. Intern teams follow the PurpleState campaign design process to develop a proposed campaign for their client. Building on tasks from Phase 1, intern teams work to:

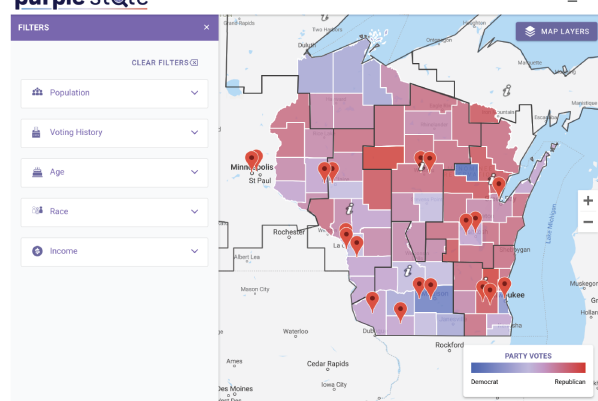
- identify key target audiences and locate them in the state;
- research the policy issue and how it is presented by local journalism in the media markets where their target audiences are; and,
- develop a campaign strategy and message that aligns with their goal and target audience, including the best media channel to reach and influence their target group.

The intern teams use the PurpleState campaign simulator (Figure 2) to project the effects of their campaign and to write a proposal for their client that explains and justifies their campaign strategy. Review teams (both inter-group and intra-group) are used to practice argumentative thinking and to provide feedback on campaign designs. At the end of this phase, participants engage in a reflective discussion of how they view the system simulated in PurpleState and how they view the role of media in politics—and what alternatives could exist. In addition to the campaign design work that is core to the simulation, we suggest several opportunities for applying and extending the simulation based on ideas that emerged from our design-based research with teacher partners. These activities include having students develop a pitch presentation for their client, creating a sample advertisement to illustrate their strategy, and developing an awareness campaign for a local policy issue that they care about.

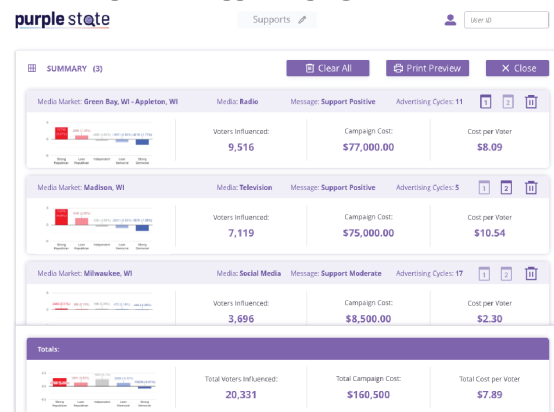
## PurpleState App Platform

The app includes two tools used in the simulation: the map tool and campaign simulator (Figures 1 and 2).

**Figure 1**  
PurpleState App Map Tool.



**Figure 2**  
PurpleState App Campaign Simulator



The app also hosts simulation resources (e.g., polling data). The map tool is an interactive GIS-based map that allows interns to access data about state demographics (Census), voting history (Governor election), and political affiliation (from polling) at the county and media market levels. It also includes map layers that visually illustrate income data, voting history, Nielsen media market and congressional district outlines, and links to local journalism pinned to the source location. Students use the map to explore the political ecosystem of the state, identify where target audience groups are for their campaign, and access news sources on the policy issue from across the state to understand how the issue is framed in different regions. The map utilizes filters to help interns identify counties where their targeted audiences may reside based on their analysis of the public opinion polling on the issue.

The campaign simulator utilizes data from the map tool and multipliers based on political communications research to model the projected impact of their campaign strategy based on the media market

selected, the strength and tone of their message (e.g., moderate, negative), the media channel selected (e.g., television), and the number of advertising cycles they choose to run. Teams are constrained by a budget, and the campaign simulator projects the cost of the media buy and overall campaign, the number of people reached with their message, and the numbers and political identities of those influenced. Once they develop a campaign strategy that reaches the goals set by their client within the budget allowed, the team finalizes a proposal for their client outlining their strategy and the projected effects, with a strong emphasis on warranting their design with evidence and rationale. The PurpleState App tools promote the argumentative thinking and reasoning of the political media consultant. The app tools also help to visualize and simulate the role of money, groups and information systems in local political contexts. It provides students with context and evidence for the reflective discussions they engage in on how this system operates, their role in the system, and what they could imagine as alternative models to how citizens may engage and become informed. They are also engaged in considering how they can transfer the knowledge and skills they have learned in PurpleState to being more informed citizens and to take action on issues they care about using media strategies.

## Contributions for CSCL

In our design of PurpleState, we advance both the use of epistemic frames and communities of practice in our employment of an internship simulation toward the end of informed civic learning. In particular, we utilize the epistemic frame of a profession and community of practice that includes both the skills and knowledge useful for informed citizens *and* that simulates a system one needs to understand to be critically reflective of local political and media ecosystems as well as one's own role within these systems. Only through developing skills in argumentative thinking, confidence in engaging in civic and media engagement, and an understanding of the political information and media ecosystem can we expect meaningful engagement in policy issues and advocacy in effective ways. Through PurpleState, we demonstrate how a virtual internship can be utilized as a learning context and design toward these goals in ways more easily transferable than the more common simulations in civic and government courses focused on national issues and political elites. While designed for the US context, the features focused on critically analyzing political media ecosystems is applicable for other global contexts.

## References

- Chinn, C. A., Barzilai, S., & Duncan, R. G. (2021). Education for a “post-truth” world: New directions for research and practice. *Educational Researcher*, 50(1), 51-60.
- Bagley, E., & Shaffer, D. W. (2009). When people get in the way: Promoting civic thinking through epistemic gameplay. *International Journal of Gaming and Computer-Mediated Simulations*, 1(1), 36–52.
- Brown, J. S., Collins, A., & Duguid, P. (1989). Situated cognition and the culture of learning. *Educational Researcher*, 18(1), 32–42.
- Kirshner, B. (2008). Guided participation in three youth activism organizations: Facilitation, apprenticeship, and joint work. *The Journal of the Learning Sciences*, 17(1), 60–101.
- Kirshner, D., & Whitson, J. A. (Eds.). (1997). *Situated cognition: Social, semiotic, and psychological perspectives*. Psychology Press.
- Lave, J. (1991). Situating learning in communities of practice. *Perspectives on socially shared cognition*, 2, 63–82.
- Levy, B. L. (2011). Fostering cautious political efficacy through civic advocacy projects: A mixed methods case study of an innovative high school class. *Theory & Research in Social Education*, 39(2), 238–277.
- Levy, B. L. M., Babb-Guerra, A., Batt, L. M., & Owczarek, W. (2019). Can education reduce political polarization? Fostering open-minded political engagement during the Legislative Semester. *Teachers College Record* 121(5), 1–40.
- Newell, G. E., Beach, R., Smith, J., & VanDerHeide, J. (2011). Teaching and learning argumentative reading and writing: A review of research. *Reading Research Quarterly*, 46(3), 273–304.
- Parker, W. C., Lo, J., Yeo, A. J., Valencia, S. W., Nguyen, D., Abbott, R. D., ... & Vye, N. J. (2013). Beyond breadth-speed-test: Toward deeper knowing and engagement in an Advanced Placement course. *American Educational Research Journal*, 50(6), 1424–1459.
- Shaffer, D. W. (2006a). Epistemic frames for epistemic games. *Computers & Education*, 46(3), 223–234.
- Shaffer, D. W. (2006b). *How computer games help children learn*. Palgrave MacMillan.
- Shaffer, D. (2007). In praise of epistemology. In B. E. Shelton & D. A. Wiley, (Eds.), *The design and use of simulation computer games in education* (pp. 7–27). Sense Publishers.
- Torney-Purta, J., Barber, C. H., & Richardson, W. K. (2004). Trust in government-related institutions and political engagement among adolescents in six countries. *Acta Politica*, 39(4), 380–406.
- Wenger, E. (1998). Communities of practice: Learning as a social system. *Systems thinker*, 9(5), 2–3.