

Bust Open the Silos (BOSILOS):

A Pilot Study of AI-Supported Media Literacy in Higher Education

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Abstract

This pilot study examined the potential of an interactive, AI-supported learning module to encourage students to examine, question, and compare differing viewpoints on topics including immigration and climate change. In the summer of 2025, the module was piloted with 16 undergraduates enrolled in a course titled Media Literacy and Youth Culture. Data were collected through four sources: student counter speech responses; think-aloud protocols conducted as students interacted with the module; reflective essays completed after participation; and a post-activity questionnaire. Evidence of student learning was observed in students' ability to generate conservative counterarguments in response to liberal or conservative-leaning news stories about climate change and immigration. Data show that BOSILOS offers a promising practice in the application of AI-embedded interactive learning to media literacy education. Students perceived the feedback provided about their written responses to be engaging and useful. Such activities may foster learner engagement and perspective-taking that inform the design of future instructional practices in both K–12 and higher education.

Keywords: AI-supported learning, media literacy, higher education, curriculum and instruction

Introduction

This pilot study examined the potential of an interactive, AI-supported learning module, *Bust Open the Silos* (BOSILOS) to foster media literacy competencies by encouraging students to explore, question, and compare differing viewpoints. BOSILOS engages learners in the role of a “Designated Opposition” responder, asking them to analyze partisan media and craft short written responses aimed at reaching an opposing audience. Students are immersed in the realities of digital media environments where attention and partisanship intersect.

In the summer of 2025, BOSILOS was piloted with 16 undergraduates enrolled in *the Media Literacy and Youth Culture* program at California State University, Channel Islands. Data were collected from four sources: short written counter-speech responses composed while using the interactive module; think-aloud protocols conducted as students interacted with the module; reflective essays completed after participation; and a short post-activity survey.

Preliminary findings indicate that BOSILOS was easy to use and strongly appealing to students. Growth in the quality of written responses across successive rounds was limited, suggesting that the overall design did not produce immediate gains in political argumentation skills. However, the module was effective in promoting reflection on bias, perspective-taking, and rhetorical awareness. Students showed the ability to adapt their counterspeech to resonate with a conservative audience when responding to a liberal-leaning news story about immigration. Survey data also highlighted how students perceived the tool’s usefulness, offering insight into both its strengths and areas for refinement. Taken together, these early results suggest that BOSILOS contributes to broader conversations in media literacy education about how technology can foster engagement, support perspective-taking, and illuminate the complexities of communication in polarized information environments.

BOSILOS was designed and built by Scalable Learning as a demonstration prototype for experts to review, with a pedagogical objective of raising awareness concerning partisan media echo chambers, the character of discourse within them, and potential ways of tempering it. However, the Media Education Lab and Scalable Learning recognized great potential value in piloting it with students to investigate reactions and effects on students of an approach that embeds AI inside of an interactive environment; and for Scalable Learning, as data that can inform its design of future Media Literacy modules. The role-playing activity in BOSILOS was not intentionally designed to teach political argumentation or persuasion skills (except as an engagement device). However, with future modifications, it has some potential for intentional learning of such skills.

This pilot study addressed two guiding questions: (1) How do students experience and respond to an AI-supported counterspeech simulation in a media literacy course? and (2) To what extent does BOSILOS support perspective-taking and rhetorical awareness in student writing?

Background and Context

With the rise of partisan news, teaching media literacy competencies has become increasingly complex. Students are not only exposed to a steady flow of hyperpartisan journalism and social media, but they also face the challenge of distinguishing bias from evidence in ways that traditional instructional methods may not adequately prepare them for. Recent scholarship suggests that artificial intelligence can play a role in addressing these challenges. For example, personalization aligned with user attributes such as education, political ideology, or gender may help individuals better recognize and resist biased or potentially harmful messages (Gabriel et al., 2024).

Generative AI also offers the potential to provide formative feedback at a scale previously unattainable in classroom settings. Prior work comparing AI- and human-generated writing feedback demonstrates that outcomes depend heavily on how prompts are designed and how quality is evaluated (Steiss et al., 2024). These studies remind us that AI feedback must be thoughtfully integrated into pedagogical design to be effective. At the same time, media education learning research underscores the importance of feedback as a social process, where peer and instructor interactions shape students' reflection and growth (Friesem & Greene, 2020).

AI can now easily be embedded directly into the instructional design of online learning. This approach reflects a broader shift in education: the transition from costly, handcrafted tutoring systems to flexible, generative AI-enabled environments that can offer personalized coaching at scale. As Bloom (1984) observed, the challenge has long been how to make the benefits of individualized tutoring available in group learning contexts. BOSILOS represents one step toward that vision in the domain of media literacy, providing opportunities for active rehearsal, immediate feedback, and perspective-taking practice that classrooms alone rarely offer.

For any such investigations, it is critical to recognize that AI-generated feedback will only ever be as good as the specific prompts that are written for an application. Sweeping conclusions about whether AI is capable of meaningful feedback generally is not a good research question, because for any application the results depend on whether the right kinds of prompts have been developed and embedded in the software. Accordingly, this study is primarily a formative assessment that may help make design improvements to BOSILOS that can be implemented and tested on a larger sample of users.

Research Methods

In this pilot study, 16 students from an undergraduate upper-division course titled "*Media Literacy and Youth Culture*" at California State University, Channel Islands, participated. Most participants were juniors and seniors majoring in Communication or Liberal Studies. The course fulfills the university's Graduation Writing Assessment Requirement (GWAR). It emphasizes advanced writing and critical analysis of mass media, with a particular focus on youth culture and the representation of marginalized groups.

This project was a quality improvement design pilot and not generalizable research at this stage. Students were informed that this was not a research project designed to produce generalizable knowledge; thus, a formal IRB consent process was not employed. Participation was incentivized through a combination of course credit, flexible options, and a modest bonus for early completion. BOSILOS was a graded component of the course, worth 60 points, with students given a choice between two formats: (1) a synchronous think-aloud session with a researcher via Zoom, or (2) independent completion of the simulation followed by a reflective essay. To encourage early engagement and provide timely feedback during the pilot phase, students who completed the activity within the first two weeks of the course received an additional five bonus points.

Our approach to data analysis included qualitative analysis of essay content to identify themes and patterns and distinctive user experience. Although the output from the tool was examined, we did not independently analyze or code the sentences students created. Future research might analyze student output to help refine the feedback that BOSILOS can provide through the AI chatbot.

The course enrolled a total of 24 students, of whom 16 completed the BOSILOS assignment. Students were not informed in advance that non-completion would be excused as the compressed summer session created additional time constraints. This decision was made at the conclusion of the term, when the instructor determined it would not be equitable to penalize non-participation, given that the activity was not traditionally part of the course.

How the Simulation Works

Exposure to counterspeech can influence those who compose it and those who read it. BOSILOS was designed to enhance students' media literacy competencies by providing opportunities to practice public discourse by articulating opposing viewpoints. Long considered a superior alternative to censorship, counterspeech is rooted in the Enlightenment ideal that "more speech" is the best approach to refute biased speech. Media literacy educators generally believe that the production of counterspeech fosters critical thinking and promotes active citizenship (McDougall, 2019). Although most argumentative strategies in counterspeech involve the use of reasoning, history, statistics, and examples, when it is written in a hostile tone, it can trigger negative responses. For this reason, experts call for the use of a respectful, fact-based tone when composing counterspeech (Baider, 2023).

BOSILOS is structured as an interactive learning module that guides students through a sequence of activities designed to replicate the experience of monitoring and responding to partisan media. The interface presents a simple navigation panel and a central workspace where students view instructional content and complete interactive tasks. Content is delivered through short, animated videos, adviser-student "conversations," and writing prompts embedded in digital "cards."

BOSILOS engages students in the structured critique of both liberal-leaning and conservative-leaning media sources, asking them to analyze bias, evaluate evidence, and assess the quality of arguments while role-playing as a Designated Opposition (DO) responder.

Another distinctive feature of BOSILOS is its use of artificial intelligence to provide tailored feedback on student counterspeech. Rather than functioning as a freeform chatbot, BOSILOS connects to a language model through carefully constructed prompts and flow control. The software, not the learner, orchestrates what content is shown, when feedback is delivered, and how responses are evaluated. This design ensures that the experience remains pedagogically coherent, safe, and repeatable, while still retaining the authenticity of real-time dialogue.

After drafting counterspeech responses to partisan media excerpts, students receive guidance intended to help them strengthen their arguments and better consider the perspectives of different audiences. The simulation incorporates issues such as climate change and immigration, encouraging students to confront how deeply polarized topics are represented in contemporary media.

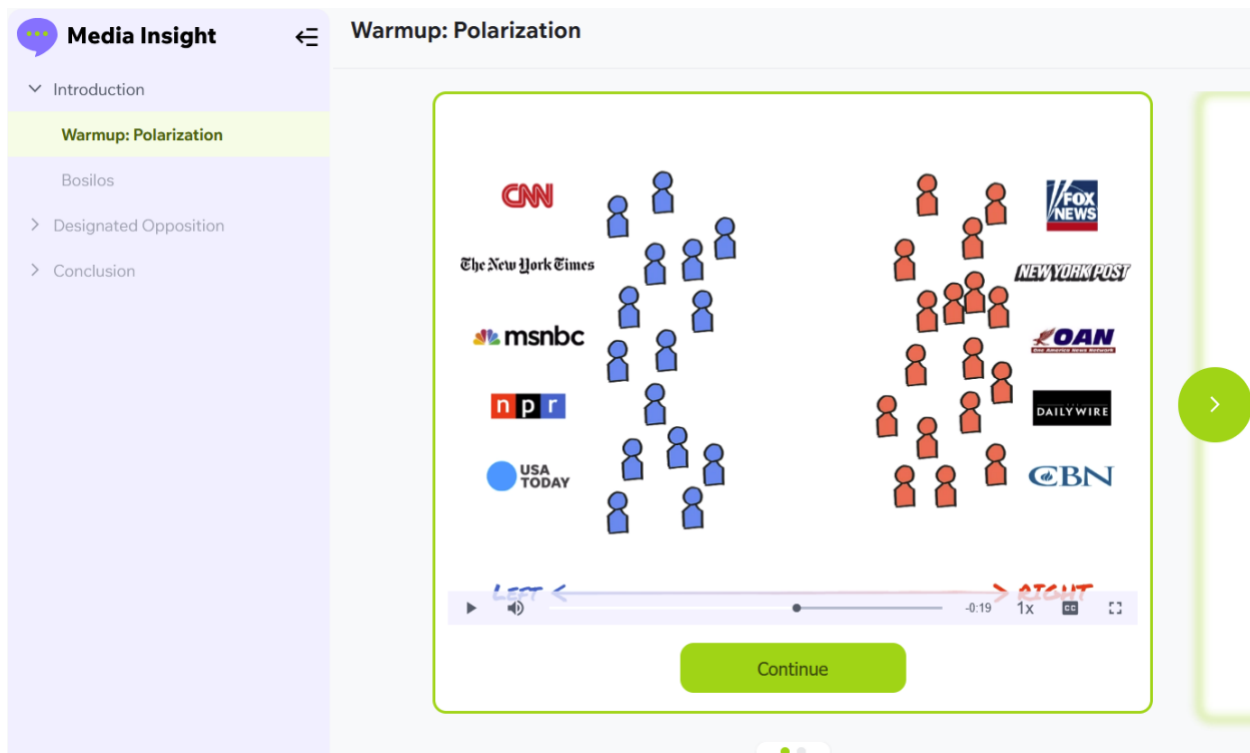


Figure 1. BOSILOS interface with navigation panel and animated media card.

Students begin the module by selecting which partisan “side” they will role-play first. They may choose to start as a Democrat responding to conservative media or as a Republican responding to liberal media. In either case, they assume the role of a Designated Opposition responder, whose task is to analyze the content, critique its claims, and prepare a counter-speech message for the intended audience.



You've just seen a high-level description of how Bosilos would work. But what would it be like in practice? What counts as a "reasonable" opposition response? The best way to see this is from the "inside." Let's now do a role-play exercise.

In a moment, you will pretend to be a Designated Opposition responder who is assigned to monitor a particular political news outlet. You'll try your hand at reacting to partisan political content with persuasive counterspeech. By doing so, you'll be better able to see the potential effects of the Bosilos system.

You'll play this role in two scenarios:

- as a Democrat responding to a conservative television show, and
- as a Republican responding to a liberal opinion piece

Click on the one you would like to try FIRST.

Play a Democratic D.O.

Play a Republican D.O.

Figure 2. Students select which partisan role to play first — Democrat or Republican.

Once a role is chosen, students view a snippet of partisan media, such as an online news article or a televised opinion segment. They are then prompted to write a short counterspeech response, typically two to four sentences, that addresses the content's arguments while considering the beliefs and values of the opposing audience. This activity requires students to evaluate evidence, recognize bias, and consider how framing affects persuasion. In the scenario, audience members can optionally click a button to see DO responses in real time. The explicit goal set before the students was to write posts that engage users of partisan media content and expose them to new information and ideas.



This author has provided a rather unpleasant picture of what conservatives want. You must now respond quickly. Tens of thousands of liberal readers are about to land on Mr. Thomson's article. You must write 3-4 sentences right now, summarizing what you would say about the article.

Here again is the ending of Mr. Thomson's opinion piece:

...and these racist attitudes are not merely coming from far-right activists, but are in fact in the mainstream. For example, Republican Senator Jim Vanderlay last Friday told a group of supporters that "if we don't stop the flood of illegal migrants immediately, we are not going to have a country anymore."

It is part of a pattern that seeks to preserve a white ethnostate and to demonize people of color. But it should not surprise us. The Republican Party has forgotten that we are a nation of immigrants.

(Again, you are a Republican here—if you are not a Republican in real life, just pretend that you are, and type in something that you genuinely think a typical Republican-leaning conservative might say.)



Your Response:

Wrong, there may be a few Republicans that are racist, but this is a gross exaggeration.



Figure 3. Students draft counterspeech in response to a partisan media excerpt.

This design challenge places students in a cognitively demanding position: they must not only critique the media text but also adopt a rhetorical stance aligned with a viewpoint that may differ from their own.

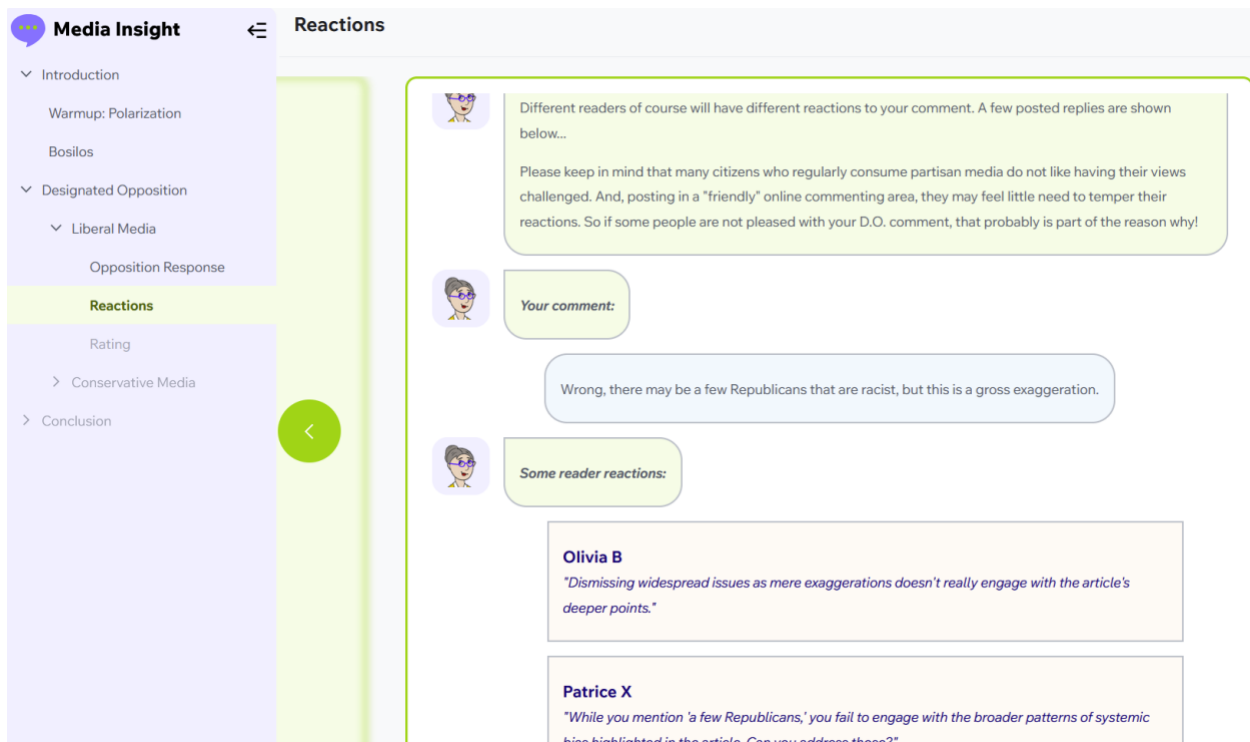


Figure 4. The student receives feedback from their Adviser on their written comments.

By embedding practice, reflection, and immediate feedback within the same learning sequence, BOSILOS aims to scaffold students' ability to engage critically with polarized media. The simulation highlights not only the recognition of bias but also the development of strategies for communicating across divides.

Findings: Student Reactions

Student responses to BOSILOS reflected both engagement and challenge and here we present evidence from student think-alouds and essay writing. Usability studies often benefit from real-time "think-aloud" methods, which can reveal the challenges users face while completing such tasks (Hertzum, 2024). Both concurrent think-aloud protocols and reflective essays provided insight into how students navigated the difficulty of role-playing "the other side" and adapting their counterspeech for a partisan audience.

Many found the interface intuitive and appreciated the structured nature of the module. At the same time, several described discomfort with the requirement to adopt the voice of the "other side." One participant explained, "At first, it was really hard to put myself in their shoes, but I realized that was the point — to see how bias works both ways."

This discomfort often led to deeper reflection. For example, one student admitted, "I noticed I was harsher when critiquing the side I disagreed with. The module made me stop and think about that." Another echoed this sentiment, writing, "It was eye-opening to realize how much of my own bias shows when I have to argue from the other perspective." Such reflections suggest that the exercise was effective in prompting metacognitive awareness of bias and the difficulty of perspective-taking.

The advisor feedback and simulated audience reactions were especially influential (see Figure 4 for an illustration). Some students valued the specificity of the suggestions: “The tips made me think about how I could be more specific with evidence instead of just giving my opinion.” Some students perceived the AI feedback as repetitive. As one student remarked, “It felt like the same advice each time, and I wasn’t sure how much better my writing really got.”

In providing personalized feedback, the LLM was prompted to review each D.O. comment for suboptimal characteristics, evaluating each of nine criteria: “Too Short”, “Too Long”, “Pedantic”, “Shrill”, “Nit-Picking”, “Insulting”, “Vague”, “Sarcastic”, and/or “Saccharine.” Recommendation text was then generated based on these evaluations. Some prompts were suboptimal when the criteria was poorly aligned with actual student responses. Some criteria were rarely used, while a few, like the “Vague” criteria, were overapplied. In future research, we will collect a larger sample of student writing which will help us revise the prompt criteria. We anticipate that this will result in more helpful feedback that will improve student writing.

Students received another type of feedback from seeing how a simulated audience reacted to their writing. For some students, this increased the realism of the exercise by visualizing the target audience and creating a sense of accountability. One student wrote, “Seeing the angry responses made me think about how hard it is to convince people who strongly disagree.” Another noted that it made the task feel closer to real life, noting that “It reminded me of the comment section online — people can react negatively no matter what you say.”

For others, however, this feature highlighted the emotional difficulty of engaging across ideological divides. As one student explained, “Even though I knew they weren’t real, it still made me react emotionally, either feeling a little proud if they ‘liked’ what I said, or slightly defensive if they didn’t.” This suggests that the simulated audience not only heightened students’ sense of realism but also motivated them to focus more closely on their writing and to attend carefully to how their words might be received.

Importantly, students recognized the value of practicing disagreement in a structured and low-stakes environment. As one participant said, “Even though I didn’t love having to argue for the side I don’t agree with, I can see how it helps me understand where people are coming from.”

Implications

Taken together, these reactions suggest that BOSILOS succeeded in engaging students in the complex work of identifying bias, adopting new perspectives, and considering rhetorical strategies for reaching audiences with different political views. While some students expressed frustrations, most found AI-generated feedback messages to be helpful. The pilot revealed valuable insights into how prompts and feedback sequences might be refined to better support student learning. The following points are key takeaway insights from the pilot study.

High Levels of Engagement. The pilot study of BOSILOS generated several essential insights into the usability and educational potential of the tool. First, the module was perceived as engaging and easy to use. Students consistently reported that the interface was intuitive, and the sequence of activities was clear and well-organized. This aligns with the design principles of interactive learning environments, which emphasize simplicity and transparency in user experience (Hertzum, 2024).

Reflection on Media Bias. The simulation successfully encouraged students to reflect on bias and the difficulty of perspective-taking. Many students reported heightened awareness of their own assumptions when role-playing as the Designated Opposition. This finding aligns with the broader goals of media literacy education, which emphasize critical self-awareness and the ability to interrogate one's own positionality when analyzing media texts (Hobbs, 2024).

Feedback Matters. Most students valued the AI-supported feedback that invited them to revise their writing. But while some students appreciated the modest guidance, others expressed a desire for even more specific direction. This response reflects an intentional design choice: the BOSILOS advisor was programmed to provide general prompts and suggestions rather than highly detailed corrections. The goal was to encourage students to reflect on their own writing and reasoning rather than simply follow step-by-step instructions. Findings from the pilot suggests that future iterations could experiment with balancing general coaching and even more context-specific advice, depending on the instructional goals of a given learning environment.

Perceived Realism and Relevance. The simulated audience responses contributed to the perceived realism of the module, and students noted that this feature created a sense of accountability and highlighted the challenge of persuading audiences with entrenched beliefs. This finding aligns with prior scholarship that emphasizes the social and dialogic dimensions of media literacy, particularly when learners must consider audience reactions as part of the communication process (Friesem & Greene, 2020).

Writing Practice. Modest improvement was noted in students' ability to generate conservative counterarguments in response to a liberal-leaning news story about immigration. This may be due to the specific demographic characteristics of the small sample of undergraduate students in Southern California. Overall, the amount of improvement in student comments after feedback, as measured by the AI-supported advisor, was small. This uneven pattern of growth suggests that BOSILOS may be particularly effective at prompting students to practice rhetorical flexibility when engaging with perspectives less familiar to them. Further development of evaluation prompts through the analysis of a larger sample of student writing could help to address this issue.

These findings illustrate both the promise and limitations of AI-supported media literacy tools. BOSILOS demonstrates that structured role-play, combined with feedback and simulated audience response, can foster meaningful reflection on bias and communication. At the same time, the pilot highlights the need for more robust feedback mechanisms to fully support student growth.

From a broader perspective, this pilot study also contributes to ongoing discussions about the role of generative AI in education. As Bloom (1984) argued, the "two-Sigma problem" remains a challenge for scaling the benefits of individualized tutoring. BOSILOS represents one attempt to address this challenge by combining the scalability of software with the personalization enabled by AI coaching. The early findings suggest that while the tool may not yet reach the effectiveness of one-to-one human tutoring, it offers valuable opportunities for active rehearsal, immediate feedback, and perspective-taking practice at a scale unattainable in traditional classrooms.

Conclusion and Next Steps

This pilot study of BOSILOS provides early evidence about the potential and challenges of using AI-supported interactive modules to strengthen students' media literacy competencies. The findings

demonstrate that students found the tool engaging and accessible, and that the role-playing design encouraged reflection on bias, perspective-taking, and the social dynamics of communication. At the same time, the pilot surfaced areas where BOSILOS can be refined, particularly in how the AI feedback aligns with the actual writing moves students make during counterspeech tasks.

These results highlight the importance of continued development of AI-supported interactives for media literacy education. In particular, the feedback system could be strengthened by making it more targeted—for example, by better matching prompts to issues students encounter (such as vagueness, tone, or overgeneralization) rather than offering generalized tips. Future iterations of BOSILOS might also explore additional scaffolding across multiple rounds, so that practice builds progressively rather than plateauing after initial engagement.

Looking ahead, additional rounds of classroom testing should be planned with larger and more diverse student populations. These future studies will allow for a more systematic analysis of how BOSILOS influences learning outcomes, including both the quality of students' communication and their ability to recognize and respond to bias. Data collection should also expand to include richer measures of student engagement, perceptions of credibility, and the transfer of these communication skills beyond the module itself.

As an experimental initiative, BOSILOS contributes to broader conversations about how generative AI can support education. It illustrates how AI can be more than a background assistant or an open-ended tool—it can be embedded directly into lesson design to provide active rehearsal, immediate feedback, and structured perspective-taking practice. In this way, BOSILOS extends ongoing work in media literacy, digital pedagogy, and AI-supported learning, offering a model of how technology might help address the enduring challenge of preparing students to navigate an increasingly polarized information environment.

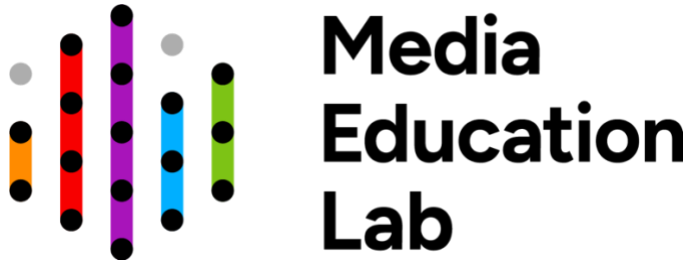
In the larger context, BOSILOS also illustrates a potentially major technological shift in making the benefits of tutoring available at scale. Computer-based tutoring systems in past decades tried to answer that challenge, but they required costly handcrafting of rules and interactions. Generative AI now makes it possible to deliver personalized coaching far more flexibly and at a fraction of the cost. BOSILOS' approach is to connect to an LLM through API prompts and flow control, with the software—not a freeform chatbot—deciding what the learner sees, when feedback is delivered, and how responses are evaluated. This orchestration can ensure that interactions remain pedagogically coherent, safe, and repeatable, while still retaining the authenticity of real-time dialogue.

The insights from this working paper are necessarily preliminary. They are intended to spark dialogue with researchers, educators, publishers, and designers, and to guide the next phase of development. With continued testing and refinement, BOSILOS has the potential to become a valuable resource for both K–12 and higher education, offering students opportunities to critically engage with media bias and to practice the challenging but essential skill of communicating across ideological divides.

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The Media Education Lab is an online community that advances the field of digital and media literacy education through leadership development, scholarship, and community engagement. The Media Education Lab was founded in 2003 by Professor Renee Hobbs to improve the educational practice of media literacy through educational programs, curriculum design, professional development and community outreach. The Media Education Lab also studies the best practices of media literacy education and conducts program evaluation to measure the impact of teaching media literacy using a multidisciplinary research agenda. Since the Media Education Lab is a community of learners, many educators, faculty, graduate students, and scholars join the network to increase their leadership skills and their ongoing capacity for innovation.

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