

INNOVATIONS IN TEACHING

An Online Debate Series for First-Year Pharmacy Students

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Objectives. This article describes an online debate series that was developed as a new component to an introductory core course for first-professional year pharmacy students. Objectives were to facilitate the group process, introduce controversial issues related to the US healthcare system, improve critical thinking and communication skills, enable students' ability to analyze and evaluate evidence, help develop skills in formulating written arguments, and encourage tolerance of diverse points of view.

Design. One hundred sixty-two students were assigned to 40 teams (half assigned to argue as "Pros" and half as "Cons") and paired into 20 debating groups. The paired teams posted 3 arguments in an online forum alternatively over a 12-week period. The winning teams were determined by a panel of 3 judges.

Assessment. Feedback from the judges was posted online and summarized in an in-class discussion. Thematic analysis of qualitative data from students and faculty members demonstrated the effectiveness of the online debate component in helping students work together in a group, learn alternative sides of complex issues, and write persuasive arguments.

Conclusion. This novel online-debate forum was a feasible teaching and learning strategy, which helped pharmacy students improve their communication skills and critical thinking, expanded their scope of knowledge, and provided a platform for group process.

Keywords: debate, online, assessment, writing, critical thinking

INTRODUCTION

The *Roles, Environments, and Communications* course at the University of Illinois at Chicago (UIC) is a required 3-credit hour course offered each fall semester for entering first-professional year (P1) pharmacy students. The course utilizes active learning to introduce pharmacy students to the mission and philosophy of the pharmacy profession, evolution of pharmacy practice, elements of the US healthcare system, societal and professional expectations, diverse practice environments, and effective communications skills for varied patient and professional audiences. In the fall 2005 semester, 162 P1s were enrolled in the course. Primary course instruction was provided by 2 faculty course coordinators and 3 graduate teaching assistants.

In 2005, due to the restructuring of the course and the shift of 1-credit hour to the first early experiential course, the original weekly laboratory/discussion (recitation) section of the course was removed. In order to continue to include group discussion activities as part of the active-

learning process, the course coordinators designed an online debate series (*dEbates*) as a new component for the *Roles, Environments, and Communications* course. The intent was to design a tool to integrate information and topics covered in the lectures, serve as a vehicle to apply knowledge to real life issues, and work as a platform to facilitate group process in a large class. At the same time, several constraints were considered. Thought and attention were given to the time-consuming logistical challenges of staging the debates,¹ from creation of teams through topic and format selection and scheduling. The novel component needed (1) to provide opportunity for group interaction while not overly burdening the students, (2) to be flexible enough to fit in the already full P1 schedule, and (3) to be woven meaningfully into topics covered by the lectures to help achieve the course objectives. The course objectives were to:

- Gain knowledge of the scope and trends in the US health system, as well as the duties and responsibilities of pharmacists and pharmacy technicians within that system;
- Understand and identify opportunities for increased professional involvement in the dynamic healthcare system;
- Learn and demonstrate effective skills for pharmacists to use when communicating with

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patients, caregivers, healthcare professionals, and other consumers;

- Explore, observe, investigate, and discuss varied and diverse pharmacy practice environments and settings;
- Gain insights into skills and interests to help determine optimal career paths and work as effective change agents; and
- Demonstrate professionalism.

Course lectures were organized along 4 major themes: pharmacy and the US healthcare system; pharmaceutical care, trends and emerging roles; communications theory and application for pharmacists; and preparing for the future. Much of the information provided in most pharmacy curriculums is fact-based, with clear-cut answers that can be characterized either/or, right/wrong, or black/white. Through the online group debates, we introduced students to “grey” areas in the health care system, where effective communication necessitated consideration of alternative perspectives. Therefore, we chose student dEbate topics that were complex and that could not be answered by merely memorizing facts.

Use of structured debates is an active-learning strategy, which can enhance student engagement, learning, and critical thinking.^{2,3} Incorporation of classroom (ie, in-class) debates has been described in diverse subject areas, including nursing,⁴ dentistry,⁵ medicine,⁶ social work,¹ policy studies,¹ sociology,⁷ and business.⁸ Authors reported greater student satisfaction and interest with the learning experience and enhanced student skills.^{4,6-8} Classroom debates have been used in pharmacy education with the goal of developing critical evaluation skills in courses on pharmacy management,⁹ the US health care system,¹⁰ and clinical skills.¹¹⁻¹³

Evaluative papers have been published on procedures and benefits of using online discussions for small-group cooperative and collaborative learning.¹⁴⁻¹⁶ However, the literature is sparse on the use of online debates, though a few studies provide examinations that are largely theoretical. Joungh and Keller studied online debate sequences for an undergraduate teaching course in educational technology at Florida State University (FSU) and concluded that a highly structured cooperative learning group strategy was superior to a low-structure collaborative learning group in facilitating critical thinking and effective interaction processes in the online environment.¹⁷ Jeong examined gender interactions in online debates and found that women were least likely to engage in critical argumentation with other women, while male-to-male interactions resulted in the most message exchanges (message exchanges among mixed male-female groupings were in the middle of these extremes).¹⁸ Lastly, Jeong found that

differences in communications styles affected response in online debates in that challenging messages were less likely to elicit a response from the opposition when the messages acknowledged individuals by name or directly referred to the opponent’s preceding message statements.¹⁹ Most successful online debates involved group members who acknowledged and/or supported comments of others before adding their contributions.²⁰ Our search of the literature did not reveal any publications that described and evaluated the use of online debates in pharmacy or other health sciences education.

Accreditation guidelines from the Accreditation Council for Pharmacy Education (ACPE) recommend appropriate instructional strategies, which are supported by utilization of computer or other educational technologies, to foster the development of critical thinking skills.²¹ To our knowledge, this is the first major design, utilization and evaluation of an online debate series in pharmacy or healthcare professions education. After carefully considering and weighing our options, we designed a debate series that was conducted online at the UIC *Blackboard* Learning System (version 6.2.3), a web-based course management system. This article reports our experience and students’ feedback on the new course component.

DESIGN

In consideration of the expected benefits and feasibility of use in a large class, we designed a dEbate series using online threaded discussion among paired student groups to facilitate student learning in practicing discussion, argument, and idea articulation,²² and to help develop effective communication skills.²⁰ The integration of technology via a web-based course management system allowed us to extend the learning environment to facilitate collaborative small-group learning exercises in a large class. As with other group activities, the instructors planned for each stage of the online debate process, which included topic selection and dEbate format. Using general strategies described by Davis,²³ group tasks were: (1) created to promote interdependence (team concept); (2) integral to course objectives; (3) adapted to fit first-semester pharmacy students’ skills and abilities; (4) structured so that each group member could make balanced or equitable contributions; and (5) established to set up competition among groups. Information was provided to students on the dEbate structure, format, task length for each stage, opportunity for affirmative and negative argument and rebuttal, and judging criteria. Since the dEbate topics centered on issues where students might have held preconceived notions or biases, the topic and side were assigned randomly to each team by faculty members. As a result, some students might have argued for a side that

they would not have advocated for if they had a choice. We believe this practice facilitated more consideration of alternative points of view and critical thinking, as suggested by McKeachie.³

We adopted the dEbate topics from 2 books: *Taking Sides: Clashing Views on Controversial Issues in Health and Society*, and *Taking Sides: Clashing Views on Controversial Issues in Drugs and Society*.^{24,25} Three dEbate topics were selected because they represented general policy topics in the US health care system, which were expected to be somewhat familiar to first-semester pharmacy students. The selected topics were:

- “Is the pharmaceutical industry responsible for the high cost of drugs?”
- “Are too many children receiving Ritalin?”
- “Should healthcare to the elderly be rationed?”

Each graduate teaching assistant was assigned to be the liaison and primary dEbate monitor for 1 of the 3 selected topics. The P1 students were instructed to contact the assistant assigned to monitor their topic discussion if they had questions or experienced difficulties in posting messages. Course coordinators were available to address concerns for other issues regarding the online debates.

The goal of this assignment was to help pharmacy students learn and practice critical thinking. Student responsibility was to distinguish among fact and opinion, identify and refute bias/propaganda and weakness in the argument of their opponents, and present their own argument in a logical and clear manner. Students were expected to appreciate different sides of an issue and con-

struct a logical and strong argument to defend the assigned side for the dEbate.

Specific learning objectives for the online group debates were to:

- Facilitate the active participation of pharmacy students in an interactive, cooperative group process;
- Introduce students to controversial, complex issues in the US healthcare system;
- Improve critical thinking and communication skills;
- Enable students to analyze and evaluate evidence regarding a controversial issue;
- Help students develop and practice skills in formulating and writing well-articulated arguments; and
- Encourage students’ tolerance of diverse ideas.

Two methods were used to ascertain the effectiveness of the teaching and learning activities in relation to development of critical debate skills and other desired outcomes. This was determined via student evaluations and instructor (course coordinator and graduate teaching assistants) assessments of the postings during the dEbate series.

Student and instructor tasks for the online debate series are summarized in Figure 1. All pharmacy students taking the course (n = 162) were encouraged to form teams of 4 or 5 members and to elect a team leader, who would coordinate their efforts and communicate with the assigned graduate teaching assistant. Students were allowed to self-select teams. If students did not voluntarily

Task	Week											
	1	2	3	4	5	6	7	8	9	10	11	12
P1 students												
Create the teams	■	■										
Preparation			■	■								
First affirmative argument due				■								
First negative argument due					■							
Second affirmative argument due						■						
Second negative argument due							■					
Third negative argument due								■				
Third affirmative argument due									■			
Debate evaluation											■	
GTAs												
Setup forums on Blackboard		■	■									
Assign topic and side, distribute reading materials		■	■									
Monitor the debate			■	■	■	■	■	■	■			
Write up feedback and score debates										■	■	
Announce the winning teams												■

Figure 1. Time line in staging dEbate series.

select team members, the instructors assigned individuals to teams. Teams were then randomly paired into 20 groups for the dEbate. The 2 teams in each group were labeled with a sports team name. Student teams were randomly assigned to present the pro (supporting, affirmative) or con (opposing, negative) perspective for a given position, and 1 of the 3 predetermined topics to debate online.

Forums for the dEbate were created online at the *Blackboard* site. A forum was set up for each group under the discussion board for "Groups" on *Blackboard*. The forums were configured to limit access only to the members from the same group of the paired-teams. The restriction in access was necessary to prevent other groups assigned to the same topic from reading each other's arguments.

Each of the affirmative and negative teams was asked to post 2 constructive arguments and 1 rebuttal and summary argument. Directions for posting dEbate arguments were described in an announcement posted on the *Blackboard* system by 1 of the course coordinators. The 6 speeches or arguments (3 per team) for each group were posted in 1-week intervals in the following order: affirmative, negative, affirmative, negative, negative, and affirmative. In conventional debates, there is a time limit for each speech. In the online debate, we enforced a word limit for the length of each "speech." The word limits ranged from 400 to 600 words, reflecting the time limit set for oral debate (4 to 8 minutes). The purposes of the restriction were to provide a parameter for teams to construct their speeches and encourage succinct and focused arguments. Maximum word limits (exclusive of references) for each online argument were:

- First affirmative (constructive argument): 500 words
- First negative (constructive argument): 600 words
- Second affirmative (constructive argument): 600 words
- Second negative (constructive argument): 600 words
- Third negative (rebuttal and summary argument): 400 words
- Third affirmative (rebuttal and summary argument): 500 words.

In the third week of the semester, after the teams and groups were organized, each student was provided with 2 articles or chapters to read, 1 for each side of a debate issue. For example, the article representing the affirmative side of the topic "Are too many children receiving Ritalin?" was "Attention deficit disorder: good science or good marketing?"²⁶ and the one supporting the negative side of the topic was "Trick question."²⁷ Students were encouraged to read the material for both sides of the

topic. The readings provided an overview of the controversial issue. Students were encouraged to search, use and cite additional and credible reference sources. An article from the book *Art, Argument and Advocacy*²⁸ on the format of debate was also made available to students to help them outline debate strategy and focus their arguments.

Deadlines to post arguments online at *Blackboard* were announced in class and printed in the course syllabus. After each deadline, the graduate teaching assistants printed hard copies of the posted arguments from each team for grading and record keeping. The assistants checked whether their teams had posted their argument online by the deadline, whether it was within the word limit, and whether references were cited properly. Each of the 3 arguments (per dEbate team) was equally allocated with maximum possible points. Points were deducted from dEbate arguments that were not posted in time, exceeded the word limit, or did not properly attribute sources of information. The online pharmacy debate series represented 40 (9.4%) of the 425 (100%) available points in the *Roles, Environments, and Communications* course. All students in the same group were assigned the same grade for the dEbate, with the exception of 1 student who did not participate fully in the group process. The teaching assistants sent immediate feedback to teams via e-mail when such deductions were taken. The overall quality of the arguments was evaluated at the end of debates in the judging of winning teams.

The winning teams were awarded extra points, in the amount of one sixth of the total points allocated to the 3 arguments. The weight of winning points was designed to provide an incentive to win, but not so much that it might discourage the losing teams. The graduate teaching assistants and 1 course coordinator served as the judges and scored the dEbate based on a set of adapted criteria²⁹:

1. Did the team appear to have done its homework?
2. Did the team present its arguments in a well-organized manner and within the word limits?
3. Did the team make its arguments interesting to read?
4. Were the team's arguments based on logic and evidence? Were scientific sources properly referenced and cited?
5. Was the team perceptive to and did it react to the weak points on the opposite side?
6. Overall, was the team argument effective?
7. How effective was the first constructive argument?
8. How effective was the second constructive argument?
9. How effective was the rebuttal and summary?

Each dEbate group was scored by the head judge who was the assistant responsible for that team, as well as by 2 other judges: a randomly assigned teaching assistant and the course coordinator. The head judge also wrote up a summary critique to point out the strengths and weaknesses of the arguments from each team. If conflicting opinions occurred in the judging of the winning teams, the final decisions were reached by majority rule. The winning teams were announced in the class as well as online at the *Blackboard* site.

ASSESSMENT

During the progression of arguments (from first constructive to the final rebuttal argument), a dramatic increase was observed in the intensity of enthusiasm, depth of knowledge, and quality of writing among a majority of the teams. Most of the first constructive arguments were polite but somewhat half-hearted and focused on laying out the facts rather than engaging the opposing team. After the first round of arguments were exchange, the competitive nature of the dEbate and the human nature to respond to criticism began to motivate the students into developing better strategies to attack the other party's arguments. These strategies included the use of more focused arguments, more forceful writing, and more citing of information from scientific sources and experts.

The grades for the dEbatés were: first posted argument = 9.9 ± 0.4 ; second posted argument = 9.9 ± 0.3 ; third posted argument = 9.9 ± 0.3 . Individual students who completed and submitted 1-page evaluation forms on this debate assignment received 5 points. Also, 5 extra credit points were awarded to student members of the winning teams, as well as student members of the non-winning teams, if those teams posted a short critique on 1 controversial issue related to healthcare that they learned from the mass media in the past 12 months. Only 3 (out of 20) of the nonwinning teams did not submit the optional bonus posting.

At the conclusion of the dEbate series, P1 students were asked to fill out an evaluation form in class. Students were requested to provide open-ended feedback, since this was the first time the online debates had been used in the *Roles, Environment, and Communications* course. A total of 162 students (100% response) completed and submitted the evaluation form. Students were asked to suggest what should be done differently if the dEbate component was included in the course in the future. Responses suggested by at least 2 students are summarized in Table 1. Eighteen students specifically commented that the dEbatés were well-organized. Students also suggested areas that could be improved, including more detailed guidance on dEbating and allowing time

Table 1. First-professional Year Pharmacy Students' Suggestions for Improving Future Offerings of an Online Debate Assignment* (n = 162)

Suggested Change	Respondents, No. (%)
No changes	76 (46.9)
Provide examples of debate structure in class	12 (7.4)
Increase maximum word limit for arguments	6 (3.7)
Allow small amount of class time for initial group meetings	6 (3.7)
Include a few in-class oral debates at end	4 (2.5)
Provide more references	4 (2.5)
Avoid due dates coinciding with exam schedules	4 (2.5)
Provide feedback after each posting	3 (1.9)
Require each individual group member to post a message	3 (1.9)
Lower word limit requirements	2 (1.2)
Do not assign teams	2 (1.2)
Select topics that allow more balanced argument	2 (1.2)
Move date of initial assignment to after the first week	2 (1.2)
Address word limit violations more aggressively	2 (1.2)
Allow students to choose their own topics	2 (1.2)

*Suggested change included in table if listed by at least 2 students in course

for groups to meet face-to-face at the beginning of the semester to facilitate later interaction online.

Students were asked to indicate what aspect of the online debate assignment was most beneficial to them personally, and the question included examples of possible answers. Results are shown in Table 2. Students wrote that they learned more about problems in the United States regarding pharmacy and healthcare and gained knowledge from researching facts to support an argument. One of the themes often expressed was the benefit

Table 2. First-professional Year Pharmacy Students' Responses to Survey Item Regarding the Most Beneficial Aspects of an Online Debate Assignment (N = 162)*

Most Beneficial Aspect	Respondents, No. (%)
Learning more about the debate topic	78 (48.1)
Working as a team member in a group	43 (26.5)
Developing critical thinking skills	26 (16.0)
Writing skills enhancement	6 (3.7)

*Responses included in table if listed by at least 2 students in course

of working as a team member in the online debates. Students also commented on how the dEBates helped them consider alternative positions. Lastly, students commented on the positive benefits and challenges of the writing assignment, saying that the dEBate improved their writing skills and made them research/contemplate the facts before developing persuasive arguments.

One of the purposes of this assignment was to encourage students' tolerance of diverse ideas through exposing them to controversial issues and assigning them to defend viewpoints they possibly did not hold. In the final evaluation, we asked students whether the dEBate changed their original viewpoint on the issues. The majority of the students responded they still held their original position, and a small group of students responded that they did not have an original stand but were inclined toward one side after the debate. Another small group of students said the dEBate changed their viewpoints, and several students, interestingly, said their viewpoint shifted to a more neutral position after the dEBates. Lastly, when assessing their peers, a small number of students expressed concerns about teammates who did not contribute sufficiently to this group assignment.

At the end of the semester, course instructors reviewed statistics on the *Blackboard* system to determine student usage. *Blackboard* statistics on access to the online debate web pages showed a total of 15,011 hits. The most active group contributed to 13% of the hits.

The graduate teaching assistants provided written evaluative feedback to each student team. Summary feedback was given to the P1 students in class at the end of the dEBate series by one of the course coordinators. Her summary pointed out dEBate strategies that either had not been used sufficiently or at all by some of the teams, including the first mover advantage, critical evaluation, focused and organized argument, and closing the debate with a powerful message.

DISCUSSION

Debate is an effective tool to stimulate teamwork and proactive thinking. Traditional debates take the form of face-to-face arguments and counter-arguments, which could motivate students to seek out more information, both on the topic and the debating strategy and style. Moreover, face-to-face debating also provides opportunity to communicate through verbal and body languages, and allow extemporaneous responses. However, due to the larger class for this PharmD program and demanding schedule of the course work, it was impractical to incorporate the traditional face-to-face debate among small teams. We designed this online debate assignment so that we could circumvent these restrictions and still benefit

from many advantages of debate. Unexpectedly, the requirement of students to compose written arguments for the text-based online debates was considered by students as one of the benefits they gained from the assignment. From the viewpoint of organization and management, the format of an online debate series also provides several advantages:

- feasibility for large classes;
- accessibility and flexibility for participating in a group process as long as the students have Internet access; and
- transferability to other colleges and schools of pharmacy, since many US universities have adopted the *Blackboard* system or other web-based course management systems.

Coordination and evaluation of the online debates is somewhat time intensive. For our course, this required approximately 2 hours instructor time and 6 hours total time per each graduate teaching assistant per week. Each assistant also spent 1 day at the beginning of the semester configuring *Blackboard* and setting up forums, and 2 days at the end of the semester judging the debates and writing feedback comments. Debriefing sessions were held weekly (or more frequently) among the teaching assistants and course coordinators, as we monitored the student teams' postings over the semester. This allowed us to discuss perceptions of the process, identify and resolve areas where there was confusion, and plan for subsequent courses of action.

This paper presents the first known extensive design and evaluation of an ongoing online debate series for pharmacy students. We believe that the dEBate component was well integrated into *Roles, Environments, and Communications* to support course objectives. Specifically, the 3 topics of the dEBate series related to drug expenditure, pharmacoepidemiology, and healthcare resource allocation expanded the scope of students' knowledge and familiarized them with some challenging issues in current practice environments. The emphasis on population health and policy-level intervention of the debate topics helped students identify opportunities for professional involvement and advocacy. The dEBates provided a platform for students to practice effective skills in communication and persuasion. And lastly, the exercise of critical thinking, teamwork, and tolerance toward diverse ideas assisted in the development of responsible professionals.

As we reflected on the assignment, we determined how the online debate could be improved to facilitate student learning. In the future, we will provide examples of well-written dEBates (starting with exemplary arguments from fall 2005). We will also take class time to

describe the written online debate format and post more instructions tailored to written dEbate on *Blackboard*.

A major disadvantage of our online debate format is a common problem among educational group activities, where some students contribute below their capacity and leave more work for others in the group. This has been described as “social loafing.”³⁰ Although many students named the group process as one of the things they benefited most from the dEbate assignment, a few groups encountered problem in group dynamics. When brought to the attention of the instructors throughout the dEbate series, such concerns were addressed immediately. In each case, we facilitated more communication among group members and reminded students of the need for balanced contributions by each team member, which generally seemed to address the problem. From conversing with the students, we learned that almost all the teams automatically distributed responsibility among the members in their first get-together to discuss the assignment. In the future, we will further emphasize the importance of equal contribution among members in a group assignment of this nature.

The assignment was distributed to students during the first week of the P1 semester. In the future, we plan to allow a small amount of class time, eg, 30 minutes, during the second week to facilitate an initial meeting among the group members.

Some students commented that they would have preferred to choose their dEbate topic and/or side. There are 2 reasons why the coordinators decided to assign topics and sides to each team. First, people are generally motivated to learn more when they have to defend an unfamiliar proposition or a side that is against their preconceived notion. Second, one of the purposes of the assignment was to encourage students to appreciate the rationale held by both sides. We believe this practice is necessary to help students develop objectivity and an open-minded perspective; nevertheless, it might be beneficial to explain the reasons to the students prior to beginning the dEbates. While the coordinators considered offering more choice in student topics, there was the need to limit the number of topics to allow for standardization among graders. New dEbate topics will be selected for subsequent offerings of the assignment.

During the grading of the debates, we found that some students were unfamiliar with the strategies of winning a debate. For example, some of the teams assigned to argue the affirmative position, and therefore initiate the debate, did not take advantage of the opportunity to define the scope and focus of the issue in their opening argument. It is important for pharmacy students to question the reliability and validity of sources used to support an

argument, yet we found some of the teams were too ready to accept the arguments or “facts” presented by their dEbate adversaries. Some of the teams continued to add new supportive evidence to each of their subsequent arguments, which made the sum of the 3 arguments a lengthy monologue. Similarly, the final speech was not used by some of the teams to summarize major supportive evidence and thereby end the debate on a high note. Furthermore, due to the competitive and interactive nature of debate, occasionally, some strong language was exchanged between rival teams. A brief note on the strategies and etiquette of debate should be included in the future syllabus.

In the future, we will consider devoting more class time to a wrap-up of the dEbate series, perhaps coupled with lectures on ethical issues in health care. This will augment student learning by allowing facilitated discussion of the issues in a large group. Additionally, the course coordinators can help students appreciate the multidimensional aspects of complex issues.

Lastly, unsolicited evidence from the students further indicates their satisfaction with the dEbate series. In November 2005, all P1 course coordinators, faculty members, and College administrators were invited to attend the “P1 Forum.” The purpose of the forum was to allow students to express any concerns or other thoughts in an open, supportive environment. The forum was led by the P1 class officers and class representatives, who summarized results from student survey instruments regarding their perspectives on the various first-semester pharmacy courses. For the *Roles* course, the first slide projected to the audience of approximately 100 interested people stated: “We like the dEbates.” Additionally, at the end of the semester, one of the P1 students approached a course coordinator requesting to take an independent study course with the purpose of further developing the online debate assignment for future classes.

CONCLUSION

Using the Internet and computer technology, debating—a time-honored educational tool—was included in the pharmacy curriculum. Evaluations from the students and faculty members demonstrated the effectiveness of the new component in achieving active learning, improving communication skills and critical thinking, and expanding the scope of knowledge. This innovation represents the first known extensive design and evaluation of an ongoing online debate series for pharmacy students. The flexibility of the online dEbate format will allow other pharmacy schools to adapt or adopt the novel component.

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