Setting the Stage for Civic-Minded Education:  
Casting New Roles for Librarians in Critical Information Literacy Instruction

Jennifer L. Bonnet, Liliana Herakova, and Rose Deng*

Introduction
In recent years, discussions of “fake news”1, 2, 3, 4 and ways to consider and combat disinformation5, 6 have dominated the information landscape. Moreover, research has found that young people who typically have a facility with internet navigation still struggle when attempting to determine if the information they find online is reliable, dubious, and/or wholly contrived.7, 8 Findings such as these have led some scholars to distinguish between “internet skill literacy” and “internet information literacy,” defining the latter as the ability to critically engage with and produce (internet) content.9, 10 Kim and Yang11 found that internet information literacy was significantly lower than internet skill literacy. Importantly, they also discovered that among South Korean high schoolers, information literacy significantly predicted the strength of young people’s civic engagement attitudes and proclivities. Similar results have both motivated and been confirmed by various projects across the United States that link critical information literacy (broadly defined) and civic engagement.12, 13

One common place where such a connection is made is the basic communication course (often taught as a public speaking course), which is a mainstay in universities throughout the United States.14 Because of the course’s emphasis on interacting with and producing public messages, scholars have hypothesized that information literacy and civic-mindedness are key plausible learning outcomes that can be developed alongside content knowledge.15, 16 Assessment research in the basic communication course repeatedly underscores the importance of deepening the curriculum focus beyond presentational skills and toward addressing the “big questions” of contemporary society.17 Part of this emphasis calls for the integration of information literacy into Communication curricula to ensure “that students possess the skills and dispositions necessary to fulfilling their roles as students, citizens, and consumers in a democratic society.”18 Yet, little empirical research in the field of Communication has explored the connections between public speaking, civic attitudes, and information literacy. Furthermore, despite the fact that helping students critically engage with evidence as both consumers and creators of information is a hallmark of the Association of College and Research Libraries’ Framework for Information Literacy,19 some criticize the Framework for not clearly connecting the development of information literacy competencies to civic-mindedness or social justice.20

This paper presents one piece of a larger study that explores the relationship between students’ information literacy and civic engagement attitudes, both of which are principal outcomes of the public speaking course.

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that serves as the study’s context. Initial results suggest that by the end of the course, there were increases in students’ civic engagement inclinations, information literacy skills, and information literacy self-efficacy. While the increase in information literacy skills did not correlate to or predict the change in civic engagement attitudes, growth in information literacy self-efficacy significantly predicted growth in civic engagement inclinations.

**Literature Review**

Civic mindedness and information literacy are integral components of the Communication curriculum in higher education, as evidenced in several key learning outcomes for Communication graduates: “influence public discourse, utilize public communication to embrace difference, engage in communication inquiry,” and “critically analyze messages.” More specifically, instructors and researchers have found the following competencies to be central to Public Speaking curricula: critical thinking, confidence in one’s research abilities, the ability to find and use reliable information, and the capacity to describe the significance of locating credible sources and incorporating them into one’s speeches (Rustic & Wood, 2017). Of particular note is the overlap of these competencies with ACRL’s emphasis on developing students’ habits of mind and practices when it comes to critically engaging with information. This shared goal suggests the public speaking classroom as an appropriate context for the integration of information literacy instruction.

Numerous scholars have discussed the importance of combining information literacy with public speaking pedagogy. Moreover, multiple on-the-ground collaborations suggest there is added value when partnering with a librarian to enhance information literacy instruction in Communication courses. As McGeogh and Rudick assert, developing students’ information literacy should not be relegated to a second-class status in Communication curricula. However, some critique the basic communication course for approaching outcomes in information literacy and civic engagement in a piecemeal fashion, with Communication researchers arguing that there needs to be a more “braided” or integrated approach. In such integrated learning, students develop civic-mindedness, information literacy, and public speaking competencies as interconnected, by completing a critical project related to community needs. Scholars emphasize the importance of faculty-librarian collaborations in this effort to achieve optimal student learning. Despite such calls, librarians regularly report that collaborative teaching efforts remain under-utilized on their campuses and that faculty investment in library instruction is inconsistent.

One example of a successful “braiding” of information literacy, civic engagement, and public speaking outcomes is a foundational Communication course in public discourse at Gustavus Adolphus College, listed as an exemplar in civic engagement by the American Association for Colleges and Universities. Notably, several assessments of this course have highlighted the connection between presentation-related research and civic engagement in both learning outcomes and in student definitions of the concepts. Exploring students’ reflections and discussions qualitatively, Brammer and Morton observed that students clearly named research, civic engagement, and argumentation (or public communication) as interconnected deliberative processes. Furthermore, students conceptualized “research” as more than information-accessing skills and as “a process to ensure credibility and include multiple perspectives.”

Such research suggests that public communication courses provide suitable contexts for “braided” assessment and further development of competencies in information literacy and civic engagement. Yet, the relationship between public speaking, civic mindedness, and information literacy outcomes is surprisingly understudied. Furthermore, despite research suggesting the essential role of the librarian in facilitating information literacy learning, Julien, Gross, and Latham found that librarians primarily assess their teaching through anecdotal or informal methods. This points to a need for empirical assessments of librarians’ pedagogical practices within
course-specific contexts, in order to complement existing feedback. Similarly, ACRL’s Framework for Information Literacy provides guidance on a range of integrated abilities and reflective processes that have the potential to assist students in navigating a large and diverse information landscape. Nonetheless, librarians often struggle with the implementation and/or assessment of the Framework in their library instruction. It is in this context that we set out to develop and test a curriculum, examining the relationships between information literacy competencies and civic engagement attitudes among public speaking students. For this project, a librarian partnered with the faculty course coordinator of a large-enrollment, interdisciplinary, general education public speaking course at the University of Maine. The collaboration systematically integrated information literacy instruction in the course through co-created learning materials, including workshops and handbook content, and scheduled their consistent implementation throughout the course sections. Students had to critically access, assess, and utilize a variety of sources as part of an ongoing community-engaged project, in which they developed their understanding of a complex social issue of their choice, how the issue affected certain communities, and what their audience’s responses to that issue were. The course design responded to an ongoing, multidisciplinary effort aimed at critical information literacy that develops students’ social awareness.

Purpose
Despite a history of civic outcomes associated with the basic communication course, and a multitude of librarian-faculty collaborations for teaching information literacy to Communication students, assessments of the connection between information literacy and civic attitudes in the specific context of a public speaking course are rare to none. The study discussed in this paper is one part of a more comprehensive research project that examined possible correlations among learning outcomes and teaching approaches to information literacy, public speaking, and civic engagement over the course of two semesters. In this initial portion of the project, we wanted to first assess a public speaking course design that explicitly focused on developing information literacy and civic attitudes interwoven with public speaking competencies. For this paper, we focused on students’ self-assessments to understand if and how students’ self-efficacy in information literacy correlates to their self-reported civic engagement attitudes in the context of their public speaking class. Moreover, we wanted to understand if actual learning gains in information literacy benefit students’ civic-mindedness as part of the public speaking curriculum. Building on the scant existing literature, we propose the following:

Hypothesis 1: Changes in information literacy self-efficacy will predict changes in civic engagement attitudes.
Hypothesis 2: Changes in information literacy skills will predict changes in civic engagement attitudes.

Methods
Research context. The study received University Institutional Review Board approval, judging it as exempt from further review since data were collected as part of regularly-occurring educational activities in a Public Speaking course. Enrollment in the course across Fall and Spring semesters varies with anywhere between 18 and 22 sections of maximum 24 students per section. The course fulfills general education requirements and is obligatory for several majors at the University. For many of the enrolled students, this is the only Communication Studies class they take in the course of their college education. Consistent with prior research, students do not frequently enroll in Public Speaking by choice and participation in the course is often accompanied by anxiety and self-doubt.

With this in mind, the course that provided the context for this research was designed with the explicit purpose to guide students to see and practice public speaking as a process that involves much more than the moment of speaking in front of others (which is the most anxiety producing). Building on the University of Texas’ “Speak
up! Speak out! curriculum, the course utilizes team-based learning and students spend a large portion of the semester in their teams, learning about and reporting on a community issue that interests them. The goal of this is two-fold: 1) to appreciate public speaking as a civic engagement practice, and 2) to develop and demonstrate an understanding of the key role of contextual research to public speaking as civic engagement. In other words, the course seeks to ease some of the anxiety around speech presentation and to emphasize the importance of speech preparation and evaluation of messages as critical components of public speaking as civic engagement.

To this end, developing information literacy is crucial to the course design and is integrated throughout the curriculum (rather than being limited to a few lessons). The integration involves the partnership between the course supervisor and a librarian who, together, revised the curriculum and developed various learning materials and lessons plans. Additionally, the students have several opportunities to meet the librarian (online and face-to-face) as they are selecting topics and researching their speeches.

Participants & Design. In the Fall of 2017, a total of 378 (N = 378; 66.4% male) undergraduate students completed surveys at the beginning (T1) and at the end of the semester (T2), measuring self-efficacy in information literacy, public speaking, and civic engagement. Basic demographic data, such as gender, race, and age were also collected. Additional demographic data, such as grades, majors, year in school, and first-generation college status were obtained via student records. Participants’ ages ranged from 18-42 years old (M = 19.53, SD = 2.07) with the majority of participants identifying as White/Caucasian (88.1%). All participants received participation credit applicable toward partial fulfillment of course requirements.

In addition to the beginning and end-of-semester surveys students completed information literacy skills assessments in weeks 2 and 3 of the semester, preceding and following a scheduled instructional session on information literacy. For this information literacy instructional session, students were randomly assigned to one of three intervention groups: librarian-led instruction method A, librarian-led instruction method B, and control group (instructor-led). The assessments preceding and following the information instruction (hereafter: information literacy skill quizzes) measured students’ abilities in evaluating and using sources in accordance with ACRL’s “Authority is constructed and contextual” frame. Of the 378 students who completed the beginning and end-of-semester surveys, 328 (n = 328) were included in analyses involving the information literacy skills assessments. This lower number was due to both attrition and to the exclusion of outliers that scored more than three standard deviations away from their respective intervention groups. As reported elsewhere, analyses of students’ performance on the quizzes suggested that librarian-led sessions were significantly more effective in teaching information literacy skills than instructor-led sessions.

Measures

Information Literacy Self-efficacy Scale. The authors created an 11-item scale to assess participants’ perceived ability to search and acquire credible sources of information, as well as their perceptions of feeling adequately informed on various topics. Of the 11 items, 6 specifically related to the research process and have been included in this analysis. Participants reported their responses at the beginning (α = .71) and end (α = .64) of the semester on a Likert-type scale from 1 (Strongly Disagree) to 7 (Strongly Agree). Composite scores were created, ranging from 6 to 42; difference scores were created by subtracting beginning-of-semester scores from end-of-semester scores.

Public Speaking Competency. This 33-item scale was adapted from an existing questionnaire. It was used to assess individuals’ abilities and attitudes toward public speaking. Participants reported their responses at the beginning (α = .92) and end (α = .93) of the semester on a Likert-type scale from 1 (Strongly Disagree) to 7 (Strongly Agree). This scale comprised several subscales that assessed individual components of public speaking, including motivation for public speaking (6 items), knowledge of public speaking (5 items), and public
speaking skills (22 items). Composite scores for each subscale were calculated. Difference scores were also examined by subtracting pre-intervention sum scores from post-intervention sum scores for all subscales and the scale as a whole. Analyses of data based on this scale are outside of the scope of the current paper.

Civic Attitudes and Skills. The Civic Attitudes and Skills Questionnaire (CASQ)66 was adapted, selecting 31 items to assess participants’ attitudes and engagement in community activities (civic action; 8 items), their interpersonal and problem-solving skills (12 items), political awareness (6 items), and diversity attitudes (5 items). Participants completed this scale at the beginning of the semester, pre-intervention ($\alpha = .90$), and at the end of the semester, post-intervention ($\alpha = .93$). Participants’ responses were reported on a Likert-type scale from 1 (Strongly Disagree) to 7 (Strongly Agree). Composite scores for each subscale were calculated. Difference scores were also examined by subtracting pre-intervention sum scores from post-intervention sum scores for all subscales and the scale as a whole.

Information Literacy Skills Quizzes. To assess the effectiveness of 1) different types of library instruction and 2) different instructional strategies (e.g., Group A, Group B, and Control Group) students completed brief pre- and post-session quizzes. Participants responded to a hypothetical situation in which they were told to prepare for a speech on a topic of interest and were presented with several questions regarding the credibility and suitability of sources. There were 11 items in the pre- and post-quizzes. Only eight of these items were examined given the problematic nature of interpretation for three of the questions. Participants’ accuracy was assessed based on the total number of correct responses on the 8 items, with possible scores ranging from 0 to 8. Difference scores were also examined by subtracting sum scores at the pre-intervention stage from post-intervention scores.

Results
A paired samples $t$-test comparing composite score means at the beginning and end of the semester showed a significant increase for all measures, except for diversity attitudes ($t(377) = 1.13, p = .26$), where there was no significant change (see Table 1).

<table>
<thead>
<tr>
<th>Variable</th>
<th>Beginning of the semester</th>
<th>End of the semester</th>
<th>t-value</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information literacy self-efficacy</td>
<td>$M = 28.85$ SD = 4.80</td>
<td>$M = 31.14$ SD = 4.83</td>
<td>-9.74</td>
<td>.000</td>
</tr>
<tr>
<td>Public speaking knowledge</td>
<td>$M = 27.06$ SD = 3.46</td>
<td>$M = 28.31$ SD = 3.63</td>
<td>-6.67</td>
<td>.000</td>
</tr>
<tr>
<td>Public speaking motivation</td>
<td>$M = 18.61$ SD = 6.95</td>
<td>$M = 21.49$ SD = 6.85</td>
<td>-11.02</td>
<td>.000</td>
</tr>
<tr>
<td>Public speaking skills</td>
<td>$M = 112.54$ SD = 14.44</td>
<td>$M = 122.00$ SD = 14.91</td>
<td>-12.52</td>
<td>.000</td>
</tr>
<tr>
<td>Civic action</td>
<td>$M = 41.71$ SD = 7.62</td>
<td>$M = 42.81$ SD = 8.14</td>
<td>-3.51</td>
<td>.001</td>
</tr>
<tr>
<td>Interpersonal and problem-solving skills</td>
<td>$M = 69.12$ SD = 6.82</td>
<td>$M = 70.03$ SD = 8.64</td>
<td>-2.31</td>
<td>.022</td>
</tr>
<tr>
<td>Political awareness</td>
<td>$M = 30.38$ SD = 5.25</td>
<td>$M = 31.07$ SD = 5.65</td>
<td>-2.77</td>
<td>.006</td>
</tr>
<tr>
<td>Attitudes toward diversity</td>
<td>$M = 24.97$ SD = 4.46</td>
<td>$M = 24.73$ SD = 4.40</td>
<td>1.13</td>
<td>.259</td>
</tr>
</tbody>
</table>
Further examination showed significant increases in means for each of the 6 items of the Information Literacy Self-Efficacy scale.

<table>
<thead>
<tr>
<th>TABLE 2</th>
<th>Paired samples t-test comparing the beginning- and end-of semester mean scores of each information literacy self-efficacy item</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information Literacy Self-Efficacy Items</td>
<td>Beginning of the semester</td>
</tr>
<tr>
<td>I find it easy to determine if a source is credible</td>
<td>$M = 5.24$</td>
</tr>
<tr>
<td>I find it easy to determine if a source is relevant to a topic</td>
<td>$M = 5.42$</td>
</tr>
<tr>
<td>I enjoy researching existing literature/the research process as a whole</td>
<td>$M = 3.98$</td>
</tr>
<tr>
<td>I find it easy to begin the research process</td>
<td>$M = 4.70$</td>
</tr>
<tr>
<td>I am not sure where to find relevant information on most topics [Reverse coded]</td>
<td>$M = 4.78$</td>
</tr>
<tr>
<td>I am not sure where to find credible information on most topics [Reverse coded]</td>
<td>$M = 4.74$</td>
</tr>
</tbody>
</table>

When further examining these scores by treatment condition, both library instruction conditions showed significant differences in the expected direction on more items than the control group. Treatment A and B showed significant improvement on all items. Treatment C showed significant improvement on all items except the last two items listed in Table 2.

<table>
<thead>
<tr>
<th>TABLE 3A</th>
<th>Mean correlations between self-efficacy and civic engagement attitudes (Pre-Intervention)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
</tr>
<tr>
<td>1. Information Literacy Self-Efficacy</td>
<td>28.85</td>
</tr>
<tr>
<td>2. Civic Action</td>
<td>41.71</td>
</tr>
<tr>
<td>3. Interpersonal and Problem-Solving Skills</td>
<td>69.12</td>
</tr>
<tr>
<td>4. Political Awareness</td>
<td>30.38</td>
</tr>
<tr>
<td>5. Diversity Attitudes</td>
<td>24.97</td>
</tr>
</tbody>
</table>

** Correlation is significant at the 0.01 level (2-tailed)
* Correlation is significant at the 0.05 level (2-tailed)

<table>
<thead>
<tr>
<th>TABLE 3B</th>
<th>Mean correlations between self-efficacy and civic engagement attitudes (Post-Intervention)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
</tr>
<tr>
<td>1. Information Literacy Self-Efficacy</td>
<td>31.14</td>
</tr>
<tr>
<td>2. Civic Action</td>
<td>42.81</td>
</tr>
<tr>
<td>3. Interpersonal and Problem-Solving Skills</td>
<td>70.03</td>
</tr>
<tr>
<td>4. Political Awareness</td>
<td>31.07</td>
</tr>
<tr>
<td>5. Diversity Attitudes</td>
<td>24.73</td>
</tr>
</tbody>
</table>

** Correlation is significant at the 0.01 level (2-tailed)
* Correlation is significant at the 0.05 level (2-tailed)
### TABLE 4A
Mean correlations between self-efficacy and civic engagement attitudes (Pre-Intervention)

<table>
<thead>
<tr>
<th></th>
<th>M</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I find it easy to determine if a source is credible</td>
<td>5.24</td>
<td>1.04</td>
<td>0.430</td>
<td>0.272</td>
<td>0.289</td>
<td>0.357</td>
<td>0.409</td>
<td>0.108</td>
<td>0.116</td>
<td>0.207</td>
<td>0.167</td>
<td>0.222</td>
</tr>
<tr>
<td>2. I find it easy to determine if a source is relevant to a topic</td>
<td>5.42</td>
<td>1.02</td>
<td>0.296</td>
<td>0.268</td>
<td>0.133</td>
<td>0.275</td>
<td>0.116</td>
<td>0.056</td>
<td>0.023</td>
<td>0.088</td>
<td>0.095</td>
<td>0.042</td>
</tr>
<tr>
<td>3. I enjoy researching existing literature/the research process as a whole</td>
<td>3.98</td>
<td>1.5</td>
<td>0.296</td>
<td>0.268</td>
<td>0.133</td>
<td>0.275</td>
<td>0.116</td>
<td>0.056</td>
<td>0.023</td>
<td>0.088</td>
<td>0.095</td>
<td>0.042</td>
</tr>
<tr>
<td>4. I find it easy to begin the research process</td>
<td>4.7</td>
<td>1.37</td>
<td>0.339</td>
<td>0.217</td>
<td>0.064</td>
<td>0.243</td>
<td>0.608</td>
<td>0.201</td>
<td>0.241</td>
<td>0.480</td>
<td>0.138</td>
<td>0.108</td>
</tr>
<tr>
<td>5. I am not sure where to find relevant information on most topics</td>
<td>4.78</td>
<td>1.2</td>
<td>0.390</td>
<td>0.143</td>
<td>0.108</td>
<td>0.108</td>
<td>0.108</td>
<td>0.108</td>
<td>0.108</td>
<td>0.108</td>
<td>0.108</td>
<td>0.108</td>
</tr>
<tr>
<td>6. I am not sure where to find credible information on most topics</td>
<td>4.74</td>
<td>1.32</td>
<td>0.339</td>
<td>0.217</td>
<td>0.064</td>
<td>0.243</td>
<td>0.608</td>
<td>0.201</td>
<td>0.241</td>
<td>0.480</td>
<td>0.138</td>
<td>0.108</td>
</tr>
<tr>
<td>7. Civic Action</td>
<td>41.71</td>
<td>7.26</td>
<td>0.216</td>
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<td>0.244</td>
<td>0.143</td>
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<td>0.108</td>
<td>0.108</td>
<td>0.108</td>
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<tr>
<td>8. Interpersonal &amp; Problem-Solving Skills</td>
<td>69.12</td>
<td>6.82</td>
<td>0.283</td>
<td>0.298</td>
<td>0.193</td>
<td>0.201</td>
<td>0.241</td>
<td>0.480</td>
<td>0.138</td>
<td>0.108</td>
<td>0.108</td>
<td>0.108</td>
</tr>
<tr>
<td>9. Political Awareness</td>
<td>30.38</td>
<td>5.25</td>
<td>0.247</td>
<td>0.324</td>
<td>0.265</td>
<td>0.160</td>
<td>0.176</td>
<td>0.462</td>
<td>0.241</td>
<td>0.480</td>
<td>0.138</td>
<td>0.108</td>
</tr>
<tr>
<td>10. Diversity Attitudes</td>
<td>24.97</td>
<td>4.46</td>
<td>0.170</td>
<td>0.307</td>
<td>0.213</td>
<td>0.116</td>
<td>0.108</td>
<td>0.108</td>
<td>0.108</td>
<td>0.108</td>
<td>0.108</td>
<td>0.108</td>
</tr>
</tbody>
</table>

**Correlation is significant at the 0.01 level (2-tailed)
*Correlation is significant at the 0.05 level (2-tailed)**

### TABLE 4B
Mean correlations between self-efficacy and civic engagement attitudes (Post-Intervention)

<table>
<thead>
<tr>
<th></th>
<th>M</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I find it easy to determine if a source is credible</td>
<td>5.65</td>
<td>1.08</td>
<td>0.430</td>
<td>0.272</td>
<td>0.289</td>
<td>0.357</td>
<td>0.409</td>
<td>0.108</td>
<td>0.116</td>
<td>0.207</td>
<td>0.167</td>
<td>0.222</td>
</tr>
<tr>
<td>2. I find it easy to determine if a source is relevant to a topic</td>
<td>5.75</td>
<td>0.98</td>
<td>0.296</td>
<td>0.268</td>
<td>0.133</td>
<td>0.275</td>
<td>0.116</td>
<td>0.056</td>
<td>0.023</td>
<td>0.088</td>
<td>0.095</td>
<td>0.042</td>
</tr>
<tr>
<td>3. I enjoy researching existing literature/the research process as a whole</td>
<td>4.41</td>
<td>1.7</td>
<td>0.278</td>
<td>0.200</td>
<td>0.200</td>
<td>0.200</td>
<td>0.200</td>
<td>0.200</td>
<td>0.200</td>
<td>0.200</td>
<td>0.200</td>
<td>0.200</td>
</tr>
<tr>
<td>4. I find it easy to begin the research process</td>
<td>5.16</td>
<td>1.34</td>
<td>0.330</td>
<td>0.335</td>
<td>0.430</td>
<td>0.430</td>
<td>0.430</td>
<td>0.430</td>
<td>0.430</td>
<td>0.430</td>
<td>0.430</td>
<td>0.430</td>
</tr>
<tr>
<td>5. I am not sure where to find relevant information on most topics</td>
<td>5.06</td>
<td>1.45</td>
<td>0.268</td>
<td>0.274</td>
<td>0.009</td>
<td>0.116</td>
<td>0.207</td>
<td>0.167</td>
<td>0.222</td>
<td>0.217</td>
<td>0.352</td>
<td>0.375</td>
</tr>
<tr>
<td>6. I am not sure where to find credible information on most topics</td>
<td>5.12</td>
<td>1.42</td>
<td>0.183</td>
<td>0.256</td>
<td>0.056</td>
<td>0.023</td>
<td>0.056</td>
<td>0.023</td>
<td>0.056</td>
<td>0.023</td>
<td>0.056</td>
<td>0.023</td>
</tr>
<tr>
<td>7. Civic Action</td>
<td>42.81</td>
<td>8.14</td>
<td>0.266</td>
<td>0.170</td>
<td>0.307</td>
<td>0.210</td>
<td>0.074</td>
<td>0.034</td>
<td>0.034</td>
<td>0.034</td>
<td>0.034</td>
<td>0.034</td>
</tr>
<tr>
<td>8. Interpersonal &amp; Problem-Solving Skills</td>
<td>70.03</td>
<td>8.64</td>
<td>0.360</td>
<td>0.321</td>
<td>0.276</td>
<td>0.265</td>
<td>0.220</td>
<td>0.135</td>
<td>0.575</td>
<td>0.135</td>
<td>0.575</td>
<td>0.135</td>
</tr>
<tr>
<td>9. Political Awareness</td>
<td>31.07</td>
<td>5.65</td>
<td>0.374</td>
<td>0.278</td>
<td>0.337</td>
<td>0.261</td>
<td>0.095</td>
<td>0.058</td>
<td>0.529</td>
<td>0.520</td>
<td>0.520</td>
<td>0.520</td>
</tr>
<tr>
<td>10. Diversity Attitudes</td>
<td>24.73</td>
<td>4.46</td>
<td>0.205</td>
<td>0.182</td>
<td>0.068</td>
<td>0.088</td>
<td>0.291</td>
<td>0.291</td>
<td>0.288</td>
<td>0.395</td>
<td>0.172</td>
<td>0.172</td>
</tr>
</tbody>
</table>

**Correlation is significant at the 0.01 level (2-tailed)
*Correlation is significant at the 0.05 level (2-tailed)**
The first hypothesis predicted a positive relationship between information literacy self-efficacy and civic engagement attitudes. The hypothesis was supported. Pearson’s correlations between the composite information literacy self-efficacy score and all civic attitudes sub-scales were positive and significant, both at the beginning and at the end of the semester.

Difference scores were examined to see if changes in information literacy self-efficacy were significant predictors for changes in scores for civic attitudes subscales over the course of the semester. A linear regression found that change in information literacy self-efficacy explained less than 1% variance in and was a marginally significant predictor of changes in civic action \( R^2 = .009, F(1, 377) = 3.58, p = .059 \). Change in information literacy self-efficacy explained about 3% variance in and was a significant predictor of changes in interpersonal and problem-solving skills \( R^2 = .03, F(1, 377) = 11.77, p = .001 \). Change in information literacy self-efficacy also explained about 3% variance in and was a significant predictor of changes in political awareness \( R^2 = .03, F(1, 377) = 11.39, p = .001 \). Change in information literacy self-efficacy was not a significant predictor of change in diversity attitudes \( R^2 = .002, F(1, 377) = .86, p = .36 \).

To test the second hypothesis, a linear regression was conducted with the change in information literacy skills score as the predicting variable and the different subscales of the CASQ measure as the dependent variables. Change in information literacy skills was assessed through the information literacy skills quizzes that tested students’ actual application of information literacy knowledge. The regression equation was not significant \( (p > .05) \), suggesting that change in information literacy skills does not predict change in civic attitudes. No correlation was found between information literacy skills and all subscales of the CASQ measure \( (p > .05) \).

A within group repeated measures one-way ANOVA tested if changes in civic engagement attitudes varied by type of information literacy instruction. For the civic engagement scores that changed over the course of the semester (civic action, interpersonal and problem-solving skills, political awareness), only treatment A showed significant changes from pre- to post-intervention for scores on civic action \( F(1, 136) = 10.01, p = .002 \), interpersonal and problem-solving skills \( F(1, 136) = 8.38, p = .004 \), and political awareness \( F(1, 136) = 9.89, p = .002 \), compared to treatment B and control groups \( (p’s > .05) \).

Discussion
This study sought to understand if, and to what degree, there existed a relationship between outcomes in information literacy and civic attitudes in the context of a public speaking course. Results of the pre- and post-test design indicate statistically significant improvement in all self-assessed efficacy scales: information literacy, public speaking, and civic engagement. Additionally, information literacy skills improved pre- and post-intervention. These results, as well as relationships among the variables, are further discussed below.

A recent review found that librarians’ contributions to college-level instruction are typically assessed informally, if at all.\(^67\) The current study helps to advance an empirical understanding of the librarian’s role in information literacy instruction in a higher education classroom. Prior research with this data set indicated that librarian-led groups showed significantly higher improvement in information literacy skills compared to instructor-led groups.\(^68\) Such findings are augmented by the results of the present study which show that librarian-led groups also had gains in more of the information literacy self-efficacy items than did the control group (instructor-led). Although there was statistically significant growth in civic engagement measures as a whole, and there were no differences between the treatment groups, changes were statistically significant within one of the librarian-led treatment groups only. This suggests that certain types of information literacy instruction methods may be more effective in developing civic engagement inclinations and that, consistent with prior research, the effectiveness is improved when librarians help shape teaching practices.\(^69,70,71\)
In offering an empirical assessment of outcomes within a particular educational context, this study further contributes to the literature that explores connections between civic attitudes and information literacy, which is not only scarce, but is constrained by operationalizations of “skills” as self-reported measures only. The current study presented two distinct ways of measuring information literacy—as both applied skills (through the quizzes students completed) and as self-efficacy (through the survey instrument developed by the authors). The results show that while change in information literacy skills do not predict civic engagement attitudes, an increase in perceived information literacy self-efficacy predicts growth in civic engagement inclinations, which is consistent with existing, albeit limited, research.

All six items of the information literacy self-efficacy scale showed statistically significant growth over the course of the semester, as did the overall composite score. This included students’ self-assessed ability to find and evaluate sources, and even take pleasure in the research process itself. The finding that students’ information literacy self-efficacy improved in the context of the integrated curriculum design is promising, considering that introductory courses consistently seek to improve students’ confidence in the research process. Likewise, integrating information literacy instruction into a course curriculum provides students with multiple opportunities to see the value of what they are learning, which may lead to an increase in confidence. Building on this finding, we developed an online instructional module that provides students with information, examples, and self-guided assessments of their understanding of information literacy concepts and practices. We believe that the immediate, detailed, and non-graded feedback that students receive on the online assessments serves to improve their confidence by providing a low-stakes opportunity to try until “getting it right.” The development of this module was one part of an ongoing collaboration between a librarian and a course supervisor, again pointing to the idea that students benefit when librarians and faculty work together to shape the curriculum and the learning experience.

The lack of a statistically significant relationship between information literacy skills and civic engagement attitudes is puzzling, particularly given the connection of the information literacy skills training to the community-based project, and parallel research that has found relationships between high schoolers’ civic intentions and other (media) literacy skills. This finding may suggest that being able to select and evaluate information when researching a social issue does not necessarily transfer to being inclined toward civic participation, or to thinking differently about diversity, political awareness, or interpersonal and problem-solving skills. On the other hand, this finding may point to a need for a new or refined approach to measuring information literacy skill development. The larger research of which this study is a part examined students’ thinking and experiences with the course’s learning outcomes both qualitatively and quantitatively. While the qualitative data are not analyzed here, they may provide insight into possible operationalizations and measurements of information literacy skills, particularly as they align with and/or diverge from ACRL’s Framework. Similarly, future research that asks specific questions about the deliberative practices of information literacy, civic engagement, and public speaking, may reveal if/how students connect these concepts to one another. This approach would align with Megan Oakleaf’s roadmap for assessing the Framework, which suggests that the Framework may be best measured by qualitative performance indicators rather than quantitative assessments of learning.

Limitations and Future Directions

There are several limitations to this study that suggest room for future research. This study took place in one university setting and within one particular course. Future research should include other types of institutions, courses, and public speaking curricula, to enhance the generalizability of the results. For example, it might be worth comparing the learning outcomes in this course context to courses that do not explicitly aspire to have a
civically-oriented curriculum or to ones that have an even stronger integration of civic engagement and information literacy.

In this study, public speaking competencies, civic engagement, and information literacy self-efficacy were all based on self-reports. Thus, it is possible that students inflated their end-of-semester self-efficacy scores, whether due to social desirability bias (i.e. in an effort to please their professors) or students’ desire to feel like they got something out of the course. This study design would benefit from further testing and/or observation, which would allow us to understand the degree to which students’ actual behaviors align with their inclinations or intentions.

It remains unclear whether there is a relationship between students’ information literacy skills and their information literacy self-efficacy, which would help to determine if/where there are gaps in teaching and learning. Future research should explore to what extent information literacy self-efficacy corresponds to applied information literacy skills and vice versa. Qualitative analysis may help outline ways in which students make sense of information literacy in relation to their engagement with various messages, which will help specify practical and contextual ways to characterize information literacy. Continuous quantitative and qualitative research can and should inform the development of operational definitions and measures of information literacy, in terms of both self-efficacy and applied skills.

Conclusion
We began this project with the goal to help shape the narrative of information literacy and civic engagement instruction in the United States, wherein librarians, course instructors, and students are cast as key, collaborating characters in a hopeful educational plotline. The results point to the important role librarians can play in this process, particularly in relation to information literacy instruction as an integral part of course and curriculum design. This study demonstrated that students who learned about information literacy with a librarian scored better on several measures compared to those who did not. This speaks to the importance of personal contact and the necessity to make librarians present, visible, and active in the instructional process.

Another piece of this hopeful educational plotline is the connection between information literacy self-efficacy and civic engagement, suggesting that the more confident students feel in their abilities to evaluate sources and make informed decisions, the more likely they are to engage in civic action. However, the hope this finding provides is complicated by a lack of understanding of the links between information literacy self-efficacy and information literacy skills. Confidence is not the same as ability and in fact, may contribute to a deceptive sense of empowerment, leading to increased, but less informed, civic participation. Again, we believe that librarians and Communication instructors have a crucial and collaborative role to play in shaping public understanding and practices of information literacy. It is because of this shared belief that we find it critical to continue to examine whether and to what extent information literacy informs civic attitudes and actions, and how best to operationalize these concepts for meaningful integration in the classroom.

Acknowledgment
The authors would like to thank Denice Tucker, a data analyst in Student Services at the University of Maine, for her assistance with cleaning and organizing our data.
Endnotes


11. Kim and Yang, “Internet literacy.”


24. Ibid.


29. Rustic and Wood, “Increasing information literacy.”


33. Rustic and Wood, “Increasing information literacy.”

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34. Herakova, Liliana, Jennifer Bonnet, and Mark Congdon Jr. “Centering information literacy (as) skills and civic engagement in the basic communication course: An integrated course library collaboration.” Basic Communication Course Annual 29, no. 1 (2017): 109-120.
35. Hunt, Simonds, and Simonds, “Uniquely qualified.”
40. McGeough and Rudick, “It was at the library.”
42. McGeough and Rudick, “It was at the library.”
44. Hunt, Simonds, and Simonds, “Uniquely qualified.”
45. McGeough and Rudick, “It was at the library.”
52. Ibid.
53. Ibid. p. 6
57. Ibid.
61. For example, Kim and Yang, “Internet literacy.”
68. Bonnet, Herakova, and McAlexander, “Play on.”
70. McGeough and Rudick, “It was at the library.”
72. See Kim and Yang, “Internet literacy.”
74. Rustic and Wood, "Increasing information literacy."
75. Stevens and Campbell, "Collaborating."
76. Zoellner, Samson, and Hines, "Continuing assessment."
77. See http://libguides.library.umaine.edu/cmj103
78. Herakova, Bonnet, and Congdon, Jr., "Centering."
79. Hunt, Simonds, and Simonds, "Uniquely qualified."
81. Martens and Hobbs, "How media literacy."