Flipped Classrooms for One-Shot Library Instruction: 
A Pilot Study with Psychology Students

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Abstract

This paper presents an action research study that used a flipped approach for “one-shot” library instruction. Lack of time for delivering effective library instruction is a common issue academic librarians face when invited to provide one-shot sessions for students. This study compared student’s responses across three levels of “flipped” instruction, as well as examining student reactions to the library instruction experience. Animated video lectures were used for instruction prior to in person sessions with the librarian. Exercises in the live session provided practice for students on searching for articles as well as data on students searching behaviors. Surveys after the session gave additional data about the flipped and in person instruction. Students with greater exposure to the videos showed a higher degree of assignment completion. Results were viewed as a helpful basis for structuring and developing library instruction.

Keywords: flipped classroom; library instruction; action research

General Background

In conventional introductory college or university library instruction, librarians are invited to class to present an overview of library services and resources. By working with the class instructor, librarians customize the content based on class needs. Instruction topics can include describing and showing overall library services as well as basic database searches. Distinguishing scholarly work from trade publications, and explaining the use of library resources for literature reviews are other topics.

As with other academic institutions in higher education, library instruction services Kent State University strives to educate students on finding and using information effectively and ethically. That instruction involves not only the skills and critical thinking associated with Information Literacy, but also the skills and reasoning related to technology and media fluency. Each librarian is assigned to a limited set of colleges and disciplinary departments across the university, and a goal is to support student learning appropriate for where students are in their understanding and skill levels. Traditionally, in-class library instruction has involved lectures or “show and tell” type presentations. Students have been given a lot of information and librarians have regularly been invited back to provide instruction. Overall, the comments received from students and instructors in the past have been positive at Kent State. A common comment has
been “the session was useful and very informative”, and records indicate that more than 3,400 undergraduate students were provided in-class library instruction during 2019 at Kent State.

**“One-Shot” Instruction Sessions**

Although the usual presentation type of instruction has been well received, there have been concerns with “one-shot” library instruction approaches (Artman et al., 2010; Mery et al., 2012). It is challenging when librarians are expected to pack all the essentials of information literacy into a 45-60-minute class time limit, and often these instruction opportunities for a course are one time only. Also, timing is important; students learn what they care about and remember what they understand (Erickson, 1984). So, if the session is not offered when students feel a need, the effectiveness of library instruction sessions is challenged. Based on our experience with traditional instruction, as librarians and instructional designers we sought to address concerns about “one-shot” presentations.

**Action Research and Active Learning**

We saw action research (Efron & Ravid, 2020) as a means to understand our current instruction and to work toward improvements. We also hoped to incorporate more active learning approaches to move the student learning experience beyond just (passively) receiving information in the traditional one-shot session (LeMire et al., 2019; Wegener, 2018). Learning by doing would be a guiding principle.

The traditional lecture-centered instruction is a content-oriented approach, which mainly involves verbal information delivery. This delivery can use instructor presentation, videotape demonstration, class discussion, and textbooks and worksheets as the primarily curriculum material (Mastropieri et al., 1999; Scruggs & Mastropieri, 1993). Activity-oriented approaches promote a depth of understanding through learning process that emphasizes hands-on experience, (Mastropieri, Scruggs, & Magnusen, 1999; Scruggs & Mastropieri, 1993). In response, for this study, instead of only presenting information (i.e. lecture, demo), we sought to incorporate structured instruction involving in-class hands-on practice and project-based Q&A for the in-class session.

**Flipped Classrooms**

Additionally, for this study we focused on a flipped classroom approach (Minuti et al., 2018; Murray et al., 2015). These approaches can be viewed generally as involving work by students outside of class (frequently before class) which is reinforced with activities in class (Bergmann & Sams, 2012). Recent studies have indicated that using flipped approaches can have value for library instruction, including more motivated students (Karabatak & Polat, 2019) and having students come to class better prepared to engage and experience higher level learning (Loo et al., 2016). Other work indicated that while challenging, flipped approaches could be used for information literacy instruction (Rodriguez, 2016). Additionally, in their background review of the literature, a recent meta-analysis also noted that flipped approaches have become widely utilized, supporting both active and self-regulated learning, both potentially positive for students (Strelan et al., 2020). While some have concluded that a flipped approach did not improve learning outcomes (Miller, 2017), to us it seemed overall that the literature suggested that a flipped approach could be a good strategy to meet challenges of “one-shot” instruction.
To briefly summarize, given our understanding of active learning and flipped approaches, the current authors sought to pursue the study described below to help determine the efficacy of such approaches for library instruction at Kent State. Results would help guide planning for future library instruction development. Specifically, the current study had two objectives. First, we sought to examine the use of a flipped approach with students in a psychology writing class by comparing students’ responses across three levels of “flipped” settings. A second objective was to examine student experiences with how the librarian flipped the classroom.

Research Design

An undergraduate psychology research writing course was chosen for this study because the subject librarian had an existing relationship with the psychology department and was invited to give library instruction for the course.

Students and Classroom Setting

There were three instructors for the writing course involved in the current study, and, across the three classes, a total of 149 undergraduate students were enrolled in the course received library instruction (Class A: 50 students, Class B: 50 students, and Class C: 49 students.) All library sessions took place in a classroom with desktop computers located in the library. The different teaching styles of the three instructors resulted in the varied levels of students’ preparation for the in-class library instruction session.

Instruction Provided Before In-Class Instruction

Five library tutorial videos were provided in advance, so students would have opportunities for instruction prior to coming to the library session. The videos on search strategy covered topics including choosing keywords from a topic, developing search strategy, using databases, and accessing full text articles. The instructor in class A incorporated our pre-class materials into her course plan by designating time for students to watch videos together, while the other two instructors in classes B and C were more “laid back”. Those two instructors mentioned the pre-class materials for library instruction session to students. However, they did not require students to watch the videos.

In-Class Library Instruction

Each of the three classes had two in-class exercises and the same total class time (45 minutes). The in-class library session had two components: in-class exercises and librarian-led instruction. The librarian-led instruction involved a varied amounts of “hands-on” activity. As shown in Figure 1., the librarian-led instruction was provided between two exercises. The exercises served as a pre-test (Exercise 1) and post-test (Exercise 2) from data collection standpoint. The type of librarian-led instruction for the class C was similar to the past, which consisted of standard lecture and demonstration, while there was more time devoted to hands-on practice in Classes A and B.

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1 The Kent State University Institutional Review Board reviewed and gave the required approval for our study.
In-Class Searching Exercises

Exercise 1 (pre-test) was used at the beginning of the library session, and Exercise 2 (post-test) was used after the library instruction. Each exercise involved searches for scholarly articles. Students were asked to find a full-text article on a topic given to them, and to complete a worksheet as follows. In response to a psychology topic given to them, they searched for a full text article, and record the selected keywords and the article title they found on the Exercise 1 and 2 worksheets, respectively. Additionally, on Exercise 1 worksheet students were asked to record the number of videos they had watch prior to the in-class library instruction session. Each of the keywords that students recorded on the worksheets was counted as one-point, with a maximum of two points (at least two keywords were recorded), and a point minimum of zero (i.e., no keyword was selected). After coding, the collected data were analyzed through descriptive statistics (e.g., means, frequency, and percentage) to represent the participants’ performance on the article search activity as well as their experience of the library instruction session. All student participation and recorded responses in this study were voluntary and anonymous, including surveys and worksheets.

Survey After the In-Class Instruction Session

Also, following the in-class sessions, a brief survey was used with students. A 4-point Likert Scale question was used to assess students’ overall experience in the instruction session, and a 10-point rating scale question was employed to assess participants’ perspective on the usefulness of library instruction content. Additionally, a follow-up communication was used with the instructors regarding the student assignment that involved searching full-text scholarly articles on the “testing effect” (Testing Effect, n.d.).
Results & Discussion

A total of useable 116 worksheets were collected from all three classes: 40 from class A, 35 from class B, and 41 from class C, for a response rate of 77.8%. One reason for the missing worksheets may be that students did not return their worksheets to the librarian. Forty worksheets (80% response rate) were collected from Class A, thirty-five worksheets (70% response rate) were collected from Class B, and 41 worksheets (84% response rate) were collected from Class C. We looked at the number of pre-class videos watched, in-class exercise worksheets, and the assignment completion rate for overall student performance. We also looked at students’ response/feedback about their overall experience. There were 55 students who responded to the survey invitations: 23 from A, 10 from B, and 22 from class C.

Results showed that students who watched more videos before the library session had higher assignment submission completion rate. As shown in Table 1, Class A had the highest average number of videos watched (4.85 out of 5 videos), because the instructor designated time for group watching. Importantly, that class also had a 100% assignment completion rate, which was very positively noted by the instructor. The assignment completion data were different for class B (1 late submission) and class C (5 missing submissions). The average number of videos watched and exercise scores were also lower than class A (average 1.97 videos watched by class B, and 0.32 videos watched by class C.)
Table 1

Videos watched, mean scores exercise 1 and 2, & assignment completion rates

<table>
<thead>
<tr>
<th></th>
<th># of video (total =5)</th>
<th>EX 1 (total=2)</th>
<th>EX2 (total=2)</th>
<th>Assignment submission</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class A (n=40)</td>
<td>4.85</td>
<td>1.83</td>
<td>1.95</td>
<td>100% completion</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(0 missing submission)</td>
</tr>
<tr>
<td>Class B (n=35)</td>
<td>1.97</td>
<td>1.8</td>
<td>1.57</td>
<td>98% completion</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(1 late submission)</td>
</tr>
<tr>
<td>Class C (n=41)</td>
<td>0.32</td>
<td>1.76</td>
<td>1.34</td>
<td>89.8% completion</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(5 missing submission)</td>
</tr>
</tbody>
</table>

Table 2

Overall experience with the library session

<table>
<thead>
<tr>
<th></th>
<th>Disappointing</th>
<th>As Expected</th>
<th>Better than Expected</th>
<th>Much better than Expected</th>
</tr>
</thead>
<tbody>
<tr>
<td>A (n=23)</td>
<td>0</td>
<td>4</td>
<td>11</td>
<td>8</td>
</tr>
<tr>
<td>B (n=10)</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>C (n=22)</td>
<td>0</td>
<td>3</td>
<td>11</td>
<td>8</td>
</tr>
<tr>
<td>All (n=55)</td>
<td>0</td>
<td>7</td>
<td>25</td>
<td>23</td>
</tr>
</tbody>
</table>

Table 3

Overall usefulness of the library instruction (scale 1-10, 1 = least useful)

<table>
<thead>
<tr>
<th>Class</th>
<th>A (n=23)</th>
<th>B (n=10)</th>
<th>C (n=22)</th>
<th>All (N=55)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>9.0</td>
<td>8.37</td>
<td>8.36</td>
<td>8.48</td>
</tr>
</tbody>
</table>

The results for keywords selection showed that the majority of students recorded at least one keyword from the given topic; the average keywords recorded for Exercise 1 (pre-test) was 1.79, and the average keywords recorded for Exercise 2 (post-test) was 1.62. Looking closer at the results for each class, results showed that for Exercise 1, Class A students recorded the most keywords (1.83) from the given topic, followed by Class B (1.8) and Class C students (1.76). A similar range of results was seen for Exercise 2; Class A students had the highest mean of keywords recorded (1.95), followed by Class B students (1.57) and Class C (1.34). Interestingly, the results are in line with the average number of videos watched before the instruction session, and the assignment completion rate. A possible reason for that pattern is that students who
watched more library videos developed a better understanding of the research article search, including selecting proper keywords for conducting the article search. However, with the current data we have, that possible effect of watching videos would need additional confirmation.

Fifty-five of the 116 students who attended the library instruction session completed the online survey. The response rate was 47.8%. Based on survey responses, overall the students considered the library session helpful and better than expected, which suggested a positive experience (see Table 2 & 3). When examining students’ overall experience with the library session, results showed that 41.8% of the participants indicated their experiences were much better than expected, 45.5% of the students reported better than expected experience, and 12.7% of the students reported their experience was as expected. None of the participants reported disappointing experiences.

Conclusion

For our current action research study, we implemented a flipped approach with a one-shot library instruction session. And we came away from our study with a modestly enhanced view that combining flipped and active learning approaches for library instruction is valuable, and may be preferred to the “one-shot” instruction we have traditionally developed and used. Of course, students’ perceptions and affective factors are important for learning, and the results of our pilot study suggest that overall the student’s experience with this new approach was positive. Additionally, the positive assignment completion rate results might reflect a possible combined impact of repeated exposure to searching techniques and practice. Students involved in “more active elements” (class A) did better in on their assignments. Instructor comments indicated appreciation for using videos prior to the library session. Varied and repeated exposure to and practice with content seemed useful. Going forward, we will be recommending the kind of combination we used. That is, to provide students with learning materials that cover key concepts prior to in-class instruction so some in-class time can be used for more hands-on activities that assume and build on what the students are provided prior to the in-class instruction.

References

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