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Résumé de l'article

Objective – The purpose of this quantitative study was to measure the impact of providing research struggle videos on first-year students' research self-efficacy. The three-part video series explicated and briefly addressed common first-year roadblocks related to searching, evaluating, and caring about sources. The null hypothesis tested was that students would have similar research self-efficacy scores, regardless of exposure to the video series.

Methods – The study was a quasi-experimental, nonequivalent control group design. The population included all 22 sections (N = 359) of First-Year Writing affiliated with the FASTrack Learning Community at the University of Mississippi. Of 22 sections, 12 (N = 212) served as the intervention group exposed to the videos, while the other 10 (N = 147) served as the control group. A research self-efficacy pretest – posttest measure was administered to all students. In addition, all 22 sections, regardless of control or intervention status, received a face-to-face one-shot library instruction session.

Results – As a whole, this study failed to reject the null hypothesis. Students exposed to the research struggle videos reported similar research self-efficacy scores as students who were not exposed to the videos. A significant difference, however, did exist between all students' pretest and posttest scores, suggesting that something else, possibly the in-person library session, did have an impact on students' research self-efficacy.

Conclusion – Although students' research self-efficacy may have increased due to the presence of an in-person library session, this current research was most interested in evaluating the effect of providing supplemental instruction via struggle videos for first-year students. As this was not substantiated, it is recommended that researchers review the findings and limitations of this current study in order to identify more effective approaches in providing instructional support for first-year students' research struggles.

EB **Evidence Based Library and Information Practice**

Research Article

First-Year Students' Research Challenges: Does Watching Videos on Common Struggles affect Students' Research Self-Efficacy?

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Abstract

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Introduction

Academic faculty who teach a three-unit lecture course spend 45 hours per semester with students in the classroom. This in-person delivery is in addition to the 90 hours of accompanying homework per semester expected of students for a three-unit lecture course. In contrast, an academic librarian working alongside that faculty member is allotted approximately one hour of in-person class time with students during the semester, with no expectation that students will complete homework in preparation for that period. Librarians are asked to use the designated hour to introduce students to the breadth and depth of academic research, often within the context of a particular assignment and with the expectation that students will engage in active learning (e.g., hands-on searching and evaluating activities). This type of library instruction is referred to in the literature as the *one-shot*. Although academic librarians have objected to this arrangement, it continues to be the de facto assumption between classroom faculty and librarians at many institutions, including ours.

At the University of Mississippi, each librarian in the Research & Instruction Department teaches approximately 100 one-shot library instruction sessions annually. As requests for in-person course instruction continue to increase, especially within first-year curriculum, librarians struggle to balance faculty demand while also adequately supporting students' needs. The perspective among our librarians is

that the current one-shot model mocks our best efforts in providing valuable and impactful pedagogy for undergraduate students. As tenure-track professionals we understand first-hand the difficulties of confronting irrelevant search results, evaluating whether an article aligns with one's research question, and generating enough energy to follow-through on a difficult topic. Yet as librarians in the classroom we often set aside the complexities of the research process due to the inherent limitations of the one-shot. The vast majority of instructional time, especially with first-year students, is spent establishing foundational concepts (e.g., What are keywords? What sources exist?) with limited opportunity to address where students struggle most (e.g., Why is this search not working? Does this source agree with my research argument? Why should I care about sources?). Consequently, when students encounter research struggles—failed searches, roadblocks, or dead ends—they tend to do so on their own.

Our department wanted to fully support students who encounter such difficulties, but it was not feasible to double the workload by asking librarians to address research struggles via a second in-person session for every first-year course. Therefore, in order to offer additional instructional support to students, while also maintaining current levels of in-person instruction, we decided that video tutorials might serve as a viable option for providing supplemental instruction aimed at addressing students' research challenges.

The majority of one-shot library sessions correspond to first-year and second-year writing courses, and our department had a positive relationship established with the teaching faculty in the Department of Writing & Rhetoric. First-semester, first-year students often have the most difficulty acclimating to academic research expectations and therefore our department decided to pilot the research struggle videos in the First-Year Writing (WRIT 101) course. In order to ensure that all students enrolled in WRIT 101 were first-semester, first-time students in college, the sample was limited to sections affiliated with the FASTrack Learning Community. Otherwise, the sample might have been an amalgamation of first-year students along with juniors or seniors who had delayed taking WRIT 101.

The purpose of this applied research was to measure the impact of providing supplemental video tutorials for first-year students in addition to the one-shot library session. The video series addressed common research roadblocks related to searching, evaluating, and caring about sources. To measure the effectiveness of the videos, a pretest-posttest quasi-experimental research study with control and intervention groups was designed. This research article outlines the development, execution, and effectiveness of this approach on first-year students' research self-efficacy.

Literature Review

As early as the mid-90s, academic librarians were creating controlled studies to compare computer-assisted instruction (CAI) with traditional face-to-face delivery. In 1998, *College & Research Libraries* published a study conducted by UCLA librarians Kaplowitz and Contini using pretest-posttest data comparing CAI and in-person instruction with biology students during the 1994-1995 academic year. The authors concluded that CAI, although time-consuming and expensive, was a worthwhile endeavor and likely alternative to conducting face-to-face library instruction. This research

was supported a few years later by Germain, Jacobson, and Kaczor (2000) who found that their web-based instructional model improved students' library skills as effectively as in-person library instruction. While academic librarians continued to embrace online methods of instruction, Australian librarians at Deakin University published an article comparing face-to-face with standalone and meditated tutorials (Churkovich & Oughtred, 2002). Their findings, in contrast to previous studies, supported that students' library skills increased more with in-person instruction.

In 2008, Zhang, Watson, and Banfield conducted a systematic review of all library literature from 1990 to 2005 that compared CAI with face-to-face instruction. They limited their study designs to rigorous randomized controlled trials, controlled trials, cohort studies, and case studies that used both pretest and posttest measures. Of 728 potential studies, only 10 were included in the final analysis. Even so, Zhang et al. asserted that those ten studies lacked methodological rigor, notably internal and external validity. Despite that admonition, research studies comparing face-to-face and online instruction continued to advance the literature without addressing some of the methodological concerns pointed out by Zhang et al. Anderson and May (2010) compared three forms of instruction—in-person, blended, and online—and concluded from pretest-posttest data that the method did not affect students' retention of information literacy skills. Shortly thereafter, Archambault (2011) analyzed student artifacts created from different methods of instruction and found that students performed better with CAI alone than with combined in-person and CAI instruction. Continuing the trend, Walton and Hepworth (2012) published a study analyzing U.K. students' source evaluation comments resulting from three different interventions. Their research shared similarities between Archambault's artifact analysis and Anderson and May's research design. However, Walton and Hepworth's quantitative study diverged from Anderson and May's (N = 103) in that their

sample size was significantly smaller (N = 35). The following year, Hess (2014) compared in-person, online, and combined instruction with upper-division sociology students with a sample size (N = 36) as small as in the Walton and Helpworth study. Controlled studies published in the library literature during the past few years have had significantly fewer participants than some of the studies evaluated in Zhang et al.'s systematic review, including Kaplowitz and Contini (1998) with 423 students and Germain et al. (2000) with 303 students. These smaller sample sizes are of concern, especially when comparing multiple interventions, as their size often affects the study's power to detect statistical significance as well as external validity. Most recently in the literature, Bordignon et al. (2016) conducted a controlled study comparing students' information literacy skills in response to online IL learning objects and face-to-face workshops. Their sample (N = 110) was comprised of 75 students during Spring semester and 35 students the subsequent Fall term. Results indicate that statistically significant differences existed between participants' pre-and post- responses in relation to finding articles.

The aforementioned studies compared CAI or online methods with face-to-face instruction. In each of these cases, the dependent variables were skill-based outcomes (Anderson & May, 2010; Bordignon et al., 2016; Germain et al., 2000; Hess, 2014) or a combination of skill-based and affective measures (Churkovich & Oughtred, 2002; Kaplowitz & Contini, 1998). Other studies have more thoroughly investigated students' affective approaches, though not within the context of comparing online and in-person interventions. Kracker's (2002) pretest-posttest mixed methods study measured the "awareness of the affective aspects of the research process" (p. 284), as well as anxiety and satisfaction between students who were presented with information on Kuhlthau's Information Search Process (ISP), and those that were not. Kracker and Wang (2002) then used qualitative data from the same study to categorize students'

research experiences into three affective dimensions: emotional states, perceptions of the process, and affinity to research. Such empirical studies helped set the stage for addressing students' affective approaches to research.

In recent years, librarians have argued that standards of information literacy are incomplete without particular attention to students' affective dimensions (Fourie & Julien, 2013; Schroeder & Cahoy, 2010). These concerns were publically addressed when the Association and College and Research Libraries (ACRL) created, revised, and officially adopted the *Framework for Information Literacy for Higher Education* (2015). The *Framework* addressed both cognitive (Knowledge Practices) and affective (Dispositions) engagement within the context of information literacy.

It is of interest that librarians continue to explore the interactions between information literacy and students' affective dimensions. This current empirical study measured the impact of research struggle videos on students' research self-efficacy. Bandura's (1977; 1982; 1984; 1986; 1997) foundational and prolific work on self-efficacy undergirds this study, as well as almost all studies (Kurbanoglu, 2003; Mi & Riley-Doucet, 2016) investigating people's "beliefs in [their] capabilities to organize and execute the courses of action required to produce given attainments" (Bandura, 1997, p. 3). The construct of self-efficacy is closely related to, although not the same as, measures of self-confidence. Both self-confidence and self-efficacy scales measure confidence levels, but only a confidence scale assumes that an action has taken place (Stankov, 2013). Perceived self-efficacy, on the other hand, is "not a measure of the skills one has but a *belief* about what one can do under different sets of conditions with whatever skills one possesses" (Bandura, 1997, p. 37). Such self-efficacy beliefs "affect thought processes, the level and persistency of motivation, and affective states...People who have strong beliefs in their capabilities approach difficult tasks as

challenges to be mastered rather than as threats to be avoided" (Bandura, 1997, p. 39).

There is no single instrument for measuring self-efficacy (Bandura, 2006); this construct is notably contextual and framed in relation to particular domains of functioning (Byrne, Flood, & Griffin, 2014; Kurbanoglu, 2003). In the current study, *research* self-efficacy was operationalized as first-year students' academic research skills in relation to searching, evaluating, and caring about sources. According to Bandura (1997), levels of self-efficacy are affected by four inputs: mastery experiences, vicarious experiences, verbal persuasions, and psychological and affective states. The most important, mastery experiences, reflect an individual's prior successes or failures in relation to a particular task. Most first-semester, first-year students lack successful mastery experiences in relation to academic research skills. Vicarious experiences, on the other hand, are those successes or failures as modeled by someone else. In this current study, video tutorials were employed as a form of modeling successful approaches in overcoming common research struggles in relation to searching, evaluating, and caring about sources.

As a whole, quasi-experimental studies are largely underrepresented within the library and information science field. This study complements, but does not replicate, the extant literature comparing online and face-to-face interventions. Rather than examining two different formats, this study sought to measure the impact of providing supplemental video tutorials in addition to, but not in lieu of, in-person library instruction. This study also diverges from the literature in that these particular videos directly addressed common research struggles with the expectation that modeling these experiences via video tutorials would have a positive impact on students' confidence and reported research self-efficacy.

Aims

The purpose of this study was to examine the impact of providing research struggle videos to first-year students enrolled in First-Year Writing (WRIT 101) courses. Specifically, does watching research struggle videos prior to in-person library instruction affect students' research self-efficacy? The null hypothesis tested was that first-year students enrolled in FASTrack WRIT 101 courses who watched research struggle videos prior to in-person library instruction would report the same levels of research self-efficacy as students who did not watch the videos prior to in-person library instruction.

Methods

This research study was a nonequivalent control group design (Design 10: Campbell & Stanley, 1966). The quasi-experimental approach diverges from a traditional experimental pretest-posttest control group design due to the inability to randomize individual participants. Although random assignment was used to determine which class sections would serve as control and intervention groups, random sampling was not possible given that individuals signed up for sections based on course schedule preferences. Twenty-two FASTrack First-Year Writing sections were offered during fall 2016 (N = 359); of those, 10 sections served as the control group (N = 147), while the other 12 sections served as the intervention group (N = 212). Eleven sections were originally scheduled for each group, however one of the control sections was unintentionally designated as intervention and treated accordingly. The control and intervention groups were randomly assigned among the seven FASTrack writing instructors after ensuring that each faculty member had at least one intervention group during the semester. An open channel of communication was established between the author and writing instructors regarding the development of this project to ensure buy-in and full collaboration prior to submitting the proposal to the Institutional Review Board (IRB) in August 2016.

The struggle video tutorials were created to explicate and briefly address common first-year students' research struggles as it related to searching, evaluating, and caring about sources. The content was developed based on the author's 10 years of academic library experience working with first-year students. The first video established a research claim and demonstrated ways to search iteratively when encountering poor results; the second video evaluated an academic source that both agreed and disagreed with the hypothetical research claim; and the final video discussed the value of expending time and energy in caring about one's sources. The purpose of these video tutorials was to provide a vicarious experience (i.e., modeling) through which students would learn how to overcome common research struggles. This modeling via video tutorials was intended to increase students' confidence in their academic research skills (i.e., their research self-efficacy).

The length, pacing, and approach of each video followed recommendations set forth by van der Meij and van der Meij (2013) for instructional content. After writing scripts, the videos were recorded via ScreenFlow, and a personalized introductory video was added using a green screen in the library's recording studio. The final video series would take students approximately seven minutes to watch. Videos were played consecutively in the following order:

1. Introduction to Videos, 0:35
2. The Struggle with Searching, 2:36
3. The Struggle with Evaluating, 2:15
4. The Struggle to Care, 1:11

In this study, research self-efficacy was operationalized as first-year students' academic research skills—searching, evaluating, and caring about sources. After the development of the video series, the self-efficacy scale was created to measure students' confidence with respect to the domains of functioning that were addressed in the video series. This alignment between the independent and dependent variables sought to capture the impact of the

struggle videos on students' research self-efficacy.

The construction of the research self-efficacy scale followed examples Bandura set forth in his chapter entitled "Guide for Constructing Self-Efficacy Scales" (2006). Examples used three anchors (cannot do at all, moderately can do, highly certain can do) with a confidence range of 0-100, coupled with imperative statements (e.g., Stop yourself from worrying about things; Get students to work well together). In order to replicate Bandura's recommended structure, the same anchors and confidence range were employed, while the imperative statements were revised to reflect academic research skills for first-year students. Several items on the scale were designed to present "types of dissuading conditions" (Bandura, 2006, p. 311) that first-year students would encounter (i.e., research struggles) when locating and evaluating sources. These "gradations of challenge" (Bandura, 2006, p. 311) are intrinsic to measurements of self-efficacy and notably contingent on context.

In the current study, it was not feasible to establish construct validity through rigorous factor analysis prior to administration. However content validity was addressed by ensuring that the scale represented all three components of research self-efficacy as operationalized in this study as the ability to search, evaluate, and care about sources. In addition, face validity was established among undergraduates after piloting the survey with eight lower-division students who participated in cognitive interviews while responding to the scale. The current scale went through two revisions based on student feedback prior to administration. Both the pretest ($\alpha = .827$) and posttest ($\alpha = .869$) scores in this current study indicated strong internal consistency reliabilities of Cronbach's alpha. The full scale as provided to the students is included in Appendix A.

Once the struggle videos and research self-efficacy scale were created, it was essential to coordinate the exact timing of these variables

Table 1
Means and Standard Deviations for Pretest and Posttest Responses by Group

Variable	Control Group				Intervention Group			
	Pretest (N = 147)		Posttest (N = 126)		Pretest (N = 212)		Posttest (N = 187)	
	M	SD	M	SD	M	SD	M	SD
Use Google.com	88.53	15.64	90.44	14.48	86.44	18.99	86.45	18.95
Use UM Library website	61.39	29.03	76.55	22.92	60.30	27.40	77.41	21.38
Adjust Search terms	82.16	17.81	84.95	15.89	76.04	22.84	79.96	19.72
Evaluate agree	83.34	17.12	84.28	17.25	81.33	18.31	85.29	15.81
Evaluate disagree	82.84	18.35	85.24	15.80	79.58	20.01	84.59	16.92
Continue looking	76.76	21.04	80.87	19.28	72.49	21.49	78.04	20.22
Care about quality	80.81	18.85	83.21	17.18	77.21	21.09	80.67	17.04
Keep from being frustrated	55.48	27.21	65.92	24.44	55.26	26.19	63.94	26.40
Not care about topic	68.50	24.74	74.70	21.80	63.81	24.82	71.14	22.83
Care due tomorrow	76.17	25.70	81.19	22.01	75.81	24.80	80.66	20.26

across all 22 WRIT 101 sections. To ensure as much internal validity as possible and to offset potential intervening variables, the researcher provided a regimented timeline to all seven writing instructors. One-shots were scheduled for all 22 classes during a two-week period in October. Faculty administered the research self-efficacy scale (pretest) on paper to their sections during class the day prior to each section's scheduled one-shot. The 12 sections designated as the intervention group then watched the research struggle videos collectively during class immediately *after* taking the pretest measure. The following class period, regardless of control or intervention status, students participated in an active, one-shot session. The faculty then administered the research self-efficacy scale again (posttest) to all sections the same day students turned in their research assignment, approximately two weeks after the one-shot. Students who were absent during the pretest measure were asked by their writing instructors to refrain from taking the posttest measure. The difference between the control and intervention groups was the presence of the video series. Everything else, including the teaching librarian

and the content of the one-shot, was kept the same for all 22 class sections.

Results

Measures of central tendency and variability are provided in Table 1 for both the control and intervention groups' pretest and posttest scores. All students' initial pretest scores were higher than the researcher anticipated, with several means in the mid-80s. Although it is possible that these reported levels were a reflection of the anchors adopted during the creation of the scale (i.e., would responses have differed if the anchor near 90-100 range stated "absolutely certain can do" rather than "highly certain can do"?), the responses are more likely a manifestation of the Dunning-Kruger effect as noted throughout the literature on self-assessments (Guillory & Blankson, 2017; Kruger & Dunning, 1999; Miller & Geraci, 2011). However high the pretest means, it was still possible for upward movement in the posttest measure.

In the pretest for both the control (M = 88.53) and intervention (M = 86.44) groups, students were most confident in their ability to use

Table 2
Independent Samples t-Test between Control and Intervention Posttest Responses

Variable	*t*	df	Sig. (2-tailed)	Cohen's *d*
Use Google.com	2.11	307.93^	.035*	.24 (small)
Use UM Library website	-.30	312	.764	.03
Adjust search terms	2.49	303.32^	.013*	.28 (small)
Evaluate agree	-.47	312	.636	.05
Evaluate disagree	.40	312	.686	.05
Continue looking	1.27	312	.205	.15
Care about quality	1.28	312	.201	.15
Keep from being frustrated	.71	312	.477	.08
Not care about topic	1.40	312	.163	.16
Care due tomorrow	.22	311	.826	.03
Total score ($\sum$ 1-10)	1.24	311	.217	.14

Google to locate sources, and solidly confident that they could evaluate whether a source agrees (M = 83.34, M = 81.33) or disagrees (M = 82.84, M = 79.58) with a research argument. Both groups reported the least confidence that they could keep from being frustrated when unable to locate relevant sources on a topic (M = 55.48, M = 55.26), and using the UM Library's website to locate relevant sources for WRIT 101 class assignments (M = 61.39, M = 60.30). The two aforementioned items also represented the largest variability of responses in the pretest (i.e., standard deviations were much higher; frustrated: SD = 27.21, SD = 26.19; library: SD = 29.03, SD = 27.40). In other words, although the means were lower, students overall reported a wider range of confidence for these two measures. A final observation from the pretest data was that students in the control group had slightly higher means than students in the intervention group on several items, most likely due to differences in sampling. An independent samples *t*-test between the control and intervention groups on the pretest responses indicated no significant differences existed between the groups, except for one variable: Adjust your search terms if the results from a search are not relevant or useful. Here, the control and intervention groups were significantly different at the outset, *t*(352.084) =

2.848, *p* = .005, equal variances not assumed. It is clear from Table 1 that students' responses in both groups increased from the pretest to posttest measure, but it is not clear whether the control and intervention groups' posttest responses were markedly different from one another. In order to test the null hypothesis of no difference between the control and intervention groups, an independent *t*-test (α = .05, two-tailed) was computed using the posttest scores. A paired *t*-test was not possible due to students' anonymity taking the pretest and posttest measure. The independent samples *t*-test between the control and intervention posttest responses is provided in Table 2. As a whole, the study failed to reject the null hypothesis (*p* > .05). The total score between students who watched the videos and students who did not watch the videos was not significant, *t*(311) = 1.24, *p* = .217, *d* = .14. However, a statistically significant difference did exist between the groups on two independent scale items: using Google, *t*(307.93) = 2.11, *p* = .035, *d* = .24, and adjusting search terms, *t*(303.32) = 2.49, *p* = .013, *d* = .28). The difference between the control (M = 90.44) and intervention (M = 86.45) groups regarding Google was unexpected given that the struggle videos did not discourage viewers from using Google. As evident in Table 1, while students in

Table 3

Independent Samples t-Test between All Groups' Pretest and Posttest Responses

Variable	*t*	df	Sig. (2-tailed)	Cohen's *d*
Use Google.com	-.57	671	.572	.04
Use UM Library website	-8.47	663.02^	.001*	.65 (moderate)
Adjust search terms	-2.26	670.99^	.024*	.17
Evaluate agree	-2.10	671	.037*	.16
Evaluate disagree	-2.85	671	.005*	.22 (small)
Continue looking	-3.13	668.63^	.002*	.24 (small)
Care about quality	-2.09	670.15^	.037*	.16
Keep from being frustrated	-4.67	671	.001*	.36 (small)
Not care about topic	-3.76	670.35^	.001*	.29 (small)
Care due tomorrow	-2.76	668.68^	.006*	.21 (small)
Total score (∑ 1-10)	-5.28	670	.001*	.41 (small)

the control group reported increased confidence in their ability to use Google between the pretest and the posttest (M = 88.53, M = 90.44), those in the intervention group remained stable across both measures (M = 86.44, M = 86.45). The second item—adjusting search terms—in which the control and intervention groups were significantly different on the posttest, is difficult to interpret without acknowledging that the control and intervention groups were at the outset significantly different on this item in the pretest.

As evinced in Table 1, students' research self-efficacy levels increased from the pretest to the posttest in all measures, regardless of control or intervention groups (total scores: pretest, N = 359, M = 739.64, SD = 140.67; posttest, N = 313, M = 795.88, SD = 134.57). Thus a final independent *t*-test was computed to determine if a statistically significant difference existed between all groups' pretest and posttest responses. As provided in Table 3, nine of the ten items, as well as the total score, were statistically significant (*p* < .05). This significance, however, should be considered alongside the corresponding effect sizes (Cohen's *d*), which ranged from negligible to small to moderate. When working with large sample sizes, such as in this current study

(N=359), it is often the effect sizes rather than the presence of statistical significance that relay the true magnitude of the difference between groups.

Discussion

This current research tested the null hypothesis that first-year students enrolled in FASTrack WRIT 101 courses who watched research struggle videos prior to in-person library instruction would report the same levels of research self-efficacy as students who did not watch the videos prior to in-person library instruction. As indicated in the results, the researcher failed to reject the null hypothesis. The probability was greater than .05 that the observed difference between means in the total score would have occurred by chance if the null hypothesis were true. Although it is not uncommon for controlled studies to yield insignificant results after comparing instructional approaches (Germain et al., 2000; Hess, 2014; Kaplowitz & Contini, 1998;Yong, Levy, & Lape, 2015), such outcomes should always be considered alongside effect sizes (e.g., Walton & Hepworth, 2012), as well as within the larger research framework. In this current study, the results can be evaluated within the specific context of a quasi-experimental design: namely,

did the approach itself limit the impact of the video series on students' research self-efficacy?

In order to preserve the integrity of the intervention, it was critical that students in the control group were not exposed to the videos. Therefore the videos were not posted on YouTube, the Learning Management System (LMS), or emailed directly to the intervention group. The only way to maintain complete control over which students were exposed to the videos was to have the faculty member play the videos during class time. This, however, was not ideal, and did not allow students the opportunity to engage individually with the videos. Students could not adjust the speed of the videos, or view again outside of that class period. Although the videos followed best practices in terms of pacing, content, and "look and feel" (Bowles-Terry, Hensley, & Hinchliffe, 2010, p. 26), there was limited authentic engagement between students and the video tutorials in the classroom. In addition, it is recommended that future research studies employ undergraduate students, rather than librarians, to serve as narrators in the video tutorials. This important distinction is based on the theoretical consideration that vicarious experiences are most effective when the model is similar to, rather than different from, the viewer (Bandura, 1997).

The timing of the video series in this current study is worth reconsideration. The intent behind providing video tutorials prior to the one-shot was that students who viewed the videos would be aware of potential roadblocks before they attended the one-shot. However, this approach most likely provided the video tutorials too early during the semester, during a time in which students had little to no context for understanding academic roadblocks. The videos may have also affected the level of engagement during the one-shot (i.e., did the videos prime or dissuade students from paying attention?). A more effective approach might have been to expose the intervention group to the videos after students gained hands-on

academic experience during the one-shot library session.

A third limitation was the creation and administration of the research self-efficacy scale. Although it is relatively common within library and information science literature (Mahmood, 2017) to develop in-house self-assessment instruments, attempts to establish psychometric properties should be made prior to administration. Although reliability and content and face validity were established for this current scale, it is highly recommended that future studies establish the instrument's construct validity prior to administration with additional populations. A related consideration was the timing of the research self-efficacy scale. As noted previously, students reported surprisingly high levels of confidence during the pretest. This phenomenon was most likely a manifestation of the Dunning-Kruger effect, which is essentially that "the skills that engender competence in a particular domain are often the very same skills necessary to evaluate competence in that domain" (Kruger & Dunning, 1999, p. 1121). Thus, first-year students' lack of experience with academic research skills also made them unable to accurately assess their own competence in that domain. This overconfidence effect is most prominent among low-performers (Guillory & Blankson, 2017; Kruger & Dunning, 1999; Miller & Geraci, 2011), although low-performing students who overestimate their abilities also have less confidence in reported self-assessments than high-performing students (Guillory & Blankson, 2017; Miller & Geraci, 2011). On the other hand, it is also important to recognize that students' posttest scores were higher than their initial pretest scores. This is an interesting observation given that self-assessments, including academic self-efficacy beliefs, tend to be more accurate when administered at the end of the semester rather than the beginning (Gore, 2006; Guillory & Blankson, 2017). In this particular study, it is possible that the posttest measure was a more reliable instrument of students' research self-

efficacy beliefs since it was administered later in the semester than the pretest, and after students had the opportunity to engage in academic research.

Although valuable to recognize the potential limitations of the current research design, it is equally sensible to acknowledge the outcome of this study: the struggle videos did not have a significant effect on students' research self-efficacy. Notwithstanding that, something did influence students' research self-efficacy as evidenced in the upward trend between the pretest and posttest results (Tables 1 and 3). Given the effect sizes and that a statistically significant difference was observed across all students, regardless of control or intervention group, it is likely that all participants were exposed to the same experience. A plausible explanation, although not necessarily the only one (i.e., maturation), is the impact of the one-shot instruction session that all students received. It is likely that the in-person instruction, not the presence or absence of the struggle videos, affected students' research self-efficacy during the semester.

Conclusion

The purpose of this research was to measure the impact of providing supplemental instructional content via struggle videos for first-year students. The outcome was that students who were exposed to the video series reported similar research self-efficacy as students who were not exposed to the video series. Although students' research self-efficacy scores increased overall from the pretest to the posttest, this current study was not investigating the impact of the in-person library instruction.

The quasi-experimental approach, although rigorous, presented particular challenges, especially in providing an authentic environment for students to engage with the video tutorials. It is recommended that subsequent research examine the impact of providing self-paced, or interactive, struggle

videos outside of the classroom environment. It is also important to recognize that the self-efficacy scale used in this study was created in-house. Future researchers are encouraged to evaluate the scale's construct validity prior to additional administrations. The limitations of this current study have been clearly delineated in the discussion for the benefit of researchers who, like our instruction librarians, are interested in more fully supporting students' research struggles.

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Appendix A
Pretest – Posttest Research Self-Efficacy Scale

This scale is designed to help us get a better understanding of the kinds of things that are difficult for students. Please rate how certain you are that you *can do* each of the things described below. Consider only what you think you can do *at this time* (not at some point in the future). Your answers are anonymous and confidential.

By continuing with this scale, you agree that you are 18 years of age or older.

Rate your degree of confidence by recording a number from 0 to 100 using the scale given below:

0	10	20	30	40	50	60	70	80	90	100
Cannot do at all					Moderately can do				Highly certain can do	

Confidence	(0-100)
Use Google.com to locate relevant sources for WRIT 101 class assignments	_____
Use the UM Library's website to locate relevant sources for WRIT 101 class assignments	_____
Adjust your search terms if the results from a search are not relevant or useful	_____
Evaluate whether a source agrees with your research argument	_____
Evaluate whether a source disagrees with your research argument	_____
Get yourself to continue looking for relevant sources when you can't seem to find what you need	_____
Get yourself to care about the quality of sources you use	_____

Keep from being frustrated when you can't find any sources related to your topic   _____

Get yourself to care about locating sources when you do not care about your   _____
assignment topic

Get yourself to care about source quality when your assignment is due tomorrow   _____

Today's Date _____ & Time _____