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Evaluating the Effectiveness of Dissertation Boot Camp Delivery Models

Abstract

Dissertation boot camp (DBC) programs have been adopted at many postsecondary institutions across North America over the last decade. Responding to Simpson's (2013) call for writing centers to do more than simply share anecdotal information about the effects of their DBC programs, the authors of this mixed-methods study assess the benefits of these programs for doctoral students. The study evaluates three DBC delivery models—online, sustained, and retreat—in order to determine each model's effect on doctoral students' writing behaviors, confidence levels, and anxiety. By conducting a more robust statistical analysis than has been possible in other preliminary work on DBC programming, the paper corroborates Busl, Donnelly, & Capdevielle's (2015) finding that "Writing Process" DBCs are more beneficial to doctoral students than "Just Write" DBCs. The authors ultimately find that doctoral students experience positive outcomes from all three DBC models and are likely to self-select based on the model that best suits their individual needs. The results of this study indicate that postsecondary institutions ought to consider offering a variety of DBC programming in order to meet the needs of diverse graduate-student populations.

In an increasingly competitive academic environment, individual universities have become more and more interested in, and at times concerned about, the productivity of their graduate students, and graduate students' time-to-completion rates in particular. Data collected from the Council of Graduate Schools' Ph.D. Completion Project suggest these institutions have good reason to be concerned since only 56% of PhD candidates "in the broad fields including engineering, social sciences, and humanities" complete their dissertations after ten years (Council of Graduate Schools, 2008). Since 2008, many universities across North America have begun to offer graduate students the opportunity to participate in writing camps. These writing camps are referred to as *dissertation boot camps* (DBCs) and are designed to help graduate-student writers who are stalled at the thesis- or dissertation-writing stage. DBCs often involve providing a workshop space on campus, so that, over the course of a week or more, students can dedicate full days to writing. They can support graduate students in working through some of the barriers or challenges previous research has demonstrated are common experiences: feelings of isolation (Thomas, Williams, & Case, 2014), especially after the communal and collaborative nature of course work, field work, and lab work (Simpson, 2013); "pluralistic ignorance" (Lovitts, 2001), or a writer's belief that they are the only graduate student to face challenges in completing the dissertation; a lack of strategies for completing the project (Micciche & Carr, 2011; Thomas, Williams & Case, 2014); writing anxiety (Thomas, Williams, & Case, 2014; Wynne, Guo, & Wang, 2014); and other barriers to progression such as writer's block, procrastination, and perfectionism (Thomas, Williams, & Case, 2014).

These problems were also felt on our campus. Although the University of Waterloo's overall combined completion rate for the 2003–2006 cohorts was nearly 78% and significantly higher than the Council of Graduate Schools' rate noted above, feedback from faculty and students suggested a need for targeted dissertation support. Recognizing and responding to this need, the Writing and Communication Centre at the University of Waterloo developed its first DBC program for fall 2015 with the goals of helping graduate students develop healthy, productive writing habits and of mitigating some of the isolation graduate students often feel at this stage.

Writing in the *Writing Lab Newsletter*, Sohui Lee and Chris Golde (2013) suggest dissertation boot camps can help graduate students complete their degrees in a timely manner. However, little research has been conducted to demonstrate the effect of this kind of programming, and as Steve Simpson (2013) explains, "Writing centers often [only] exchange boot camp information informally" (para. 34). Much of the information

describing DBC programming and its effects makes use of anecdotes rather than the replicable, aggregable, and data-supported (RAD) research scholars like Dana Driscoll and Sherry Wynn Perdue (2012) claim is missing from writing center research.

DBCs across North America, whether facilitated by a particular academic department, a writing center or learning commons, or a school of graduate studies, are often divided between just-write and writing-process models. DBCs facilitated by writing centers tend to follow the writing-process model and offer students skill-building workshops, individual writing consultations, and opportunities to reflect on their own writing process (Lee & Golde, 2013, p. 2). Gretchen Busl, Kara Lee Donnelly, and Matthew Capdevielle's (2015) study, which offers the most methodical and comprehensive analysis of DBCs thus far, suggests that those based on a writing-process model are more effective than just-write models. In fact, the authors argue that the process-focused workshops and programming that are part of these writing-process DBCs are "necessary to make significant changes in student attitudes and intended behaviors" ("Results and Data Analysis" section, para. 9) and that "camps will see greater results if students are asked to engage in specific self-regulatory and motivational techniques" ("Results and Data Analysis" section, para. 11).

The DBC program the Writing and Communication Centre began offering in fall 2015 is similar to programs offered by writing centers at other universities, follows the writing-process model, and was developed to meet several objectives based on barriers identified in research:

1. shorten degree completion times and increase completion rates;

2. provide a space for students to focus and offer strategies for overcoming critical barriers;

3. foster a community of writers;

4. empower writers to sustain their momentum by engaging them with their writing process and writing strategies and by connecting them with key resources.

After refining our DBC program based on participants' feedback over the course of the first year of programming, we set out to evaluate the effects of DBC programming for doctoral students. In the design of our formal research study, we sought to undertake a more robust quantitative study than had previously been attempted.[1] Our approach was inspired

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1   Like Busl, Connelly, & Capdevielle's work, our paper is based on a mixed-methods study. The comprehensive statistical analysis, including paired *t*-tests, that the current

by Simpson's (2013) observation that "writing center researchers and administrators would benefit from seeing different localized boot-camp models and more national data on boot camps' effectiveness" (para. 34). We sought to understand what components were essential for improving productive writing habits by comparing the effects of various delivery models for writing-process DBCs.

Results from informal pilot surveys of participants from several iterations of our traditional program throughout the 2015–2016 academic year suggested the program was meeting its short-term objectives, though we were unable to measure completion times and rates due to the short duration of the pilot and the multiyear nature of the projects. Further, the results corroborated Busl, Donnelly, & Capdevielle's (2015) conclusions, indicating that the program helped increase writer self-awareness and behavioral change. Participants indicated that they experienced reduced anxiety and procrastination, as well as increased confidence in their ability to complete the dissertation. Additionally, participants wrote more frequently after participating in the program. However, the surveys also indicated our DBC program had some limitations. Students experienced some challenges with the boot camp format. Despite requesting that students arrange to be away from lab duties and asking that they notify their supervisors, it was clear some participants found it difficult to be away from lab work for four consecutive days. Familial duties also sometimes interfered with attendance. An additional challenge, from our perspective, was locating appropriate programming space for a four-day boot camp. Because space is in high demand at the University of Waterloo, as at most universities, room availability and size affect both the number of students who can participate and the times of year the program can be offered.

In order to explore the effectiveness of alternative models for delivering boot camp programming, we offered three new program models over the 2016–2017 academic year, and we conducted a mixed-methods analysis of all three models that involved both quantitative surveys and focus groups with program participants. We label these models the *online model*, the *retreat model*, and the *sustained model*. These three models were designed to respond to some of the limitations we had observed in the traditional DBC program run during the 2015–2016 academic year while maintaining the core components of the program. To ensure programming consistency, all three models delivered the same workshops, created the same opportunities for participants to interact, and provided the same amount of dedicated writing time (See Appendices A, B, and C for sched-

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study provides, however, is not common in the previous qualitative or mixed-methods work on DBC outcomes.

ules for each model). The first of the three programs, offered in December 2016, was a model in which students "met" online at specific times over four days to take part in DBC workshops but completed the dedicated writing portions independently at whatever time of day best suited their schedules. The second model, offered over reading week, or spring break, in February 2017, was an intensive, four-day retreat in which participants were bussed from the University of Waterloo main campus in Waterloo, Ontario, to the Stratford satellite campus in Stratford, Ontario, and back each day (about 60 miles round trip). The third and final model was a sustained program in which graduate-student writers met for half a day every Monday morning for eight weeks between January and March 2017.

The intensive-retreat model of the program—which took place away from main campus—was designed to help legitimize students' absence from the lab and meetings and to prevent students from being called away from DBC in order to tend to these responsibilities. The online and sustained DBCs were designed to address graduate students' scheduling challenges by fitting more easily into students' routines rather than requiring students to put those schedules on hold for four full days. We hoped an effective online model could provide a flexible programming option that would serve a wider range of graduate-student writers—including students who do not live in the immediate area—and, because this model does not require a physical space, an increased total number of graduate-student writers. We believed a sustained model that only required participants to meet once a week instead of for four consecutive days would allow students who needed to attend to lab work, often on a strict schedule, to participate more easily. Although the Writing and Communication Centre traditionally offered separate, simultaneous DBC programs for master's and doctoral students, participation in the three models studied in this paper was restricted to doctoral students only to address the concerns identified in the literature.

We had three goals for all the participants in our DBC programming:

1. to experience decreased anxiety and increased confidence about writing their dissertation;

2. to increase the number of hours per week spent writing;

3. to use a wider range of writing strategies, such as freewriting, peer review, journaling, and goal setting.

The goals of studying the effects of these three DBC models were twofold:

1. to determine which practices measurably reduce students' anxiety and increase confidence about their ability to complete such a large writing task;

2. to determine which practices equip students with the sustainable, productive writing skills required to complete a thesis or dissertation in a timely manner.

Before beginning this study, we hypothesized that, because the structure of the sustained model more accurately reflected the consistent, sustainable writing habits all our boot camp programs try to encourage, this approach might promote more sustainable, long-term changes in participants' confidence and writing habits than those achieved through an intensive (i.e., online or retreat) program. We hoped the insights derived from this study would help inform decisions about how best to support graduate-student writers completing their theses/dissertations.

Part 1: Quantitative Examination of Perceptions Surrounding Different DBC Models

Methods

Structure.

Graduate students must apply to participate in these programs, and applicants are accepted based on their individual needs and the completeness of their applications. All DBCs, regardless of delivery model, offer the same 24 total hours of programming. Participants spend approximately 12 of these 24 hours actively writing. The remaining 12 hours are split between two types of activities: varied workshops (e.g., on goal setting, procrastination, peer review, and reflection) and social breaks and stretches. In the case of the retreat model, the program also includes time for travel to the Stratford campus.

Participants

Altogether, there were 49 participating PhD students across the three boot camp models—online DBC, retreat DBC, and sustained DBC—of whom 44 completed questionnaires.[2] In order to participate in one of the DBC models, PhD students who were at the writing stage of their dissertations (i.e., their research was completed or was close to

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2   The online DBC took place in December 2016, the sustained DBC took place from January to March 2017, and the retreat DBC took place in February 2017.

being completed) filled out an online application form and were vetted to participate in that DBC. See Table 1 for demographic information of participants across the three boot camps.

Table 1

Demographic Information of Study Participants

	Online DBC	Retreat DBC	Sustained DBC
Number of participants	15	15	14
Age, *M* (*SD*)	33.18 (6.45)	29.45 (2.84)	32.77 (4.48)
Year of PhD program, *M* (*SD*)	4.64 (0.92)	3.45 (1.29)	4.15 (1.72)
Discipline			
Social Science & Humanities	2	2	1
STEM	9	9	12
No answer	4	4	1
Gender			
Females	5	6	6
Males	6	5	7
No answer	4	4	1
First language			
English is first language	6	3	6
English is second language	5	7	7
No answer	4	5	1
Marital status			
Single	4	3	4
Married/common–law	7	8	9
No response	4	4	1
Children			
Have children	3	0	4
No children	8	11	9
No response	4	4	1

Measures

Participants completed a questionnaire that assessed their writing habits and perceptions, confidence, and anxiety surrounding dissertation writing. In addition to general items assessing these constructs, specific validated measures were also included to gain a greater understanding of participants' anxiety and confidence about dissertation writing.

Cognitive anxiety, somatic anxiety, and self-confidence. Items from the Revised Competitive State Anxiety-2 (CSAI-2R) (Cox, Martens, &

Russell, 2003), originally developed for sport, were adapted to assess participants' cognitive anxiety (four items), somatic anxiety (five items), and self-confidence (five items) in a dissertation context. The original CSAI-2R asks participants to respond to each statement based on how they feel in that moment. Each item is rated on a 4-point Likert scale ranging from 1 (*strongly disagree*) to 4 (*strongly agree*). To calculate the subscale scores, participants' responses on the corresponding items were added together and divided by the number of items comprising that subscale. Richard Cox, Matthew Martens, & William Russell (2003) reported the following acceptable internal consistency scores in the development of the CSAI-2R: .81 for the cognitive-anxiety subscale, .81 for the somatic-anxiety subscale, and .86 for the self-confidence subscale.

The Office of Research Ethics at the University of Waterloo approved this study. Graduate students who participated in each of the three DBCs completed an online survey at three time points: pre-DBC, post-DBC, and one-month post-DBC. These students used a link provided through a Google Drive created for their respective DBC (at the pre-DBC and post-DBC time points) or via an email link (at one-month post-DBC). The exact timing of the one-month post-DBC emails depended on when each boot camp model occurred. Each survey took approximately 15 minutes to complete.

Results

Overall Effects of Dissertation Boot Camp

Results of paired t-tests for each of the multi-item scales measuring cognitive anxiety, somatic anxiety, and self-confidence revealed significant differences between pre-DBC and post-DBC scores across all three DBC models. Participants reported lower levels of cognitive anxiety at post-DBC ($M = 2.17$, $SD = 0.60$) compared to pre-DBC ($M = 2.72$, $SD = 0.91$), $t(17) = -4.07$, $p < .01$. Participants also reported lower levels of somatic anxiety at post-DBC ($M = 2.11$, $SD = 0.64$) compared to pre-DBC ($M = 2.38$, $SD = 0.62$), $t(16) = -2.93$, $p < .05$. Finally, participants reported higher levels of confidence at post-DBC ($M = 3.12$, $SD = 0.58$) compared to pre-DBC ($M = 2.80$, $SD = 0.44$), $t(17) = 3.36$, $p < .01$. Paired t-tests calculated between post-DBC and one-month follow-up scores were nonsignificant for cognitive anxiety ($t(9) = 1.68$, $p = .13$), somatic anxiety ($t(8) = -0.69$, $p = .51$), and self-confidence ($t(9) = -0.26$, $p = .80$).

Individual Effects of Dissertation Boot Camp Models

A repeated-measures ANOVA using the three time points (pre-DBC, post-DBC, and one-month follow-up) was conducted to determine whether there were any differences in the changes in cognitive anxiety, somatic anxiety, and self-confidence scores across the three DBC models. The results of these analyses did not show any differences in the outcome variables across the DBC models: cognitive anxiety, $F(2,5) = 2.22$, $p = .21$; somatic anxiety, $F(2,4) = 2.67$, $p = .18$; and self-confidence, $F(2,5) = 4.06$, $p = .09$.

Productive Writing Habits

Paired t-tests conducted across all three DBC models revealed some significant differences between pre-DBC and post-DBC time points on a number of productive writing-habit variables. The number of hours per week participants spent working on their dissertations did not change significantly, $t(17) = -0.72$, $p = .48$, nor did the number of hours per day spent working on their dissertations, $t(17) = 1.79$, $p = .09$. However, the number of days per week participants spent working on their dissertations increased significantly from 3.67 ($SD = 1.41$) to 4.67 ($SD = 1.33$), $t(17) = 3.31$, $p < .01$. The frequency with which participants set goals before a writing session increased significantly from 2.89 ($SD = 1.13$) to 3.78 ($SD = 0.81$), $t(17) = 3.19$, $p < .01$. Finally, the degree of reported procrastination decreased significantly from 3.24 ($SD = .90$) to 2.53 ($SD = 1.18$), $t(16) = -2.63$, $p < .05$. Paired t-tests calculated between post-DBC and one-month follow-up scores were nonsignificant for hours spent writing per week ($t(9) = 1.56$, $p = .13$), days spent writing per week ($t(9) = 1.77$, $p = .11$), hours spent writing per day ($t(9) = 1.38$, $p = .20$), frequency of goal setting ($t(9) = -0.69$, $p = .51$), and degree of procrastination ($t(9) = 0.43$, $p = .68$).

Part 2: Qualitative Examination of Perceptions Surrounding Different DBC Models

Methods

Theoretical Assumptions

The qualitative portion of this study was conducted using a social constructionist approach, which posits that people create meaning and understanding from environmental social interactions (Crotty, 1998). We used focus groups as a way to elicit participants' socially constructed perceptions of their experiences in the different DBC models. According to Richard

Krueger & Mary Anne Casey (2009), focus groups can stimulate deeper conversations about a topic, which we felt was important to determine how different participants experienced each DBC model.

Participants and Procedure

Altogether, three focus groups were conducted, one for each DBC model. Four PhD students from the online DBC participated in an online focus group, which occurred in February 2017. Five PhD students from the retreat DBC participated in a focus group, which occurred in April 2017. Finally, three PhD students from the sustained DBC participated in a focus group, which occurred in May 2017. In addition to the three focus groups, one PhD student from the sustained DBC participated in an individual interview. This student wanted to contribute their experiences but was unable to attend the sustained DBC focus group.

Approximately five to six weeks after completing their respective DBC models, PhD students received an email invitation to attend a focus group to provide further insight into the perceived benefits, likes, and dislikes about the DBC model they attended. Two researchers moderated each of the focus groups: a first moderator (who holds a PhD in English and was the instructor for all three DBC models) ran the focus groups, and a second moderator (who holds a PhD in Kinesiology and has experience conducting focus groups) oversaw the focus groups, took notes, and clarified any questions or responses as necessary. The focus groups lasted 42 to 63 minutes, and the individual interview lasted 18 minutes. Guidelines put forth by Krueger and Casey (2009) aided the development of the semistructured interview guide.[3] During the focus groups, probing questions helped elicit more detail in participants' responses when necessary (Patton, 2002). At the end of the focus groups, participants received a verbal summary of their responses and had the opportunity to add or clarify any responses (Krueger & Casey, 2009).

Data Analysis

Focus groups and the individual interview were audiorecorded and transcribed verbatim. Confidentiality and anonymity were maintained by removing all identifying information from the transcripts and using pseudonyms in place of participants' real names. NVivo 11 (QSR International, 2015) was used to code the data. The second moderator coded the data using both inductive and deductive analysis techniques (Patton, 2002). While the focus-group questions guided the themes, the second moderator noted any responses representative of new themes or

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3   Please contact the authors for a copy of the interview guide.

responses to questions that could be coded under a different theme. Once all transcripts were coded, the first moderator then checked the second moderator's coding, and any disagreements were discussed until consensus was reached. Both moderators used reflexive self-awareness to alleviate researcher bias and to determine whether different interpretations of the data were possible (Sparkes & Smith, 2014).

Results

Expectations before Starting DBC

Participants' expectations were similar across the three DBC models. Many participants echoed Afia (retreat DBC), who was expecting the DBC to help "kick start [them] into writing [their] dissertation," or with John (online DBC), who hoped to "develop a long-term writing strategy that [they] could use on a daily basis." In addition to expectations surrounding writing strategies, some participants also expected the DBC to focus on writing mechanics and structure. For example, Qiang (retreat DBC) said, "I thought there would be a lot of workshops that teach participants how to write better." Some unique expectations that emerged included "get[ting] the chance to explore the city like . . . the others did" (Sheena, retreat DBC) and "form[ing] our own writing group" (Mark, sustained DBC).

Outcomes of the DBCs

Participants reported a number of the same positive outcomes following their DBC experiences, regardless of the model. One such outcome was that participants' work habits and writing habits improved after participating in the DBC: "Now I make sure I'm at the school around quarter to nine . . . the mornings I figure[d] out are more efficient for me" (Afia, retreat DBC). Similarly, Emine (sustained DBC) noted, "This [DBC] helped us to [gain a] habit of doing things whenever we like to do . . . people who are used to work[ing] at night could apply the process [Pomodoro technique] that we learned at night." Another outcome shared across DBC groups was the application of the Pomodoro technique (i.e., a time-management technique used to achieve writing objectives) (Cirillo, 2007) to other aspects of participants' lives. For example, Mansur (online DBC) said, "I am sort of applying [the Pomodoro technique] to playing with my son as well. That 25 minute rule can manage your life efficiently." Similarly, Hanna (sustained DBC) said, "Using the Pomodoro method really was something that I could transfer to, not only my thesis, but other work."

Other outcomes were unique to the individual DBC models. For example, the intensive nature of the retreat DBC forced participants to write and accomplish their goals at the end of the four days. According to Sheena (retreat DBC), "My souvenir was finishing the chapter." While participants in the sustained DBC also achieved their objectives for the DBC, they felt their goals were more significant due to the extended nature of the sustained DBC model. "It's the whole term where you're committing to doing something. So, it's like those goals are more reasonable when you have that much time" (Oliver, sustained DBC).

Positive aspects of the DBC

Participants enjoyed the overall programming of the DBC: "I think . . . the structure of the boot camp is pretty [good], some [sessions] have [a] workshop and some have self-writing . . . and Sheena also mentioned about the cooperation among peers" (Xue, retreat DBC). Participants across all groups also reported enjoying the various strategies taught as part of the DBC programming, including setting goals, journaling, avoiding procrastination, using the Pomodoro technique, freewriting, stretching, and peer reviewing.

In addition to the various strategies learned, participants reported liking aspects unique to their respective DBC models. For example, Sheena liked how the retreat DBC felt like "an academic vacation" and it provided a "space away from campus." Similarly, Tyler felt that the four-day intensive structure of the retreat DBC created a tight-knit community within the group and reported that after the DBC ended, participants continued by holding their own day-long writing sessions, "having met people that we've, you know, sort of together jointly realized what the value of the boot camp can be if you sorta keep it going." Similarly, some participants self-selected the online DBC because they were not located in close proximity to the main campus: "I don't think I would have been able to ever attend a boot camp if it hadn't been offered online" (Alice, online DBC). The online DBC differed slightly in that the instructor prerecorded some programming and delivered other programming live through the online platform (in contrast to delivering all programming live in person for the retreat and sustained models). Alice indicated a preference for the instructor "speaking to us over the recordings" instead of participants "just going through the slides ourselves." Participants in the sustained DBC reported that the eight-week format was "really important because every week you have a check-in of, 'Where am I at? What do I need to do this week?'" (Hanna, sustained DBC). They also reported that "this extended program works well for people [like us] who are into schedules and deadlines because you are working for a long period of time" (Oliver).

Negative aspects of the DBC

Across the three DBC models, participants reported not enjoying certain writing strategies and activities compared to other ones. For example, participants disliked the peer-review activity: "I didn't really find it [peer review] helpful. . . . I didn't have an almost done or reviewable piece of work that I would have benefitted from" (Tyler, retreat DBC). Other activities noted as less enjoyable included ice-breaker/networking activities. As Emine (sustained DBC) noted, "I didn't find a use of it. . . . We weren't really interacting with each other, and we were just coming for three hours and we were leaving." Other strategies mentioned as not enjoyable included the inkshedding activities (i.e., freewriting in a peer-response format; Hunt, 1999), stretching breaks, and the use of pre-recorded presentations.

Participants made different comments pertaining to negative aspects surrounding the format of the various DBC models. For example, Xue (retreat DBC) disliked having to get up early to catch the bus every morning: "The time is early for me because I sleep late in the evening and get up late . . . the first day I feel really tired." In addition, Haluk (online DBC) found it difficult to prioritize his writing and found himself getting distracted by his other duties: "Whenever there was something important in the lab, that would take my priority because I was in my office and they [lab mates] were downstairs . . . it would make more sense saying no if I was at a different location."

Ideal DBC

When asked about their ideal DBC, participants largely favoured the DBC model in which they participated. A trend noted across two of the DBC models was the desire for more writing time and for the program to run longer. For example, Tyler (retreat DBC) said, "More pom[odoro] time will be great. I imagine getting up to 8 or 10 poms a day." Hanna (sustained DBC) wished her DBC was run for the entire term: "I think it would be great if it [DBC] could go the full term . . . that's how our academic world works . . . people tend to have more time [in the last month of the term] with the class schedule being complete."

After learning about the two other DBC models that occurred in addition to the one they participated in, some participants wanted the option to combine the retreat (intensive) DBC and the sustained DBC to continue developing their writing habits. "I feel like maybe we could do the four days first and in the following eight weeks, one day in each week" (Xue, online DBC). In addition, participants discussed how each model would benefit different students depending on various life circumstances, personal preferences, or stage of dissertation writing. Participants

also commented on how they self-selected for a particular DBC style for similar reasons. For example, "The reason I went with online because of practical location . . . I need to pick up my son and pick up my wife from work. . . . It made the online version much more optimized for my life" (Mansur, online DBC). In contrast, Oliver (sustained DBC) said, "Personally, I would never do the online one [DBC]. . . . But I agree that there's a certain type of person that needs to be online. They're busy and they working . . . they have to do that." Concerning the utility of the intensive, four-day retreat DBC, Hanna said, "It depends on the type of person you are and what your work habits are. If you're someone who doesn't work on your thesis for a couple months and then all of a sudden decided that this is the week, that works really well. . . . For me, I don't think it would be my best working situation." In contrast to Hanna, Tyler felt the retreat DBC was a great opportunity to "kick-start [his motivation] and give you a good set of tools." In addition, Tyler said physically leaving campus forces doctoral students to focus on writing their dissertations because "even if you had looming meetings you could make or assignments you should've gotten to, there was no way [you could go or do them] so that just took that load off of your mind . . . without any other distractions."

Discussion

The goals we set out to achieve through this study of three models for delivering DBC programming were twofold. First, we hoped to add to the emerging body of literature that demonstrates the positive effects of writing-process DBCs on graduate students' anxiety levels, confidence in the ability to complete the dissertation, and the development of productive, sustainable writing habits. Second, we hoped to demonstrate which program delivery model offers the most benefit to students.

Productive, Sustainable Writing Habits

The statistical data from survey participants indicate students in all three models did indeed experience reductions in anxiety levels and increased confidence. These results suggest DBC programs are beneficial to doctoral students' well-being and can help students to achieve their writing goals. Contrary to our expectations, however, the data do not support the use of DBCs as a mechanism for encouraging students to write more frequently or for shorter periods. Although students achieved their writing goals and reported being more disciplined and motivated to write, none of the three DBC delivery models resulted in significant changes in students' writing behaviors in terms of the number of writing days each week or the number of hours students wrote each day. This finding may be

due to participants only reporting the number of days per week and hours per day spent writing for the dissertation. If the students had commented on the perceived quality of their writing sessions, differential effects of the different DBC models may have been noted. This unexpected result reflects a significant way writing studies scholarship is beginning, and must continue, to reconceptualize productive writing habits and the behaviors and programs that support them.

The programming of all three DBC delivery models was based on the productive writing principles espoused by scholars such as Robert Boice (1990) and Paul Silvia (2007), who advocate a writing practice that consists of short, frequent, and consistently scheduled writing sessions, along with clear, specific writing goals. However, there has recently been a shift in the writing-habit literature from writing consistently every day to choosing an individualized approach. In her book *Air & Light & Time & Space: How Successful Academics Write*, Helen Sword (2017) reveals that, out of the successful academics she interviewed, only "13 percent" of her interview subjects "reported that they systematically schedule daily writing time throughout the academic year" (p. 15). Rather than prescribing a one-size-fits-all approach to productive academic writing, Sword espouses a writing practice that consists of "experimentation, empowerment, and choice" (p. 4). She posits that there are many types of successful writing practices, including the "binges that leave you feeling burned out on writing" that Boice (1990) encourages academics to resist (p. 77). As an alternative to the common advice to schedule frequent, short writing sessions, Sword's (2017) proposal involves a four-dimensional approach to writing that she conceptualizes as the "House of Writing" (p. 5). The "BASE habits," or foundation for this house, consist of factors that "anchor" a writing practice: behavioral habits, artisanal habits, social habits, and emotional habits (p. 5). Individual writers, Sword argues, may have preferences for, or more fully developed strengths in, one pillar of the base than others, but all these habits can be learned and strengthened. The quantitative and qualitative results of our study align with Sword's more comprehensive approach to the range of behaviors, skills, and beliefs she found among successful academic writers.

DBC Models

Results of the quantitative-data analysis showed that regardless of the DBC model, students reported lower levels of anxiety and higher levels of confidence after completing the DBC compared to immediately prior. This finding is similar to what was reported by Busl, Donnelly, & Capdevielle (2015). Anxiety levels and confidence levels were sustained one month after the DBC ended. To our knowledge, there is currently no

published account of *long-term* DBC outcomes, specifically surrounding students' anxiety and confidence in their writing abilities. Lee and Golde (2013) reported that graduate students felt that their writing skills and behaviors were impacted positively six months after participating in a DBC. However, these results did not specify which types of behaviors students were considering in their responses. While our results seem to support other published accounts regarding the lasting effects of participating in a DBC, only a small number of participants responded to the one-month follow-up survey. Thus, these results should be interpreted with caution, as the small response rate limited the power of the analyses and subsequently the generalizability of the results.

Although all three DBCs resulted in improved confidence and decreased anxiety for students, no particular DBC delivery model was more effective at achieving these results than another. When levels of anxiety and confidence before and after a DBC were compared, no significant differences were noted across the three DBC models. This finding is similar to other DBC literature: doctoral students want to attend DBCs and experience benefits across many different models (e.g., retreat, course based, weekend, one week, or two weeks) (Mastroieni & Cheung, 2011). That there was no significant difference in participants' rates of anxiety reduction or confidence growth among the three different DBC models suggests graduate students' attraction to various DBC delivery models is as individualized as students' approaches to writing. We suggest that when given the option, students might "self-select" the DBC model that best suits their preferences, personal situations, and current needs.

The qualitative data show some students benefitted, or at least perceived a benefit, from participating in a DBC program, and the comments from individual focus-group participants may help explain why participants found the three different DBC models equally helpful. Additionally, several participants revealed they had applied to participate in their DBC model of choice specifically because of the way it was delivered: either because its scheduling structure worked around barriers to participation in our "traditional" DBC program, such as full-time employment, geographical distance, or child-care duties, or because the structure fit their work habits. These comments, in combination with the statistical data from survey participants, suggest many students self-selected based on the DBC model they perceived to best meet their individual needs.

Some students would have preferred to participate in an intensive-retreat-style model but participated in a sustained or online model out of logistical necessity. The fact that these participants were mostly focused on limitations of the program that can be attributed to the delivery mode supports our self-selection theory. For example, the comments of Haluk,

who found it difficult to prioritize his writing in an online DBC format because his lab duties kept interfering, suggest some students need to leave campus in order to write productively. Other students in other DBC delivery models were able to write productively but were disappointed when their experiences in one delivery model were less social than colleagues' experiences in other delivery models. While Tyler felt that the four-day intensive structure of the retreat DBC created a tight-knit community participants maintained after the DBC ended, Emine's comment about not finding much utility in the ice-breaker activity at the beginning of the sustained DBC highlights the lack of community building that took place within the latter model. Other participants in the sustained model, however, pointed out that socialization and community building were not their primary reasons for applying to participate in a DBC program.

Focus group participants' other likes and dislikes about program elements (e.g., the daily stretching breaks) did not fall into easily discernible patterns that can help inform decisions about what program elements to eliminate or refine. This lack of consensus suggests that, like the delivery models themselves, the value participants derive from some of these other elements of DBC programming are in part a result of personal preference and individual need.

Overall, both our qualitative and quantitative data indicate there is no DBC delivery model that works best for all, or even most, doctoral students. Rather than valorizing one DBC model over the others, our Writing and Communication Centre, and perhaps other institutions that offer DBC programming, ought to offer several different DBC options in order to meet the differing needs and habits of doctoral students, who are likely to self-select.

Conclusion

The evidence suggests doctoral students do benefit from participating in DBC programming; participants in these programs experience reductions in anxiety and increased confidence levels that may help students complete dissertations successfully. Although the role of DBCs in shaping attitudes about dissertation writing is significant, contrary to much of the literature and advice about productive, sustainable writing habits, our qualitative and quantitative data suggest these programs might not radically transform students' writing behaviors. While our research attempted to identify which components of writing-process boot camps created the greatest positive effect for students, we discovered instead that diverse program models best meet a diverse range of student needs. Doctoral students have multiple demands on their time, professionally and personally,

and if writing centers can offer flexible and frequent programming, more students will benefit. It appears that, regardless of the DBC model, this kind of writing-process programming works for graduate students because it offers them the opportunity to reflect on their own writing practices as well as to learn and apply writing strategies.

This study and its results have raised several questions that will require additional research to answer. The first, most important question is whether DBC programming achieves its primary goals of helping to shorten graduate students' completion times and increase completion rates. In our study, regardless of which of the three models of boot camps that students selected to participate in, students reported decreased anxiety and increased confidence. The degree to which these positive effects are sustained over time, as well as the long-term impact of such effects on students' activities and progress, were beyond the scope of this study. And, while completion times and rates are often cited as a motivation for the introduction of dissertation boot camp programs, to our knowledge no studies have directly measured boot camps' role in improving degree-completion numbers. These gaps offer directions for further research. Busl, Donnelly, & Capdevielle (2015) report that positive impacts related to anxiety and confidence appeared to decline over time, and the authors suggest there are opportunities to offer programs that extend from an intensive boot camp experience. This suggestion is bolstered by our own boot camp participants, some of whom articulated that they would have liked to experience the benefits of the intensive and the sustained models in combination. There is an opportunity to explore ways to link boot camp programming with long-term writing and research support, such as writing groups. Theoretically, such programs would support students' momentum and connect them to a community of writers, helping to counter the "pluralistic isolation" described by Barbara Lovitts (2001).

A second, corollary question that must be addressed concerns not the number of days or hours graduate students spend writing after participating in DBCs but rather how productive those hours spent writing are. Although we did not see significant changes to the writing schedules of DBC participants in this study, we do not yet know whether students who participate in a DBC use their writing time more efficiently or become more focused writers. In order to answer this question, we must determine methods for assessing graduate students' perceptions of the quality of their writing time. While Sword (2017) has widened the range of possibilities for what a successful academic writing practice can look like, we must not take for granted that these practices work for graduate students in the same ways they do for faculty.

Acknowledgments

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Appendix A: Program schedule for Retreat DBC model

Tuesday, February 21st, 2017

Time	Activity
8:00am–9:00am	Travel by bus to Stratford campus
9:00am–9:45am	Orientation: • Introductions • Overview of the program • Ice breakers • Research survey
9:45am–10:15am	Workshop: goal setting I
10:15am–10:30am	Break
10:30am–10:50am	Workshop: introduction to the Pomodoro method
10:50am– 11:55am	**Write!** (2 Pomodoros x 30 min. each)
LUNCH BREAK	
1:00pm–2:00pm	**Write!** (2 Pomodoros x 30 min. each)
2:00pm–2:15pm	Break
2:15pm–2:25pm	Stretching
2:25pm–3:30pm	**Write!** (2 Pomodoros x 30 min.)
3:30pm– 4:00pm	End of Day reflection
4:00pm–5:00pm	Return to Waterloo campus by bus

Wednesday, February 22nd, 2017

Time	Activity
8:00am–9:00am	Travel by bus to Stratford campus
9:00am–9:30am	Morning goal setting
9:30am–10:00am	Workshop: avoiding procrastination I: technology tips
10:00am–10:30am	**Write!** (1 Pomodoro x 30 min.)

10:30am–10:45am	Break
10:45am–11:20am	**Write!** (1 Pomodoro x 30 min.)
11:20am–12:00pm	Workshop: peer review I
LUNCH BREAK	
1:00pm–2:40pm	**Write!** (3 Pomodoros x 30 min. each)
2:40pm–2:55pm	Break
2:55pm–3:05pm	Stretching
3:05pm–3:40pm	**Write!** (1 Pomodoro x 30 min.)
3:40pm–4:00pm	End of day reflection
4:00pm–5:00pm	Return to Waterloo campus by bus

Thursday, February 23rd, 2017

Time	Activity
8:00am–9:00pm	Travel by bus to Stratford campus
9:00am–9:30am	Morning goal setting
9:30am– 10:35am	**Write!** (2 Pomodoros x 30 min. each)
10:35am–10:50am	Break
10:50am–11:35am	Workshop: avoiding procrastination II: strategies for sustainable writing
11:35am–12:05pm	**Write!** (1 Pomodoro x 30 min.)
LUNCH BREAK	
1:00pm–2:40pm	**Write!** (3 Pomodoros x 30 min. each)
2:40pm–2:55pm	Break
2:55pm–3:05pm	Stretching
3:05pm–3:35pm	**Write!** (1 Pomodoro x 30 min.)
3:40pm–4:00pm	End of day reflection
4:00pm–5:00pm	Return to Waterloo campus by bus

Friday, February 24th, 2017

Time	Activity

8:00am–9:00am	Travel by bus to Stratford campus
9:00am–9:30am	Morning goal setting
9:30am– 10:35am	**Write!** (2 Pomodoros x 30 min. each)
10:35am–10:50am	Break
10:50am–10:55am	Stretching
10:55am–11:30am	**Write!** (1 Pomodoro x 30 min.)
11:30–12:00pm	Workshop: peer review II
GROUP LUNCH	
1:00pm– 1:45pm	Workshop: goal setting II – project management
1:45pm–3:25pm	**Write!** (3 Pomodoros x 30 min. each)
3:25pm–3:35pm	Break
3:40pm–4:00pm	Wrap up: End of day reflection, research survey
4:00pm–5:00pm	Return to Waterloo campus by bus

Appendix B: Program schedule for Sustained DBC model

Week 1: Monday, January 16th, 2017

Time	Activity
9:00am–9:45am	Orientation: • Introductions • Overview of the program • Ice breakers • Research survey
9:45am–10:15am	Workshop: goal setting I
10:15am–10:30am	Break
10:30am–10:50am	Workshop: introduction to the Pomodoro method
10:50am– 11:55am	**Write!** (2 Pomodoros x 30 min. each)

Week 2: Monday, January 23rd, 2017

Time	Activity
9:00am–9:30am	Morning goal setting
9:30am–10:30am	**Write!** (2 Pomodoros x 30 min.)
10:30am–10:45am	Break
10:45am–11:15am	Workshop: avoiding procrastination I: technology tips
11:15am–11:45am	**Write!** (1 Pomodoro x 30 min.)
11:45am–12:00pm	End of day reflection

Week 3: Monday, January 30th, 2017

Time	Activity
9:00am–9:20am	Morning goal setting
9:20am–10:20am	**Write!** (2 Pomodoros x 30 min.)
10:20am–10:35am	Break
10:35am–10:45am	Stretches for writers
10:45am–11:20am	**Write!** (1 Pomodoro x 30 min.)

11:20am–12:00pm	Workshop: peer review I

Week 4: Monday, February 6th, 2017

9:00am–9:20am	Morning goal setting
9:20am–10:20am	**Write!** (2 Pomodoros x 30 min.)
10:20am–10:35am	Break
10:35am–11:20am	Workshop: avoiding procrastination II: strategies for sustainable writing
11:20am–11:50am	**Write!** (1 Pomodoro x 30 min.)
11:50am–12:00pm	End of day reflection

Week 5: Monday, February 13th, 2017

Time	Activity
9:00am–9:20am	Morning goal setting
9:20am– 10:20am	**Write!** (2 Pomodoros x 30 min. each)
10:20am–10:35am	Break
10:35am–10:45am	Stretches for writers
10:45am–11:45am	**Write!** (2 Pomodoros x 30 min.)
11:45am–12:00pm	End of day reflection

Week 6: Monday, February 27th, 2017

9:00am–9:20pm	Morning goal setting
9:20am–10:20am	**Write!** (2 Pomodoros x 30 min.)
10:20am–10:30am	Break
10:30am–11:15am	Workshop: peer review II
11:15am–11:45am	**Write!** (1 Pomodoro x 30 min.)
11:45am–12:00pm	End of day reflection

Week 7: Monday, March 6th, 2017

Time	Activity
9:00am–9:20am	Morning goal setting
9:20am– 10:20am	**Write!** (2 Pomodoros x 30 min. each)

10:20am–10:35am	Break
10:35am–12:00pm	Group brunch

Week 8: Monday, March 13th, 2017

9:00am–9:50am	Workshop: goal setting II: project management
9:50am–10:05am	Break
10:05am–11:35am	**Write!** (3 Pomodoros x 30 min.)
11:35am–12:00pm	Wrap up: End of day reflection Research survey

Appendix C: Program schedule for Online DBC model

Monday, December 19th, 2016

Time	Activity	Platform
9:00am–9:45am	Orientation: • Introductions • Research survey • Sign up for a consultation (optional)	Pre-recorded greeting; Padlet Bulletin board; SurveyMonkey link
9:45am–10:15am	Workshop: goal setting I	Online Room
10:15am–10:30am	Break	
10:30am–10:50am	Workshop: introduction to the Pomodoro method	Online Room
10:50am– 11:55am	**Write!** (2 Pomodoros x 30 min. each)	Independent work (use an online Pomodoro timer)
LUNCH BREAK		
12:55pm–2:00pm	**Write!** (2 Pomodoros x 30 min. each)	Independent work
2:00pm–2:15pm	Break	
2:15pm–2:25pm	Stretching	Pre-recorded video on LEARN
2:25pm–3:30pm	**Write!** (2 Pomodoros x 30 min.)	Independent work
3:30pm– 4:00pm	End of Day reflection	PDF instructions, Word worksheet, daily prompt

Tuesday, December 20th, 2016

Time	Activity	Platform
9:00am–9:30am	Morning goal setting	Padlet bulletin board

Time	Activity	Platform
9:30am–10:00am	Workshop: avoiding procrastination I: technology tips	Audio message and PDF tips sheet
10:00am–10:30am	**Write!** (1 Pomodoro x 30 min.)	Independent work
10:30am–10:45am	Break	
10:45am–11:20am	**Write!** (1 Pomodoro x 30 min.)	Independent work
11:20am–12:00pm	Workshop: peer review I	Discussions Forum
LUNCH BREAK		
1:00pm–2:40pm	**Write!** (3 Pomodoros x 30 min. each)	Independent work
2:40pm–2:55pm	Break	
2:55pm–3:05pm	Stretching	Pre-recorded video on LEARN
3:05pm–3:40pm	**Write!** (1 Pomodoro x 30 min.)	Independent work
3:40pm–4:00pm	End of day reflection	PDF instructions, word worksheet, daily prompt

Wednesday, December 21st, 2016

Time	Activity	Platform
9:00am–9:30am	Morning goal setting	Padlet bulletin board
9:30am– 10:35am	**Write!** (2 Pomodoros x 30 min. each)	Independent work
10:35am–10:50am	Break	
10:50am–11:35am	Workshop: avoiding procrastination II: strategies for sustain-able writing	Online Room
11:35am–12:05pm	**Write!** (1 Pomodoro x 30 min.)	Independent work
LUNCH BREAK		

1:00pm–2:40pm	**Write!** (3 Pomodoros x 30 min. each)	Independent work
2:40pm–2:55pm	Break	
2:55pm–3:05pm	Stretching	Pre-recorded video on LEARN
3:05pm–3:35pm	**Write!** (1 Pomodoro x 30 min.)	Independent work
3:40pm–4:00pm	End of day reflection	PDF instructions, Word worksheet, daily prompt

Thursday, December 22nd, 2016

Time	Activity	Platform
9:00am–9:30am	Morning goal setting	Padlet Bulletin board
9:30am– 10:35am	**Write!** (2 Pomodoros x 30 min. each)	Independent work
10:35am–10:50am	Break	
10:50am–10:55am	Stretching	Pre-recorded video on LEARN
10:55am–11:30am	**Write!** (1 Pomodoro x 30 min.)	Independent work
11:30–12:00pm	Workshop: peer review II	Discussion Forums
LUNCH BREAK		
1:00pm– 1:45pm	Workshop: goal setting II – project management	Audio instructions and Word worksheet
1:45pm–3:25pm	**Write!** (3 Pomodoros x 30 min. each)	Independent work
3:25pm–3:35pm	Break	
3:40pm–4:00pm	Wrap up: End of day reflection, research survey	PDF instructions, Word worksheet, daily prompt; SurveyMonkey link

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