CHAPTER 13

THE RHETORIC OF DISTRACTION: MEDIA USE AND THE STUDENT WRITING PROCESS

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One often-heard concern that has gained a great deal of traction over the past decade by journalists and teachers alike is that our 21ˢᵗ century students, so-called "digital natives," are increasingly distracted by portable media technologies. It seems as though popular media reports almost daily about the implication of our distracted lives, from a lack of social connections to decreased productivity. This rhetoric of distraction frequently posits tech-savvy millennials as mindless media-consumers—unable to unplug or power down.[1,2] Books like Mark Bauerlein's *The Dumbest Generation* (2009), Nicholas Carr's *The Shallows* (2011), and Sherry Turkle's *Alone Together* (2012) warn of the negative effects of a digital world on our students' social lives as well as on their ability to read comprehensively and think critically—two skills necessary to the composing process of any strong writer. Despite the popularity of these claims, there have been no empirical studies that show a negative correlation between both social and general media use and students' writing performance.

Why is it important to complicate the rhetoric of distraction? For one, educators across the country are paying attention to these reports. Many, as both Michael J. Faris and Lilian W. Mina show in subsequent chapters, take advantage of social media as a pedagogical tool critical to the development of student writers in a digital world. Others, influenced by what Chris M. Anson referred to as "concerns about the fragmentation of attention," may banish the use of social media and portable technologies in the classroom altogether. Yet there has been little research on how the writing process has been altered or adapted

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1   The rhetoric of distraction is a term I devised to describe public discourse via mass media regarding the current generation's inability to pay attention as a result of advancements in portable technology.

2   The generation dubbed millennials refers to today's "teens and twenty-somethings," according to the Pew Research Foundation's extensive research, which may be found here: http://www.pewresearch.org/millennials/.

as a result of negotiating such accessible and portable media technology. In this chapter, I share the results of a survey and quasi-experiment that explored the impact of media use on student writing. Student participants in the study did not consistently perform worse on writing tasks when distracted by portable media technology. The variability in performance and complexities in media use suggest that twenty-first-century students may have a much more complicated relationship with media multitasking than the narrative of distraction suggests. The design and subsequent findings of this study will, I hope, encourage several future empirical studies examining media use and student writing.

RELEVANT RESEARCH

We know from a long history of research on cognition and writing that writing is a complex cognitive act of problem-solving involving several mental processes and sub-processes within working memory (Alamargot & Fayol, 2006; Bereiter & Scardamalia, 1987; Berninger & Swanson, 1994; Britton, 1978; Flower & Hayes, 1981; Hayes, 1996, 2006, 2012). Writing is particularly challenging because research on information processing (Rohrer & Pashlar, 2003; Ruthruff & Klaassen, 2001; Ruthruff & Pashlar, 2010) shows that individuals can only hold a certain amount of information within working memory before experiencing cognitive overload. Therefore, it is not surprising that recent studies on media multitasking (Bowman, Levine, Waite, & Gendron, 2010; Jeong & Fishbein, 2007; Levine, Waite, & Bowman, 2007; Lin & Lee, 2009; Ophir, Nass, & Wagner, 2010) indicate that we do not have the cognitive ability to multitask more than one medium at a time, which writing with media distractions requires.

It is understandable, then, why writing instructors would be concerned about students multitasking with social media while writing based on the current research on multitasking during academic tasks. Helene Hembrooke and Geri Gay (2003) and Yvonne Ellis, Bobbie Daniels, and Andres Jauregi (2010) found that students who multitasked during lectures suffered on traditional memory tests and performed significantly lower on exam scores than non-multitasking students. Ulla G. Foehr (2006) suggested multitasking might have an impact on one's ability to comprehend content (p. 2). Laura E. Levine, Bradley M. Waite, and Laura L. Bowman (2007) also found that chronic IMing (instant messaging) was positively related to higher ratings of distractibility for academic tasks. Another study comparing reading comprehension while multitasking among expert and novice readers found that both expert and novice student performance decreased while reading with a video game playing in the background (Lin, Robertson, & Lee, 2009). In a follow-up study, Bowman, Levine, Waite, and Michael Gendron (2010) also found that although test performance did not suffer, students who IMed while

reading took significantly longer to read passages. These studies indicate that media multitasking increases student distractibility and time on task, and inhibits a student's ability to comprehend content. These studies look at reading performance and overall academic performance; however, there have been no studies that look specifically at the impact of media distractions on the quality of student writing produced while distracted by social media or technology in general.

RESEARCH DESIGN

To investigate the relationship between media use and writing specifically, I designed a two-part study that included a Media Multitasking Survey (MMS) and a quasi-experimental study of ten traditional college-level student participants. The MMS was adapted from a Stanford University study to include domain-specific questions that measure day-to-day media multitasking and media multitasking while writing academic texts.[1] The survey provided a general picture of the media multitasking habits of college-level students while writing academic texts, but did not provide a holistic picture of student writing behavior. To augment the survey, I collected qualitative data in the form of ten participant case studies that included interviews, writing samples, and observations to illustrate how media distractions impact the writing process and product.

First, I conducted a pre-experiment interview with each participant, ranging from approximately 20 to 40 minutes in length. The pre-experiment interview asked participants to reflect on their writing literacy (how they learned to write), their technology history (access to technology in school and home), and current relationship with media technologies (e.g., television, music, phone, and social media). Each participant also completed a form indicating the kinds of music they typically listen to while writing academic texts. From this information, I created a custom playlist for each individual participant on iTunes. Music genres ranged from country to hip-hop to modern folk music. To ensure music would provide a distraction, I also included one unfamiliar song with lyrics on each participant playlist; these songs were purposely selected from a genre vastly different than the participant's typical music.

After completing the initial interview, each participant was asked to compose an essay in response to a written prompt on a MacBook Pro laptop in an observation room on four separate occasions (what I refer to as writing modules). Each writing module was restricted to 45 minutes in length and asked participants to respond to one of four different prompts in writing while negotiating

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1   The Media Multitasking Survey was adapted from Ophir et al.'s (2010) study, "Cognitive Control in Media Multitaskers."

various media multitasking conditions. For example, during one module, participants responded to a written prompt while listening to familiar music with lyrics from their customized playlist (Conditions B). During a different module, participants responded to a new written prompt on my laptop while listening to familiar music with lyrics and responding to text messages that I sent every ten minutes (Conditions C). In the most extreme module, participants responded to a written prompt on my laptop while listening to familiar music with lyrics, responding to texts every ten minutes, and checking Facebook every fifteen minutes (Conditions D). I chose these three media variables for two reasons: 1) based on interviews, these are the kinds of media distractions participants typically engage with while writing and 2) each kind of media (audible music, texting, and Facebook) require a different form of engagement (e.g., responding to a question through text versus scrolling through a Facebook newsfeed). In addition to the three modules that included some form of media distraction, one module asked participants to write under no conditions, or in silence (Conditions A). This module served as a baseline for each participant; the writing produced under various media conditions could be compared to the writing produced under no conditions.

Each participant had an individualized combination of conditions and writing prompts. No two participants responded to the same prompts in the same order, nor did they write under the same conditions in the same order. Additionally, four different writing prompts were used to avoid practice effects, or the ability to perform a task more proficiently simply by repeating the same task. If participants responded to the same prompt in all four events, the participant would naturally produce stronger writing and/or erase any discernable impact of media use. For the same reason, the conditions were randomized. Simply adding one more stimulus during each event, in chronological order, may minimize impact.

The writing prompts were designed to emulate first-year writing placement exam prompts.[2] I chose placement exam prompts because they ask students to perform the same kind of thinking across each module (e.g., choose a side in a debate and write a letter to a specific audience). This allowed me to compare the scores of written products from each module to the baseline (writing with no media stimuli) of each participant. It is important to note that participants were not compared to each other in terms of performance (i.e., this participant is a stronger writer than another participant). Rather, the writing of each individual

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2   Three of the writing prompts were taken in full from Bridgewater State University's writing placement exam, 2008-2010. BSU's Writing Program Administrator, Anne Doyle, granted permission to use the writing prompts in this study. The fourth writing prompt was designed to elicit the same kind of response as the three BSU prompts.

participant was compared to his/her own writing in other conditions within the modules.

The additional variable of a timed writing event was purposeful. As the literature indicates, media multitasking may impact performance in two ways: increased time to carry out each individual task and decreased proficiency on each task. Therefore, the timed event limited participants' ability to mitigate the impact of distractions in terms of time away from task. If participants had the freedom to revise at their own pace, the effects of media distractions may have become difficult to discern. Ultimately, most writing is completed under some form of time restraint; the restraint of 45 minutes allowed for uniformity in writing opportunity across participants and modules.

During each module that required text messaging, participants were instructed to leave their cell phones on the table near the laptop on which they composed. I told participants that they were free to respond to any texts or alerts that appeared on their phone, but were not required to do so. They were, however, required to respond to any text message that I sent. In an effort to create a sense of real-life text conversation, I asked questions through text messages that required some level of processing to form a response. In modules that required Facebook checks, I sent a text to remind the participant to check Facebook. As was the case with the cell phone, I told participants that while Facebook was available, they were free to check alerts at will in addition to my reminders. Ultimately, my reminders were meant to ensure participants were engaged with media while writing, but several participants were engaged regardless of my reminders. During these modules, participants were instructed to scroll through their Facebook newsfeed and interact with Facebook as they would typically.

All modules were screen-recorded on my laptop using QuickTime software as well as video-recorded using a digital video camera. QuickTime is a pre-installed software program on Apple's MacBook Pro. When the software is running, the program will record everything that occurs on the computer screen in real time as well as capture (through microphone) all audible noises in the nearby vicinity. Using this program, I could watch student participants compose their essays—including pauses, deletions, revisions, spellchecks, and Facebook activity. Additionally, I could hear the sounds of the keyboard while they typed, the sound of music playing in the background, any verbal noises made by the participants (sighs, groans, singing, reading aloud, etc.), and the sound of every cell phone alert, including vibration. The software allowed me to review composing in process and pinpoint the exact moment a participant stopped composing to engage with media.

The screen video was cross-referenced with digital video footage also collected during each module. After each module, participants were invited to join

me in reviewing portions of the video and to report on their writing process as well as the perceived impact of media distractions on their writing. During the review, I asked students to self-report on moments in their writing process where they appeared to make decisions (including the decision to stop writing) as well as on their general impressions of writing under various conditions. I also asked participants to comment on the writing prompt, how they approached the writing task, and whether or not they were satisfied with the final product, given time limitations.

The participant pool for the writing modules included six females and four males. Of the ten participants, four were freshmen, two were sophomores, two were juniors, and two were seniors. Participants represented a range of academic majors. All participants were of traditional college age for their year with 90 percent of the participant pool identifying as Caucasian (White) and 10 percent reporting as Caucasian (White) and African American. The average GPA was 3.52 with a low GPA of 2.9 and a high GPA of 3.83. The participants represent a range of college students, but it should be noted that this is representative of a certain kind of institution—a northeastern, research-focused state university. A lack of racial, cultural, and linguistic diversity is indicative of this particular university, but would not be representative of universities in other regions or other types of institutions in the same region.

All writing produced during the writing modules was stripped of identification, coded, and reviewed by three normed first-year writing instructors using the same six-point-scale holistic rubric. The holistic scoring rubric was created by the College Board and outlines criteria of successful academic writing often valued by writing instructors. For example, a five-point essay showing a "high degree of competence" demonstrates the following:

- Essay addresses the writing task effectively
- Essay is well developed, using appropriate reasons, examples, or details to support ideas
- Essay is generally well focused and well organized
- Essay demonstrates facility with language, using appropriate vocabulary and some sentence variety
- Essay demonstrates strong control of the standard conventions of grammar, usage, and mechanics but may have minor errors

Although the rubric is not perfect (no holistic rubric is, in my estimate), it has been tested nationally and proven valid. Again, the purpose of this study is not to evaluate writing performance in terms of grading or ranking. Rather, scores were used to indicate trends in writing under different conditions (e.g., students scored lower under several conditions than no conditions).

The act of composing a text involves several variables and not all of these variables could be accounted for in the design of this study. The two main areas of limitations include the size and scope of the participant pool and features of the multimodal study. First, the size of the participant pool is low with only ten quasi-experimental student participants with a high GPA average. Results of the study may also be impacted by the genre and topic of the writing prompts, time constraints imposed on the writer, the kinds of media distractions chosen for the study, as well as the controlled and unfamiliar setting participants composed in. Writing is produced under a complex set of cultural, social, and historical variables. All of these variables could not be controlled for. As a result of these limitations, I have avoided making broad conclusive statements when reporting findings. The data collected using these methods has raised several questions requiring further study by writing researchers.

FINDINGS

The Media Multitasking Survey (MMS) completed by participants prior to completing the writing modules showed that participants engage with media less while writing than in general, hinting at metacognitive awareness of the cognitive burden associated with writing.[3] In other words, students have some sense that media multitasking while writing poses cognitive challenges if they make the decision to decrease this behavior while writing. And it is this awareness that plays a role in whether or not students are successful in their academic writing. In fact, the participants in this study who showed metacognitive awareness of their writing process and ability, or inability, to engage with media while writing during interviews appeared to be able to mitigate the impact of such behavior on their written product. This is substantiated through the holistic scores of the writing produced by participants, which did not show a systematic negative correlation between writing and increased media distractions. The holistic scores of writing produced by participants *did not* decrease as the media variables the participant negotiated increased, giving the impression that writing with media distractions has little impact on a student's written product. That is not to say, however, that media distractions had *no* impact on the composing *process* of participants.

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3   I used Ophir et al.'s (2010) equation to calculate a media multitasking index score for each participant. The mean of all participant index scores was 3.11. Individual participants with an index score higher than 3.11 are described as heavy media multitaskers, participants with scores around 3.11 are moderate media multitaskers, and participants below 3.11 are light media multitaskers. I also calculated a media multitasking index score for domain-specific questions that measured media multitasking while writing. The media multitasking while writing mean index score was 2.44.

In fact, participants were impacted in several significant ways: They showed difficulty transforming information (invention) and lost ideas through task switching.[4] These detriments may be related to difficulty drawing from long-term memory and other resources as well as limited capacity working memory.[5] In short, when students write with distractions, their ability to manage the cognitive processes involved in writing appears to be significantly impacted. The impact of distractions is apparent in student behavior exhibited during the writing modules. Although most students believe they are able to manage media use while writing, observations suggest their writing process is actually impaired.

One participant, Brian, is an excellent example of the deleterious effects of media distractions on the participants' writing process. By his own account, Brian's relationship to social media and text messaging is limited to organization. In other words, Brian uses texting and Facebook messaging to schedule meet-ups with friends, but does not engage in idle conversation or "creeping" through media. Brian's self-description of his engagement with media illustrates the differences he sees in their function:

> I personally don't like texting just to text and Facebook; it is just doing that just to do it. There is no point; you are not trying to accomplish anything. If you go on, like I've gone on before cus [sic] someone is sending me a message relating to classwork or . . . I want to see if someone is on there because I don't have their number and I need to get something from them, but I could see how that would be more efficient because you can type everything out in a quick chat, but . . . all those five text messages can be done in, I'll say, ten minutes. And then beyond that the rest of the time is yours. The Facebook is just; it is like a black hole.

Brian does not self-initiate engagement with media; he responds to notifications of activity such as updates on his Facebook page, text message alerts, and cell phone game notifications—all of which send an audible alert to Brian's smartphone.

It is equally important to note that Brian's typical writing process does not

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4   Observations of participant behavior also suggest that they struggled to comprehend new information through reading. However, the impact of media distractions on reading comprehension is outside the scope of this project. Please see Lin et al.'s (2009) study on reading performance between novices and experts in different media multitasking environments for empirical scholarship in this area.

5   John Hayes' (2012) most recent model of the cognitive processes involved in composing provides a nuanced illustration of the processes involved in writing discussed here.

include media use beyond listening to familiar music. He writes academic essays in the library while wearing headphones as a deterrent for distraction. As is the case with many writers, Brian uses consistent and familiar noise to mask sudden or inconsistent sounds that may distract him. Brian is relying on selective attention, the cognitive ability to reject familiar stimuli unrelated to a task. He either listens to hip-hop or instrumentals because he feels as though he can "zone out" the music. While writing, Brian keeps his cell phone silenced and tucked away in his backpack. He does not visit websites such as Facebook while producing an essay.

Because Brian rarely multitasks while writing, distractions imposed on his writing process during the study had a significantly negative impact on his process. As Brian was faced with media conditions not typically present in his writing process, his writing process began to break down. With increased distraction Brian showed physical signs of agitation (e.g., sighing, stretching, rubbing his face with hands) while writing. By Brian's own account, stopping to check media disrupted his thought process, frequently caused him to lose track of his next sentence, and created difficulty when task switching to resume writing. Even unfamiliar music (a Johnny Cash song purposefully included on his music list) caused Brian to stop writing completely. Screen video shows that as the unfamiliar song becomes audible, Brian finishes a sentence and then spends time clicking aimlessly on a misspelled word and scrolls up and down the page a few times before stopping the task altogether; he did not resume writing for approximately five minutes.

When receiving text alerts under Conditions C (writing while listening to music and texting) and D (writing while listening to music, texting, and checking Facebook), Brian physically stopped writing, leaned back in his chair, and slowly typed his responses on his cell phone. As an infrequent text message user, Brian took longer to compose his text message responses (presumably due to graphomotor skills) and had to reread his entire essay draft after each text message to reconstruct his thought process. Although Brian attempted to rely on the organizational pattern used in his baseline condition and Condition B (listening to music), the overall text produced was shorter and his paragraphs became increasingly underdeveloped. By Condition D, Brian's final paragraphs made little sense and were incomplete.

In Brian's estimate, media distractions that caused him to "think about something else" undermined his writing process. When he heard a song that reminded him of an ex-girlfriend or the Johnny Cash song that reminded him of his brother, he found that his mind focused on those memories, disrupting the development of his ideas. When a distraction required retrieving information from long-term memory (e.g., the Johnny Cash song or a text message asking,

"Did you get anything good for Christmas?"), Brian had difficulty returning to the written text without spending some time deciphering what he was trying to say or erasing text to start over. Rather than compensating for distraction (e.g., waiting to finish/start a new idea before responding to a text), Brian was easily thrown off task by incoming alerts or unfamiliar music. In his own words: "I just remember like everything, like all the songs I knew were up-tempo, like, and just mainstream kind of pop, hip-hop, and then all the sudden it was just like: 'What the hell is this?' (Laughs)." It appears that the impact of media multitasking may be linked to the writing process already developed by the writer. In other words, the ability to manage media distractions is dependent on an established writing routine.

A similar scenario occurred with Sam, a participant who typically composes in complete silence; he was adamant about writing without media distractions when carrying out writing tasks outside of this study. This suggested that me-dia distractions would have a significant impact on Sam's process. In his first module, Sam developed a pre-writing strategy to mitigate the impact of media distractions on his performance. While reading the prompt, Sam composed a detailed outline for his composition to provide direction while carrying out the writing task. However, this strategy did not mitigate the impact of media on his reading comprehension. In his post-interview, Sam stated:

> I thought [the experience] was pretty interesting. I sort of
> had trouble reading [the prompt] while listening to the
> music. Like I found myself like listening to music while I was
> mid-sentence and then I had to read it over again and like go
> back over the sentence.

This struggle is particularly evident when one prompt asked Sam to compose a letter to Google CEO Larry Page about his new privacy policies. After Sam read the prompt and composed a full paragraph, he re-read the prompt and real-ized that he had failed to recognize Larry Page as his intended audience. At this moment in the screen-capture footage, Sam stopped composing; there is a brief pause before Sam was heard audibly swearing ("oh, fuck"), and he was heard slamming his pen onto the table. In the follow-up interview Sam said:

> And like right here it says "in a well-organized essay addressed
> to Larry Page . . ." I completely skipped over that and I just
> started writing . . . and then I read that after I wrote a para-
> graph and I was like oh this is going to be a letter so now I
> need to address it to him and put it in first person and every-
> thing so, yeah. I completely botched that.

Because Sam was distracted while reading and inventing his text, he missed a central component of the rhetorical situation: the audience. When reviewing the writing prompt to find direct evidence to support his claims, Sam realized his mistake and had to delete his initial paragraph. This realization derailed Sam's process momentarily before he started to scramble to adjust the direction of his essay. Ultimately, Sam's attempt to mitigate the impact of media distractions by creating an outline prior to writing was undermined when he was essentially forced to revisit a stage of invention.

For Brian and Sam, media distractions were an imposition—taking cognitive resources away from the writing task. Brian struggled to return to task when distracted by a media variable that spurred a memory, an act that drew information from his long-term memory. Meanwhile, Sam struggled to integrate new information with information in his long-term memory to formulate a text aligned with the rhetorical situation while faced with media distractions. Both had their thinking processes derailed by media distractions, a trend found among several participants in this study.

The response of Brian and Sam to media distractions, among other similar responses by participants in this study, aligns with studies on divided attention, which show that when we attempt to attend to two complex cognitive tasks or two unrelated stimuli simultaneously, performance on both tasks and processing both stimuli suffers. Even participants that performed the same or better with the addition of multiple media distractions noted in post-interviews that they frequently lost their train of thought or were forced to delete sentences as a result of media multitasking. For example, Kristen, a heavy media multitasker, said in response to receiving a text message:

> Um, it didn't bother me much, but I did notice having to reread the previous couple of sentences that I had written each time I answered a text just to get back on track of where I was going with my writing.

When I asked Mark, who typically composes essays for school while listening to music and checking Facebook, if he had any trouble returning to his writing after a Facebook check he argued:

> It would kind of depend because I definitely start going back and looking over the prompt again. It was more so deciding when, how much I wanted, how long I wanted it to be, and what exactly I wanted to use in there. What I wanted the letter to exactly say, because it was kind of tough to decide that with everything going on.

For several participants media stimuli distracted enough to disrupt the writing process.

Despite the detrimental impact of media on the writing process, media distractions imposed on participants in this study created no discernable systematic impact on the written product. In other words, if we look at the pattern produced by the holistic scores, it appears that the normed readers could not distinguish between texts written under no conditions and texts produced under several conditions. As Table 13.1 indicates, some participants scored lower under increased media conditions while others flat-lined or even improved their scores.

Table 13.1: Participant Holistic Scores

	Silence	With Music	With Music and Texts	With Music, Texts, and Facebook
Brian	3	4	2	2
Evelyn	4	3	3	2
Theresa	4	5	4	5
Sam	4	2	2	2
Kristen	4	3	3	4
Erica	3	4	2	2
Nina	4	3	4	4
Derek	3	3	3	2
Mark	2	2	3	4
Haley	3	4	3	4

The strongest potential explanation for the phenomenon of students scoring highest under various conditions comes from student participant self-reporting during the pre-experiment interview. In pre-interviews, I asked students to describe their media use during their composing process for academic writing assignments. Their accounts were then paired with holistic scores. A striking trend emerges from this correlation: Students appear to have performed well under the conditions that most closely match their typical writing environment. As noted previously, Brian's self-description of his writing environment and his holistic scores illustrate this relationship. In Brian's estimate, he performs best with music playing in the background. Indeed, his holistic scores support this preference.

The relationship between typical, self-reported writing environments and holistic scores holds true for Sam, who must write in complete silence as he explained in our initial interview:

> In high school I liked to have music playing while I was writ-

> ing, but I found that very distracting. I like to . . . find one of
> those desks that have the blinders on it and then I'm focused
> and it's my place where I go. I don't go on Facebook when
> I'm there. If go on Facebook then I get seriously distracted
> creeping on people.

Sam quite eloquently articulates his reasons for creating his typical writing space. He has tried alternative methods and, based on self-reflection, they proved too distracting. Consequently, Sam creates a space devoid of distraction and his holistic scores reflect this need; Sam performed significantly better when writing in silence. His performance markedly decreased as media variables were introduced into his environment. For Sam to be successful, he is aware that he must write academic essays in both silence and solitude.

Finally, we look at Mark who is an anomaly in terms of trends in holistic scores. Mark's scores actually increased as more variables are introduced. This seems perplexing until hearing Mark's self-assessment of his writing process:

> Usually . . . I'll check all my social media and stuff before
> I start writing. I'll put on my music and I'll find the song I
> really want to listen to . . . When I get texts or something,
> unless it's something important I'll usually look at it and see if
> it's important. Then I'll respond if it is, or if not. Sometimes
> when I'm sitting there and I can't think of what I want to put
> down next, instead of just getting up and coming back a few
> hours later I'll kind of take my mind off it and scroll through
> Twitter . . . then just get back into it. That way I'm not com-
> pletely taking myself away from it but I can just calm down a
> little bit and get back to work and actually think about what I
> want to write.

Mark's media use is such an integral part of his writing process that he has difficulty concentrating in silence. Mark uses media distractions to take mental breaks. While he is carrying out a task that requires little awareness ("scroll through Twitter"), he is presumably processing his ideas so that he may return to the written text at hand. Again, this student performed best under his typical writing conditions—in this case, a media-rich environment.

It is important to note that participants who showed a strong correlation between normal writing conditions and high holistic scores in that condition provided responses that clearly describe stages of the writing process and different genres of writing. They made clear links between media use and reading, brainstorming, and drafting as well as made distinctions between kinds of writ-

ing—informal and formal. It is equally important to note that although the participant pool represented a range of majors, years in school, and an equal mix of gender, all ten participants in this study were high-performing students based on GPA; the average GPA of the participant pool was 3.52. Lower-achieving students may need more guidance to build the awareness exhibited by these participants.

CONCLUSIONS

As mentioned before, the lack of consistent negative impact on the scores of writing produced in this study suggests that twenty-first-century students have a much more complicated relationship with media multitasking than the narrative of distraction suggests. Not only is there high variability among student participants in terms of their relationship with media technologies, access to such technologies and writing process, but students may also have a much stronger awareness of the impact of media distractions on their lives than we often give them credit for. Although I cannot draw broad generalizations from such a small sample of student participants, the data suggests that like all of us who are negotiating twenty-first-century technologies, our so-called "digital native" college students make frequent decisions to attend to some stimuli while ignoring others. Few student writers seem to frequently multitask in its truest sense: carrying out two tasks simultaneously. Rather, student writers in this study appeared to rapidly switch between tasks—finishing a text before talking to a friend, checking Facebook before resuming academic work, stopping to compose an email on a cell phone before walking, etc. These decisions were made purposefully and reflect the individual's self-efficacy when writing with potential distractions. In short, the student writers who participated in this study appear to be aware of the cognitive challenges posed by writing with media stimuli dividing their attention and have strategies for adapting or mitigating the impact of those distractions.

This study is just the first of many, I hope, that explores how the writing process has been altered or adapted as a result of portable media technology. Future writing research on composing processes must consider the physical conditions texts are developed under. Even John Hayes' (2012) recent iteration of his model of cognitive processes involved in composing written texts did not account for the physical environment—distractions and all—the text is composed in. Although this study provides some initial insight into the twenty-first-century media-rich student writing process, the intersection of media use and writing process research is a rich and compelling area for continued investigation.

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