Understanding the NextGen Researcher

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As a range of researchers—from anthropologists (e.g., Blum 2009) to writing studies professionals (e.g., National Writing Project, et al. 2010), from communication theorists (e.g., Hargittai, et al. 2010) to information scientists (e.g., Head and Eisenberg 2009, 2010)—have observed, NextGen students write more than perhaps any generation in history. NextGen students are those secondary and postsecondary students who are frequently writing on Twitter feeds and Facebook pages; sending texts and instant messages on their smartphones, tablets, and laptops; and contributing to wikis and community webpages of all kinds. Both in and out of school, NextGen students are surrounded by and constantly composing text. We would add that they are researching more, too. NextGen students are routinely locked in to digital communication technologies that did not exist just a few years ago. From the web to the mobile phone, these technologies allow students to engage in the multiple activities of writing, reading, and researching simultaneously. This pervasive and amalgamated engagement makes the communication and information behaviors of NextGen students unique in many ways. Most notably, their immersion in the digital world causes them to see textual information differently. How they perceive, identify, use, and create information affects

not only their personal and social lives but also their academic ones. The rise of digital technologies has changed how NextGen students think of research and how they conceptualize research-writing.

Writing researchers have long considered and studied in depth the impact of computer use, multimedia, and the web on students as writers, yet comparably little work has been published on students as writer-researchers in the digital age. For example, most college-level first-year writing teachers are tasked with helping students become better researchers and better research-writers; still, this topic continues to have lower priority in the field of writing studies, as it is often seen as the province of others (namely, library and information scientists or high school teachers) or as a separate unit to be endured (and moved through quickly) in writing courses. Because digital technologies intertwine research and writing, this book takes as its premise that we—as professionals from a variety of fields—cannot ignore, marginalize, or leave to others the commitment to understand and help the new digital scholar.

In its four parts, this collection explores the facets of that commitment. The first two parts address how others have characterized students' research-writing behaviors and how students themselves conduct research and represent their research-writing practices. Part One reviews published discussions of NextGen students and their engagement with digital technologies for research-writing tasks, and Part Two shares research on students' actual practices, providing data to inform these discussions. The last two parts address ways to improve students' practices. Part Three provides a variety of pedagogical ideas, ways to respond in the classroom to what Parts One and Two reveal. The fourth and final part offers programmatic solutions and institutional approaches to preparing students to be successful research-writers. Taken together, these parts advance our understanding of the research behaviors of NextGen students and suggest ways to help them productively find textual information and compose with the information they find.

Authors in Part One, "NextGen Students and the Research-Writing 'Problem,'" provide background and multiple perspectives on the

major forces that influence the research and writing decisions of the new digital scholar, including a comprehensive literature review of existing scholarship on student research practices and a detailed history of the research paper assignment. In Chapter 1, "Min(d)ing the Gap: Research on the Information Behaviors of NextGen Students," Randall McClure explores the impact of the web and other media on the information behaviors of students entering college writing classrooms. The goal of this opening chapter is two-fold: to offer readers a foundation for the chapters that follow and to suggest a framework for the ways in which writing teachers, librarians, and other information specialists can study the digital research behaviors and skills of NextGen students. McClure synthesizes findings from several reports on students' computer, media, and web use in order to situate the digital scholar inside the writing classroom. He writes of this project, "In order to engage students in the information behaviors appropriate to academic, professional, and social contexts, I contend we must understand what behaviors they have already internalized, the behaviors that shape their research processes."

In doing so, McClure distinguishes information behavior from information literacy. He defines information behavior as "not simply the skills desired of information users in or out of the writing classroom. Instead, information behavior is concerned with the complex processes and influences on the information seeker." McClure discusses information behavior's value for the study of students' research habits in the digital age and, more importantly, for the teaching of writing. Broadening the teaching of research skills into the larger domain of information behavior, McClure announces the "authors collected here argue that we must better understand the ways in which students work with information in the digital age if we are going to best leverage the web to fulfill [its educational] promise." In fact, McClure's call to action provides the bridge to the rest of the chapters in the book:

> Until we modify our curriculum and instructional practices in research-writing with a broader and deeper understanding of digital worlds, of the explosion in the amount and consumption of information they facilitate, and of the resulting information behaviors for our students, we will continue to reside in separate spaces. And if producing digital scholars is our goal, then move to meet our students on the web in every way—writing, reading, *and* researching— we must.

This movement, of opening the traditional reading-writing binary to include research, is echoed throughout the rest of the opening chapters.

Bringing reading, writing, and researching closer together requires a historical framework upon which to build. Karen Kaiser Lee, in Chapter 2, "The Research Paper Project in the Undergraduate Writing Course," offers such a framework by reviewing important highlights of what we know about the history of the research paper assignment. In her comprehensive analysis of the major anthologies on research paper instruction published to date and their approaches to the topic, Lee notes that "there has been criticism of the research paper project almost as long as the project itself has existed." Lee goes on to detail the many critiques that have been leveled against the research paper since its earliest days in the college curriculum, and she describes in detail one of the more influential responses to the traditional research paper assignment, Ken Macrorie's I-Search Paper. Lee's research into the enduring criticisms and occasional responses leads her to conclude that writing professionals need "to consider what is meant by 'research'" in ways that "reflect the nature of research practices now heavily reliant on computers and computer networks."

In Chapter 3, "Professional Statements and Collaborations to Support the New Digital Scholar," John Eliason and Kelly O'Brien Jenks pick up on Lee's call for a new perspective on the new digital scholar. The authors, one a librarian and the other a writing program administrator, explore several pieces of current literature that explicitly

connect "information literacy with writing instruction," particularly those works demonstrating collaborations between writing instructors and librarians. In doing so, Eliason and Jenks "identify professional statements that might inspire future collaborations" and "past collaborations that scholars have already successfully established and nurtured into scholarship." Viewing research as just as complex as the writing process, the authors echo both Lee and McClure in the call for a broader and deeper understanding of research, one that embraces information literacy and calls upon the expertise of both writing and library professionals.

In concluding the book's opening section, Brian Ballentine, in Chapter 4, "Fighting for Attention: Making Space for Deep Learning," contends that reading and researching online actually change the way our brains engage with text. Against this backdrop, Ballentine echoes the authors of other chapters in claiming that our strategies for teaching students to be researchers will require a productive overhaul in the years to come, that "going forward will require much of us." To frame this overhaul, Ballentine draws on the spirit of the hacker community and the tenets of Web 2.0, suggesting that the act of personalizing and customizing the research space to meet individual students' needs in part creates an intrinsic motivation for deeper engagement with both the tools and the materials of research. The deep engagement with information, with the research-writing process, is a concern of most all of us working in higher education in the digital age, and the next three sections of the book provide a collective response.

Part Two, "Explorations of What NextGen Students Do in the Undergraduate Writing Classroom," provides empirical evidence of the depth (or lack thereof) of student engagement. By offering data-driven research on students' research-writing practices in the digital age, chapters in this section take a close look at where students are now. Including reports and discussions—from a local case study to a national research project and points in between—these empirical studies of students' research habits, information behaviors, and writing

with sources inform the discussion of the research-writing "problem" found in Part One.

Sandra Jamieson and Rebecca Moore Howard's Chapter 5, "Sentence-Mining: Uncovering the Amount of Reading and Reading Comprehension in College Writers' Researched Writing," begins the section by reporting on the Citation Project, a national study of how college students incorporate sources into their work via four source-use techniques: copying, patchwriting, paraphrasing, and summarizing. They discuss actual student writing products, papers produced in the first-year writing course at 16 different U.S. colleges. The chapter offers a detailed examination of student research papers, including the analysis of bibliographic entries, internal citations, and both uses and interpretations of source material. Jamieson and Howard's research reveals that students successfully paraphrased in only two-thirds of their attempts, summarized sources in fewer than half of the papers, and drew nearly 75 percent of their citations from no deeper than page 3 of their sources. According to Jamieson and Howard, these findings point to the "need to overhaul the teaching of researched writing in college classes." Rather than despair at these results, however, Jamieson and Howard see them as an opportunity to direct needed focus and change existing approaches to research-writing instruction at the college level.

Other contributors to this section offer studies providing data to support this "overhaul" of research instruction in writing classes as well as propose steps for enacting it. In Chapter 6, "Scholarliness as Other: How Students Explain Their Research-Writing Behaviors," James P. Purdy calls for directing attention to students' processes in and reflections on research-writing rather than focusing primarily on flawed or potentially plagiarized products, as he argues plagiarism-detection technology does. Drawing on data from student research questionnaires, research logs, reflections, and digital research skills assessments, Purdy provides insight into how students think about research, conceive of themselves as researchers, and produce research-based texts. He points to three underlying tensions in how students approach research-based

writing: Students have a strong proclivity for Google but sometimes recognize its limitations for scholarly work; students value scholarly sources but cannot necessarily recognize them; and students characterize themselves as open, focused, and interested researchers but claim not to enjoy research or have a unique research process.

Based on these tensions, Purdy concludes that students view "scholarliness" as "other," something found outside the digital spaces they normally inhabit and something they trust is found by those resources others label as scholarly. He argues these results show that admonishing students to use only "scholarly" resources has led them to internalize a limiting scholarly/nonscholarly binary. Purdy suggests that this binary needs to be replaced to "help students recognize that different types of sources work in different contexts [and] that 'scholarliness' is less an abstract text or database label and more a recognition of use value for particular kinds of knowledge-making."

In Chapter 7, "Can I Google That? Research Strategies of Undergraduate Students," Mary Lourdes Silva responds to Purdy's call for studying the research-writing processes of students. Silva reports from her comprehensive observation of three students' research-writing processes and study of an experimental instructional design to improve these processes. She highlights students' prevalent use of the "hub and spoke method" (going back and forth between the search results page and a target page using the back button) prior to training and increased use of alternative strategies, such as "mining a reference" (learning the "genre features of a citation and the corresponding databases that store the source material"), after training.

To begin the "overhaul" of research instruction in college writing classes that Jamieson and Howard advocate, Silva recommends a multiliteracies instructional package to improve students' information literacy and research skills. In particular, she suggests students need assistance with generating discipline-specific keywords; understanding the limitations of databases and search engines, particularly Google; creating rigorous, contextual criteria for source evaluation; and exploiting the "mining a reference" strategy.

This assistance should come from both the writing and library communities, and, in Chapter 8, "Encountering Library Databases: NextGen Students' Strategies for Reconciling Personal Topics and Academic Scholarship," Ruth Mirtz offers the perspective of a librarian who has taught writing. Mirtz, a reference librarian at the University of Mississippi, presents findings from her study of 18 first-year college students' individual searches for scholarly articles. Mirtz adds screen capture videos and transcripts to Purdy's use of questionnaires, research logs, reflective essays, and skills assessments and Silva's use of observations, interviews, videos, and student self-reports. In courses for which she was instructor and researcher, Mirtz used "screen capture software to record and evaluate students' searches at several points: pre-instruction (before demonstrating the features of scholarly articles and using library databases), post-instruction, and in a follow-up session." From her study, she, like Silva, suggests that students' research strategies within online library databases often "box in" their topics. Mirtz further argues that "both luck and persistence" affect students' success in searching and that students' choice of topic "may have more influence than instruction in search methods" on how students conduct research and what they ultimately write about.

Mirtz's findings suggest the value of a shared approach to research-writing pedagogy, an approach discussed at other points in this book. Instruction in using databases and search engines to investigate topics and find resources in the library is more productive for students, argues Mirtz, when coupled with instruction in invention and topic brainstorming in the writing classroom. Mirtz affirms the librarian's role as part of a collaborative effort in nurturing the digital scholar this way: "If we study students' research processes, we can redefine the classic research paper problem to include a more rhetorical look at database searching as a significant influence on research and writing processes."

Taken together, the chapters in Part Two provide data on students' research-writing processes and products that illuminate both why and how students engage with research materials for writing tasks. All point to the need to revise current approaches to studying students as

researchers and to teaching research in the writing course. Part Three, "Pedagogical Solutions to Enrich the Research and Writing Practices of NextGen Students," provides practical strategies for making some of these suggested changes in the writing classroom.

Part Three opens with Chapter 9, "Undergraduate Research as Collaborative Knowledge Work," in which Christa B. Teston and Brian J. McNely suggest writing teachers explicitly position students as collaborative knowledge makers for research tasks. They explain pedagogy in which writing teachers minimize the fear and anxiety so often associated with conducting research in the digital age. In their approach, Teston and McNely view research as collaborative constructions of knowledge—collaborations made possible through, and afforded by, the digital technologies available to students. Teston and McNely deliberately position students as knowledge workers in these collaborations but emphasize the need for a pedagogy that asks students "to *position themselves* as knowledge workers and to develop and investigate researchable questions that do not make transparent the technologies available to them, but instead place the people and practices surrounding these technologies as objects of study."

Rachel A. Milloy likewise calls for valuing students' research experiences. In Chapter 10, "Re-Envisioning Research: Alternative Approaches to Engaging NextGen Students," Milloy works from a premise familiar to writing teachers. "NextGen learners have digital literacies they use each day to achieve tasks they deem important," writes Milloy, yet they "are often less comfortable using their existing digital literacies for academic research purposes." In response, Milloy presents her own alternative pedagogy designed to aid students in critically analyzing multimodal sources inside digital spaces in ways that challenge the traditional research model of finding and evaluating alphabetic texts. Working from five common issues students face as researchers in the digital age (going to Google, limiting keyword searches, feeling overwhelmed, etc.), Milloy presents alternative research assignments that build upon students' existing skills and interests in digital

environments. Of this approach, Milloy makes clear the writer-researcher relationship that composes the NextGen scholar:

> Writing instructors can revise research assignments to incorporate Web 2.0 technologies so that students realize they *do* know something about researching and that they *can* learn to improve their strategies. As compositionists and librarians continue to redefine what it means "to research" and to be a "researcher," teachers can incorporate assignments that help students approach the vast world of digital spaces; that move away from the formulaic practices students believe research papers should imitate; and that move toward a research paradigm valuing creativity, exploration, and rhetorical choices appropriate for a digital age.

Working with the information behaviors students already demonstrate and within the digital spaces students already inhabit is a theme in Milloy's chapter and throughout the chapters in this book.

David Bailey picks up this theme in Chapter 11, "Embracing a New World of Research." Somewhat more theoretical than other chapters in this book, Bailey applies the Fourth Paradigm of Science to the ways in which teachers and students can approach research in the digital information age. The Fourth Paradigm of Science represents a theoretical shift in how teachers and students view the relationship between researchers and information. Rather than forming initial hypotheses and engaging in long periods of research and experimentation, information is collected en masse, and the researcher pores through it in search of patterns in order to form assumptions. Bailey writes:

> Everywhere one looks, communication and data consumption tools receive astounding attention and popularity. In the classroom, students communicate with smartphones and laptops. Businesses scramble for marketing opportunities on platforms like YouTube and Twitter, while RSS feeds deliver posts from the latest blogs on every conceivable

subject to devices of all kinds. This activity provides writing instructors many opportunities to engage their students in a new communication climate, one anticipating the coming Fourth Paradigm.

This scientific model has practical applications for working with student researchers in the writing classroom, and Bailey explores and explains several of them, calling for teachers to design assignments where student researchers search for patterns in collections of textual data.

Neil P. Baird offers positioning students as ethnographic researchers in digital spaces as one way to show them why digital resources are important and, in turn, presents another approach to overhauling research instruction in the writing classroom. In Chapter 12, "NextGen Students and Undergraduate Ethnography: The Challenges of Studying Communities Born Digital," Baird asserts, "more needs to be known about the challenges undergraduate researchers face, especially when researching digital communities." To begin to uncover these challenges, Baird draws upon the work of undergraduate students engaged in ethnographic studies of two digital communities: World of Warcraft and Second Life. In doing so, Baird examines how undergraduate researchers experienced and responded to the ways in which the virtual environment is transforming qualitative research methods and, with them, researcher identities.

Baird reminds us that students can capitalize on their digital proficiencies to act as primary researchers and that digital technologies raise important methodological questions for researchers at all levels. In particular, he argues that "single and stable conceptions of identity, reinforced by traditional ethnographic methods, produce accounts that fail to present the complexity of experience found in communities born digital," emphasizing that just as undergraduate researchers must learn the complexity, fluidity, and multiplicity of identity in digital communities, researchers and teachers must learn the complexity, fluidity, and multiplicity of students' researcher identities.

In Part Four, "Programmatic Solutions to Enrich the Research and Writing Practices of NextGen Students," contributors extend the book's focus outward. Collectively, the authors look well beyond the writing classroom to the definition of research, to writing programs, and to library resources. They suggest changes on the macro level, from reshaping the relationship of writing programs and university libraries to revamping digital resources themselves.

Barry M. Maid and Barbara J. D'Angelo, in Chapter 13, "Teaching Researching in the Digital Age: An Information Literacy Perspective on the New Digital Scholar," start at the point of definition. They argue that it is hard to consider what "research" is since the term has come to mean almost anything: "Research is the ultimate gold standard for what academics do. Yet application of the word 'research' has become so broad as to be almost meaningless." Due to the ambiguous nature of the term, Maid and D'Angelo believe that the teaching of research will not change until writing teachers reframe their definition of research and stop viewing research and writing as separate processes. To help illustrate the close connection between research and writing, Maid and D'Angelo offer an intertwined process framed by information literacy and designed to help NextGen students "understand that for most of their lives they will be working with information and writing."

Thomas Peele, Melissa Keith, and Sara Seely take the suggestion to connect information literacy and writing made by Maid and D'Angelo, Mirtz, and others to the institutional level. They offer research on a programmatic model for overhauling the teaching of research, one that establishes a dedicated partnership between a writing program and university library. Chapter 14, "Teaching and Assessing Research Strategies in the Digital Age: Collaboration Is the Key," details the assessment of a collaborative effort at Boise State University between the first-year writing program and university library. The effort, titled PoWeR, or Project Writing and Research, aims to help students improve their research-writing skills by formally partnering sections of two courses: Introduction to College Writing, and Research and Library Research.

Peele, Keith, and Seely report that students' research-writing port-folios produced in the PoWeR program were "more likely to be rated 'proficient' or 'highly proficient' than the portfolios written in stand-alone English 102 classes" and students in the PoWeR program could more effectively articulate their research-writing strategies and were more likely to see themselves as "expert researchers." In addition to offering ways to establish such partnerships and to assess student writ-ing from a shared perspective on research, Peele, Keith, and Seely point to the potential value of moving research instruction beyond the purview of isolated writing classes and instead draw on the expertise of library and information science specialists.

In Chapter 15, "Understanding NextGen Students' Information Search Habits: A Usability Perspective," Patrick Corbett, Yetu Yachim, Andrea Ascuena, and Andrew Karem take a more rhetorical look at the library side of the digital scholar. Whereas Mirtz examines student use of library resources and Peele, Keith, and Seely assess a collaborative model of research-writing instruction involving librarians, Corbett, et al., study the design of library resources themselves. The authors agree with Mirtz that the design of an academic library's digital interface shapes students' research practices—even if more psychologically than functionally.

Through analyzing the inclusion of multimodal and Google-like features in the University of Louisville's digital card catalog "Minerva," Corbett, et al., pursue Purdy's call for interrogating and challenging the scholarly/nonscholarly binary that structures much research instruc-tion. Reporting on usability tests of three prototype multimodal help interfaces with a small group of writing students, the authors note that they "were surprised to find that [students] could already use Minerva to find sources, but nearly all said they would instead use Google to complete their academic research-writing projects." This "Google Effect" informs their analysis of students' approaches to what the authors call "LastGen" resources. The authors promote the value of usability testing in better understanding and designing the library and other resources NextGen students use and affirm that "[i]mplemented

at the programmatic level, usability testing stands to inform strategic questions about the information architecture and usage of research interfaces."

The final contribution to the book, Chapter 16, "Remixing Instruction in Information Literacy," ends where the book began, with an overt focus on NextGen students. In this chapter, Janice R. Walker and Kami Cox offer direct insight into how students themselves understand research. Blending the voices of an established teacher-researcher (Walker) with an undergraduate writing major (Cox), the authors report in their own words how students use digital resources for research-writing tasks. Walker and Cox offer examples to illustrate the points about student research behaviors and research-writing discussed by McClure, Lee, Jamieson and Howard, and Maid and D'Angelo, among others.

Based on their interviews, Walker and Cox suggest integrating the teaching (and learning) of essential information skills with the common reading-and-writing approaches, yet in ways that are more readily transferable for the digital information age. In this model, contend Walker and Cox, writing teachers must approach research instruction "*at the point of need* rather than decontextualized from the actual process of research." By looking at the present state of the digital scholar in the college experience, Walker and Cox offer a starting point for the future, one that places increased emphasis on the study of the research-writing behaviors of NextGen students.

As we continue to learn more about the behaviors of the new digital scholar, our hope is that this collection will assist those of us who teach these NextGen students in helping them contribute fruitfully to knowledge production in our increasingly digital world.

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