Kindle(ing) the Classroom at the University of Guam

Andrea Sant Hartig

University of Guam

Currently enjoying a well-earned and appreciated sabbatical, Dr. Andrea Sant Hartig is a tenured, Associate Professor at the University of Guam. Serving in the Division of English and Applied Linguistics and Women and Gender Studies since 2006, she earned her Ph.D. in American Literature from Miami University of Ohio. Her sabbatical research projects include professional development in online teaching and research in Pacific Environmental literatures.

Abstract: In an effort to capitalize on the technology skills students increasingly possess and on the competitive e-reader market, this pilot study investigated to what extent the e-reading device Amazon Kindle can aid students’ development of stronger reading skills. Four classroom projects were conducted, wherein students were given a Kindle on which to complete their course reading. Pre- and post-survey were used to evaluate the students’ general use of technology in their established reading practices and if this e-reader technology had a positive impact on skills such as reading annotation and retention, dictionary usage, and concrete textual referencing in discussion and in writing. Analysis of the data revealed that underprepared students, specifically students in the Developmental English reading and writing courses, reported the most gains from utilizing the Kindle. The research team further concluded that any successful implementation of e-reader technology in academia needs to consider not only what existing literacies the students bring to the classroom and how an e-reader may complement or conflict with those skills, but must actively work to shift professor pedagogy and finally expand the e-text canon to include our students’ lives and stories.

In 2006 the National Endowment for the Arts claimed that reading certain kinds of texts can have “demonstrable social, economic, cultural, and civic implications.” In response, we should ask if it is only the kind of material read or if it might also be how materials are read which may have significant socio-cultural implications. E-reader evangelicals sing the praises of the technology for its potential to reduce academic costs, reduce the carbon imprint of creating and shipping print textbooks, and providing greater accessibility of materials. To both students

---

1 The research featured in this paper was collected through the collaborative efforts of Pauline Baird, P.K. Harmon, and Jason Vest, faculty members from the Division of English and Applied Linguistics at the University of Guam. The research project was chaired by the author, Andrea Sant Hartig, and funded by the College of Liberal Arts and Social Sciences at the University of Guam.
and faculty these assertions are enticing, but also to the academic institution with a mission to reach and serve populations who have historically had less success in or less access to higher education. Ours, the University of Guam, is such an institution.

We are not the first and will not be the last to investigate e-reader technology in the university classroom; however, we have a unique student demographic here at the University of Guam and we believe our research findings have much to offer other institutions looking for creative tools to engage resistant, ESL/EFL, or underprepared college readers and writers.

A plethora of newspaper articles, blogs, and other consumer reviews of digital reading devices are available. Many of these articles report on issues of usability and durability, as well as the cost and availability of digital materials. Numerous published, peer-reviewed studies also compare the print vs. digital in terms of reading retention, speed, and comprehension. For example, a 2011 article “A Nook or a Book?” published in the *International Journal of Technology in Teaching and Learning* reported no demonstrable difference between the print and e-reader comprehension levels (Schugar, Schugar, and Penny). A 2013 study comparing the Kindle DX, iPad, and print text at the University of Agder, Norway recounted that the students who participated enjoyed the experience but still largely preferred paper reading to e-reading for their academic coursework (Olsen, Kleivset, and Langseth).

Many of the available peer-reviewed articles about e-readers and digital textbooks in the college classroom share similar methodology. They combine student surveys with instructor observations to determine the effect and effectiveness of e-readers and digital reading. Our research project uses similar methodology; however, this project was certainly new to our University and to our students. Further, our project’s special interest in underprepared readers and writers makes this study unique among the literature we reviewed.
The tropical island of Guam is 30 miles long and 4-9 miles wide. It is a 7 hour flight from Hawaii, 3 hours from Japan and the Philippians, and a 5 hour flight north of Australia. Of the approximately 168,000 people who live there, around 3700 are enrolled at the university.\(^2\) The University of Guam is an open-enrollment, land-grant institution recently celebrating its sixtieth anniversary. Half of the student body identifies as Pacific Islander (Chamorro from the Commonwealth of the Northern Marianas Islands, Chuukese, Palauan, Ponapean, Yapese, Marshallese, and Kosraen, to name a few) another 41% identify as Asian (Filipino, Japanese, Korean, Asian-Indian, Chinese, and Vietnamese) (\textit{UOG Fact Book} 9). Many of our students are multilingual and first generation college students whose exposure to “academic texts” has been limited. Most students who enter the University of Guam test into our non-credit baring, Developmental English courses. In 2011 71.6\% of new students tested into Developmental English courses and in 2012 that percentage went up to 76.9\% (Santos-Bamba). Among the variety of factors that may contribute to these statistics, our students come from richly oral cultures where orality may have edged out written literacy in importance in their homes and communities (Betances).

While a majority of our new students are underprepared for academic reading and writing coursework, they are however increasingly technology-literate. During the AY 2007-2008 1517 wireless internet devices were registered by students with the University Computer Center. Five years later this number grew to 3485. With a student population of roughly 3700, this is 94\% (\textit{UOG Fact Book} 45). Our students, along with the rest of the nation, are increasingly using technology in their academic and personal lives. In an effort to build on the digital skills our students increasing possess and to capitalize on the competitive prices of e-reader technology, we

\(^2\) Population data was pulled from the 2010 Census posted online by Guam’s Bureau of Statistics and Plans. The University of Guam enrollment number is from the \textit{University of Guam Fact Book: Academic Year 2012-2013}.  

designed a pilot study to evaluate if the Amazon Kindle e-reader could be a useful classroom technology with our unique student population.

For this research project, we collected and analyzed pre- and post-survey data of reading skills and behaviors as well as recorded student and faculty responses to the Amazon Kindle. Because we wanted to evaluate both the writing and literature classrooms, both the Developmental English and the English Major students, we shared our 20 Kindles between 4 professors and 4 classes over the course of a year. Each of the courses surveyed participated in a 3-4 week long Kindle unit.³

One of the first questions we asked on the pre-survey was what kind of technology students owned (see fig. 1). Not surprisingly a majority of our students in both groups marked Personal Computer or laptop, 83% of the Developmental English (DE) students and 88% of the English Major (EM) students. Figure 1 also reveals that the Developmental English students fall below the English Major students in almost all categories of ownership we surveyed. The greatest gap in ownership for the iPads and iPhones. While 47% of the English Major students owned iPads, only 6% of the Developmental English students own this expensive technology.

³ With our research grant, we purchased 20, six-inch Amazon Kindle Keyboard with Wi-Fi devices ($2857.78, $139ea. + shipping).
Fig. 1 Student Ownership. This figure shows the devices owned by study participants. DE = Developmental English from EN 085 and EN 100 writing classes (n=48) and EM = English Major students in EN 340 and EN 460 (n=17).

English is not often considered an *expensive* major, compared to other degree paths with high course & lab fees, extra equipment costs, and colored, hard-back textbooks. However, the disparity between the Developmental English and English Major students indicated by the results depicted in Figure 1 may indicate that we need to register the expense of reading preparation and reading tools (such as e-readers) differently, considering choices students make about allocating their resources. More of our English Major students had e-reader-capable devices and e-reader (reading-only) devices than the Developmental English students. Responses to this pre-survey question indicate that when our students make an investment in academic technology, most of them prioritize multi-task devices. To someone who does not have established, college-level reading practices or does not recognize the value or pleasure of reading, the idea of purchasing an *extra* piece of equipment on which to *only* read may seem as nonsensical as a person who does not cook investing in high-end cookware.
In the pre-survey we also wished to gage our participating students’ existing attitudes about reading, assessing whether or not the Kindle experiment facilitated a positive shift. In this section of the pre-survey we asked students to mark all the statements that apply to them (see Fig. 2). Similar percentages of students in both groups ticked statements revealing resistant reading attitudes: Response 2: “I read only when required” (R2); Response 4: “I read only in doctor’s offices on airplanes, in cars, etc.” (R4); and Response 6: “I don’t mind reading, but won’t unless motivated by school” (R6); however, more English Majors marked the positive reading statements. Twenty percent more marked Response 1: “I read all the time” (R1) and 36% more marked Response 7: “I wish I had more time to read” (R7) compared to the negative reading statement, Response 5: “I read only when I can think of nothing else to do and there is nothing good on T.V.” (R5) selected by 27% percent of the Developmental English students and 0% of the English Majors.

Figure 2 Student Reading Attitudes. This chart illustrates participating students’ sentiments toward both academic and leisure reading. DE = Developmental English (n=48) and EM = English Major (n=17).
The greatest attitude disparity between the two groups was revealed in Response 8: “I would read more if I could more easily get the books/magazines/etc. I like” (R8). While 82% of the English Major students checked this statement, only 48% of the Developmental English students did (Fig. 2). This last statistic seems to suggest that even when reading materials are easily obtainable, a student’s willingness to invest in reading involves more than just access. Students do not value reading in the same way. Our data indicates that students who have declared their intention to major in an English degree view reading as largely positive and pleasurable, while many more Developmental English students view it as work, a necessary but distasteful and painful exercise.

Before passing out the Kindles, we also collected information on our students’ established reading practices, asking them to report how often they take notes or highlight, use the dictionary while reading, read out loud, read along, or listen to texts being read to them. Figure 3 shows the results to the pre-survey question: “When you read, do you highlight or annotate your reading?”. Forty-seven percent of the English Major students reported that they Always or Often practiced this reading behavior compared with only 19% of the Developmental English students. The Developmental English students indicated that they use the dictionary (2.5%) and read out loud (4.2%) slightly more than the English Majors. Participating Development English students Always or Often listened to texts being read to them, 38.6% more than the Majors, and 65% of the English Majors reported that they Never listen to audio of their reading materials on the devices that they own (Fig. 4). After completing the Kindle units in our four classes, we found that our students’ established reading practices, more than their reading attitudes, influenced their evaluation of the Kindle as a valuable academic tool. We collected their responses through informal, in-class discussions and post-survey responses.
Among the data we collected in our post-survey, we asked if specific reading practices changed with the Kindle and if participants found the Kindle more helpful for certain kinds of tasks. The Developmental English students responded “Yes” in higher percentages than the English Major students for all but two of these survey questions. The Developmental English students significantly outnumbered the English Majors in answering in the affirmative to the question: “Did you use the dictionary more often with the Kindle than when you read without the device?” (30% more than the English Majors, n=48) and “Do you feel like you would read more if you owned your own Kindle?” (34% more than the English Majors, n=17). The Developmental English students also felt they “retained more information” and “stayed more focused” on their reading materials when using their Kindle e-readers.

In the post-survey assessment of reading practices, English Majors reported higher gains in two areas, highlighting and careful reading. When asked, “Did you highlight quotes that you
later used in class discussion or in a writing assignment?” 20% more English Majors than Developmental English students answered “Yes.” Additionally, slightly more (3%) of the English Majors students responded that they felt they “read more carefully with the Kindle”; but this may have been perceived as a negative critique rather than a positive statement.

In class discussions with our Kindle(ing) students we found that the English Majors expressed frustration when using the keypad for note taking, with the highlighting features, and difficulty using the device to complete internet searches. The Developmental English students shared significantly more positive experiences with their professors, while the English Majors shared that they found their e-readers largely disruptive and cumbersome. To illustrate, while one classroom of Developmental English students debated how listening to the female or male Kindle voice read to them may influence their interpretation of Siddhartha, the English Major students of another class kept a running tally of all the words the Kindle mispronounced while listening and reading along with their texts.

Our post-survey revealed that the English Majors had difficulty employing their established, print-reading practices with the Kindle, while the reading practices reported by our Developmental English students were enhanced by the Kindle device. The final reflections students offered about the Kindle project were very instructive for us (Fig. 5).
Figure 5 Student E-reader Assessment. This chart highlights our students’ final assessment of their Kindle e-reader experiences. This post-survey data was collected at the completion of the Kindle units in the four pilot classes. DE = Developmental English (n=48) and EM = English Major (n=17).

Despite reporting fewer positive changes and more frustration with their e-readers, the English Majors were more enthusiastic about the prospect of enrolling in a semester-long Kindle class. More English Major students marked “if an English course were offered requiring students to read their course materials on an e-reader like the Kindle [they] would sign up for the course and tell [their] friends about it too” (R1), 77% of compared to only 57% Developmental English students (Fig. 5). The Developmental English students who reported more positive experiences and greater reading-skill gains, demonstrated more concerns about the initial cost of the e-reader and fear of damage or replacement issues, represented in their larger percentages in Response 2: “I would not be able to take this class due to the expense” (R2) and Response 3: “I would be worried about damaging my e-reader and falling behind” (R3) (see Fig. 5). These responses echo back to Figure 1 Student Ownership, revealing that our Developmental English students
may have fewer funds to spend on academic resources or choose to invest them differently. Our University of Guam Bookstore adds a 33% bump to offset shipping costs. Our students would save considerably in textbook costs by an institutional decision to shift to e-texts and e-readers, a shift we feel students would quickly embrace despite any initial concerns about an e-reader investment cost.

At the beginning of this Kindle(ing) the Classroom project, the faculty research team expected that the English Major students would quickly embrace the e-reader technology and it would enhance their reading and writing practices. Based on the post-survey data and the students’ verbal and written reactions and reflections, we conclude that English Major students were disrupted rather than engaged by the Kindle. These students, who were enrolled in the upper-division, literature courses, brought their well-established, academic and pleasure reading practices with them. Their digital reading skills were less developed and required more practice and time, and they felt less confident in the results. For example well-practiced readers often have their own short-hand annotation system penciled into the margins of their print texts. Further, many develop the ability to recall textual passages based on spatial memory, the location on a page or within a paragraph. These practices and skills have to be reworked with an e-reader like Kindle.

Our English Major students were not alone. The faculty who taught these Kindle units also found that their teaching methods, note-taking and preparations, as well as class discussions had to be modified. E-reading, just like regular reading, requires practice. Perhaps because the Developmental English students are less practiced in what gets counted as academic reading, they are the most willing and able to embrace and benefit from this technology. For the majority
of these students, the e-reader experience changed reading from a chore to pleasure and play, helping to challenge their negative reading attitudes and enhance their reading repertoire. These students were more willing to add or adapt their reading skills to their e-readers.

This study also reveals however that the students who will benefit the most from e-reader technology, still may be left behind without financial and academic support. Our data indicated that students testing into our Developmental English courses may come from less-privileged socio-economic backgrounds or have fewer funds to allocate to academic technologies. Implementing e-readers into the academic environment to reach the population who would most benefit, requires an institutional investment. Students would be more willing and able to invest in an e-reader if they have confidence they could employ it in multiple classes throughout their degree programs and across their academic careers. Further, to successfully adopt e-reading technology in academia, professors must take the time to practice e-reading in class with their students, they must incorporate it into their teaching practices, and further commit to selecting materials available to the specific e-readers their students have purchased.

In conclusion, we have come to believe that to fully utilize an e-reader as a tool for academic success, we need to simultaneously be working to expand the availability of e-texts in which our students can see themselves represented. Samuel Betances, a diversity consultant and educator, argues that in order to reach students who may not have the “social capital of having educated parents, essential middle-class language skills, and the values and motivational resources to successfully navigate the college and university experience without intervention,” we need to expose them to the narratives of successful first-generation students to serve as “inspiration and motivation” (1, 3). Any serious implementation of e-reader technology in academia needs to consider not only what existing reading practices the students bring to the
classroom, and how an e-reader may complement or conflict with those practices, but must actively work to shift professor pedagogical practices, and expand the e-text canon to include their students’ lives and stories.

Works Cited


Santos-Bamba, Sharleen “Preparing High School Students for College English & the UOG English Placement Test.” Mangilao, Guam. 2013. MS.
