The Environmental Impact of E-books at Boston College

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Introduction

Electronic books (E-books) are becoming a significant proportion of scholarly literature used for research at top universities like Boston College. The environmental impact of this change is not well understood and having this information would be useful to Boston College’s libraries as they continue to collect scholarly literature for student research. An E-book is defined as a piece of digitally formatted scholarly literature, including journals, article collections, and other peer-reviewed texts that are didactically written and only accessible by membership to a database.

Research Questions
1. What are the environmental impacts of E-books and are they greener than paper books?
2. Do Boston College students prefer to use E-books or traditional paper books?
3. Should Boston College Libraries invest in more E-books?

Literature Review

The print industry involves the consumption of raw materials, paper production, printing, shipping, transportation, and disposal. Between 25-36% of books printed do not sell and are returned to publishers to be disposed of. This industry annually consumes 125 million trees, produces 153 billion paper sheets of paper, books, and E-books (Apple iPads).

In addition to understanding the environmental impact of E-books and their increased usage at Boston College, it is important to understand the needs and wants of the student body. The researchers created a 15-question survey through the online platform, SurveyMonkey, to assess the general consensus on campus, and distributed it to 72 undergraduate students across all four years and four schools within Boston College. We also gathered data regarding student printing habits at Boston College and noted the university’s library inventory of paper books, E-books and E-readers (Apple iPads).

Survey Results

The most significant findings revolved around format preference, E-book usage, and professor habits. We found that 76% prefer to print and read E-books rather than use digital copies. 75% of students use library resources more than twice per semester, but less than half of the respondents had ever used an E-book more than twice. Despite this low number, 95% of students at least somewhat recommend that BC Libraries invest in more E-books. We discovered that 99% of students have had at least one professor who banned electronics in class during their time at BC (Figure 3).

One of the greatest challenges to the environmental soundness of E-books is the need for resources to be ordered in advance. The increase in printing from 2011 to 2014 could be explained by the fact that many professors require students to hand in hard copies of assignments. The fact that students check out more paper books than iPads means that they either prefer paper books or are unaware that the library lends iPads. Because the library recirculates and donates it’s old iPads, the E-readers and therefore E-books used at Boston College are environmentally sound, especially in comparison to paper books. E-readers are convenient and provide users with easy searchability, while conserving library shelf-space.

Data Results

Figure 4 indicates that there has been a consistent and general increase in annual printing in O’Neill Library. From 2011 to 2014 the total pages printed increased from 3,063,435 to 4,036,296. In addition, O’Neill Library houses significantly more paper books (2,266,576) than E-books (528,311) and more paper books are checked out than iPads. The university plans to invest in more iPads in the future. When these iPads are taken out of circulation, librarians keep a few around in case they need extra or they donate them to various organizations on campus including the Montserrat Program.

Methods

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Figure 1. Printed Books Offset by E-readers

Table 1. Boston College Library Inventory

<table>
<thead>
<tr>
<th>Year</th>
<th>Books</th>
<th>E-books</th>
<th>E-readers (Apple iPads)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>3,063,435</td>
<td>528,311</td>
<td>20</td>
</tr>
<tr>
<td>2012</td>
<td>3,407,316</td>
<td>575,311</td>
<td>25</td>
</tr>
<tr>
<td>2013</td>
<td>3,751,296</td>
<td>622,311</td>
<td>30</td>
</tr>
<tr>
<td>2014</td>
<td>4,036,296</td>
<td>669,311</td>
<td>35</td>
</tr>
</tbody>
</table>

Figure 2. Percentage of professors who don’t allow electronics for student research. An E-book is defined as a piece of scholarly literature, including journals, article collections, and other peer-reviewed texts that are didactically written and only accessible by membership to a database.

Figure 3. Projected change in CO2 Emissions due to global E-reader sales