

2020-06-22

Library Facilitation of eTextbooks in Engineering Classes: Student Adoption and Perception

Lalwani, Leena; Grochowski, Paul; Niehof, Jamie; Smith, Craig

<https://hdl.handle.net/2027.42/156049>

<http://creativecommons.org/licenses/by-nc-nd/4.0/>

Downloaded from Deep Blue, University of Michigan's institutional repository

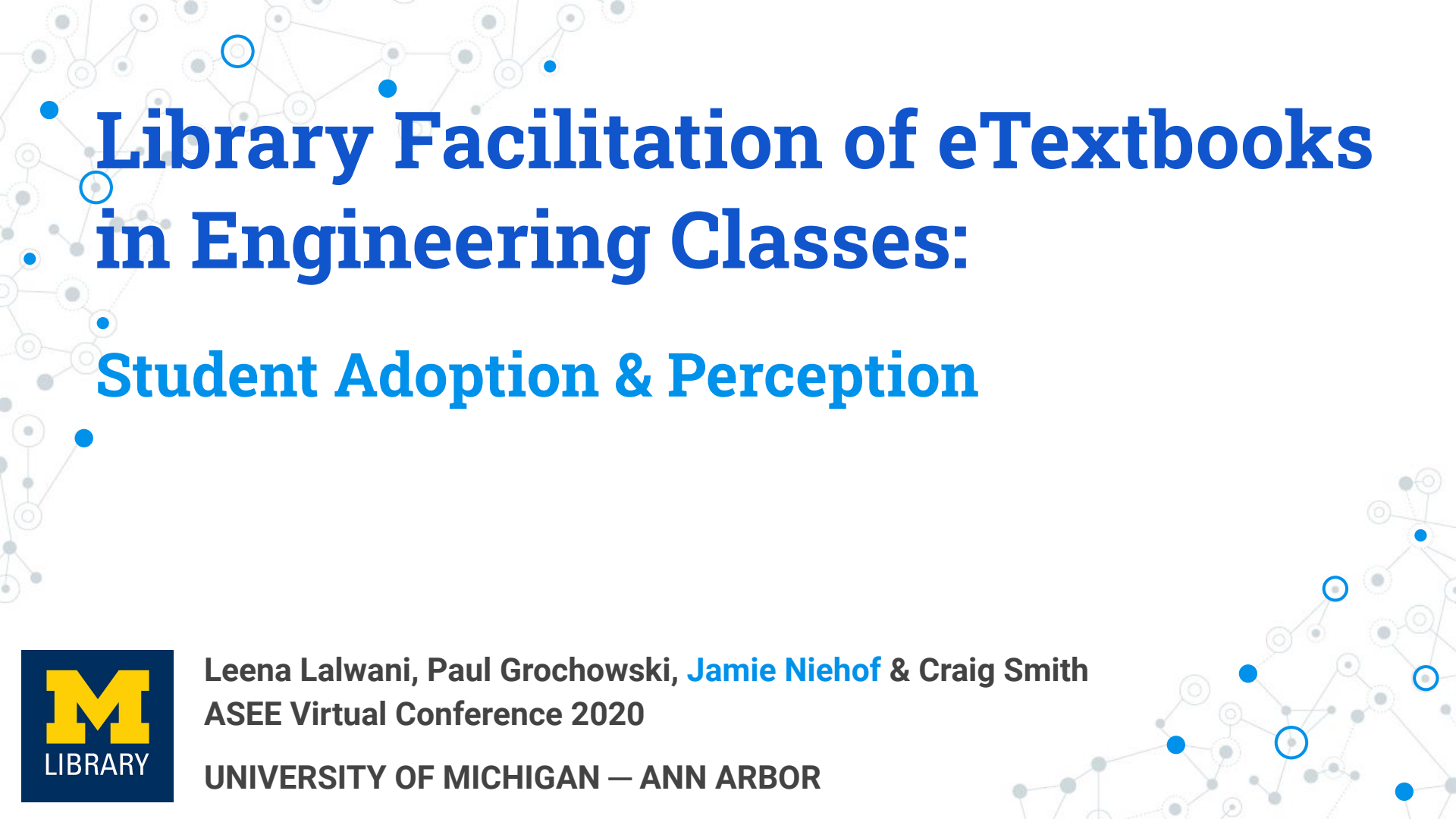
AT HOME WITH ENGINEERING EDUCATION



JUNE 22 - 26, 2020

Asee's Virtual Conference

#ASEEVC



Library Facilitation of eTextbooks in Engineering Classes: Student Adoption & Perception

Leena Lalwani, Paul Grochowski, [Jamie Niehof](#) & Craig Smith
ASEE Virtual Conference 2020

UNIVERSITY OF MICHIGAN — ANN ARBOR



M
LIBRARY



“

65% of students ... decided
against buying a textbook
because it was too expensive.

eTextbooks @ UM

- Textbook cost mitigation
- Fall + winter semesters
- Extensive promotion

The screenshot displays the 'Engineering (General)' research guide page. The page title is 'Engineering (General)' and it provides basic resources for locating information related to engineering. A navigation menu on the left includes links for 'Engineering (General)', 'Background Information', 'Finding Books', 'Finding Articles', 'Finding Conference Proceedings', 'Managing Citations', 'Web Resources', 'Women in Engineering', and 'Engineering Textbooks Online Fall 2019'. The 'Engineering Textbooks Online Fall 2019' link is highlighted with a yellow box. The main content area features a section titled 'Fall 2019 Engineering Textbooks Online' (also highlighted with a yellow box) which contains a list of available electronic textbooks for the Fall 2019 semester. Below this section is a list of department abbreviations: AEROSP | BME | CEE | ChE | CLIMATE | EECs | EER | ENGR | IOE | MACROMOL | MFG | ME | MSE | NAVARCH | NERS | SPACE. The bottom section of the page is titled 'Aerospace Engineering Online Textbooks' and lists three specific titles: AERO 343 (Cutler), AERO 548 (Rastgoftar), and AERO 574 (Jia), each with a brief description and platform information.

eTextbook LibGuide

Climate and Meteorology Online Textbooks

CLIMATE 380 (Huang) — Introduction to Atmospheric Radiation


[An Introduction to atmospheric radiation](#) by Kuo-Nan Liou. 2nd ed. 2002. Academic Press. 9780124514515.
Platform: ScienceDirect.

CLIMATE 473 (Flanner) — Climate Physics

[Global physical climatology](#) by Dennis L. Hartmann. 2nd ed. 2015. Elsevier. 9780123285317. Platform:
ScienceDirect online.

CLIMATE 574 (Jia) / SPACE 574 — Introduction to Space Physics

[Physics of the space environment](#) by Tamas I. Gombosi. 1998. Cambridge University Press. 052159264x.
Platform: Cambridge core online.

A photograph of the University of Michigan College of Engineering building and the Spirit Tower. The Spirit Tower is a tall, multi-tiered structure with a mix of brick and metal panels. The building is a long, low-profile structure with a dark facade. The scene is set against a bright blue sky with scattered white clouds. The sun is visible on the left side of the Spirit Tower, creating a lens flare effect. In the foreground, there is a green lawn and a paved walkway. A street lamp is visible in the middle ground. The text "U-M College of Engineering" is overlaid on the right side of the image, enclosed in a white dotted circle.

U-M College of Engineering

U-M College of Engineering

10,248

Total Students

6,779

Undergraduates

3,469

Graduates

900

Faculty & Researchers

4

Librarians

Project Origins

- ◎ “Students, Vendor Platforms, and E-Textbooks: Using E-Books as E-Textbooks” (2011/2012)
 - Follow-up survey
 - Assess current perceptions
 - Focus groups



Students, Vendor Platforms, and E-textbooks: Using E-books as E-textbooks

E-books are a growing area of interest and more are being produced by publishing companies as consumer demand increases. There are many benefits of using a book in an electronic format. The convenience and ability to access an e-book at any time day or night is an obvious benefit^{9,11,15}, the ability to search within an e-book is a feature not available in print books^{9,15}, and several e-books are much more portable than a collection of heavy print books¹⁵. Additionally, many e-books sold to libraries offer multi-user licenses, so more than one person can access the e-book at a time, an obvious feature that is not available for a print book in a library.

Electronic textbooks, or e-textbooks, is a subset of e-books that is also growing. Concern over textbook prices has encouraged libraries to research various options for students⁴, and the emergence of the e-book has provided a more affordable option. We have sought to provide this option to the students whenever possible. In fall 2012 we purchased eighteen e-books specifically because they were listed as textbooks in engineering courses.

It is expected that our library will increase the investment in e-books, so it is beneficial to investigate the students' use of e-textbooks from the collection of engineering e-books, including their expectations and usability issues they encounter. Brahme & Gabriel capture this sentiment when they state that "it is essential for librarians to understand the needs and preferences of their respective, unique populations."³ We agree with Shelburne that "Libraries have a responsibility to make certain they are purchasing e-books from providers who offer the appropriate levels of access and usage rights to this content for a large and varied user population."¹⁵

This paper discusses the results of two surveys: one conducted in fall 2011 and one conducted in fall 2012. The surveys ask questions related to awareness, satisfaction with features, and future use. Specifically, we focus on the responses to questions related to students' satisfaction with the e-book features they encountered and used, and we will match them to the appropriate vendor platform. We also look at the open-ended comments students made with regard to the usability of the e-textbooks and the comments about their future use of e-textbooks.

Literature Review

Students' perceptions of preferred features in e-books

Foot & Rupp-Serrano conducted a study in which they found that graduate students desired features where they could save a PDF of the e-book, search within the e-books, highlighting, and

Methodology by the Numbers — Survey

54 → **48**
Classes represented

20%
Response rate

1,974 → **1,849**
Students surveyed

335
Usable responses

39
Individual eTextbooks

Results



Student Responses

eBook Vendors

Most common vendors



EBOOK VENDOR	Responses	Books
ScienceDirect	65	7
EBook Central	61	8
Cambridge Core	49	4
SpringerLink	48	5
Safari	47	4
Wiley	17	4
Skillsoft	15	2
Knovel	13	1
Taylor & Francis	12	1
AccessEngineering	7	2
EBSCOHost	1	1

Print vs eTextbook Preference



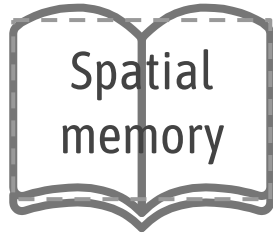
PREFERENCE?	Responses	Percent
eTextbook	126	37.6
Print Textbook	117	34.9
Both Equally	85	25.4
Do Not Use Textbooks	7	2.1

Format Preference by Academic Level

ACADEMIC LEVEL	Print Textbook	eTextbook	Both
Undergraduates	70 32.4%	94 43.5%	52 24.1%
Graduate Students	47 42%	32 28.6%	33 29.5%

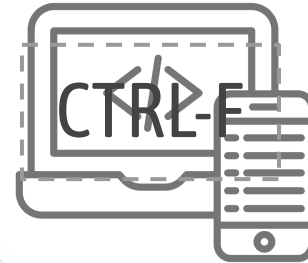
$$\chi^2 = 6.04 \mid p = .014 \mid \phi = .16$$

What do you like about the format?

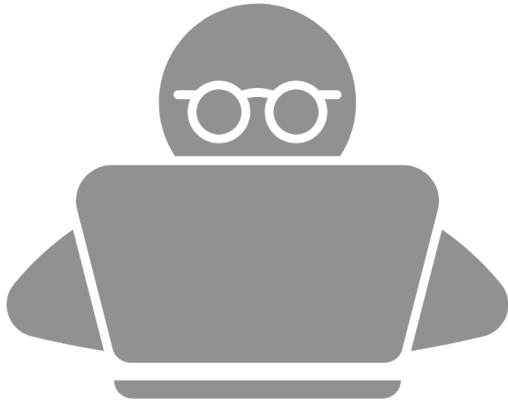


PRINT BOOKS – Like?	Responses	Percent
Like to read on paper	169	83.7
Easy to navigate	152	75.2
Like to write in book / highlighting	66	32.7
Want to use books long term	48	14.3

ETEXTBOOKS – Like?	Responses	Percent
The portability of eTextbooks	189	89.6
Easy to navigate	128	60.7
Can take notes / highlight	61	28.9
Like to read on a screen	25	11.8



Devices Used



DEVICES	Responses	Percent
Laptop	154	89.5
Desktop Computer	49	28.5
Tablet	27	15.7
Phone	22	12.8

Percentages sum to > 100% due to multiple device use by some students

When & How Did You Learn About the eTextbook?

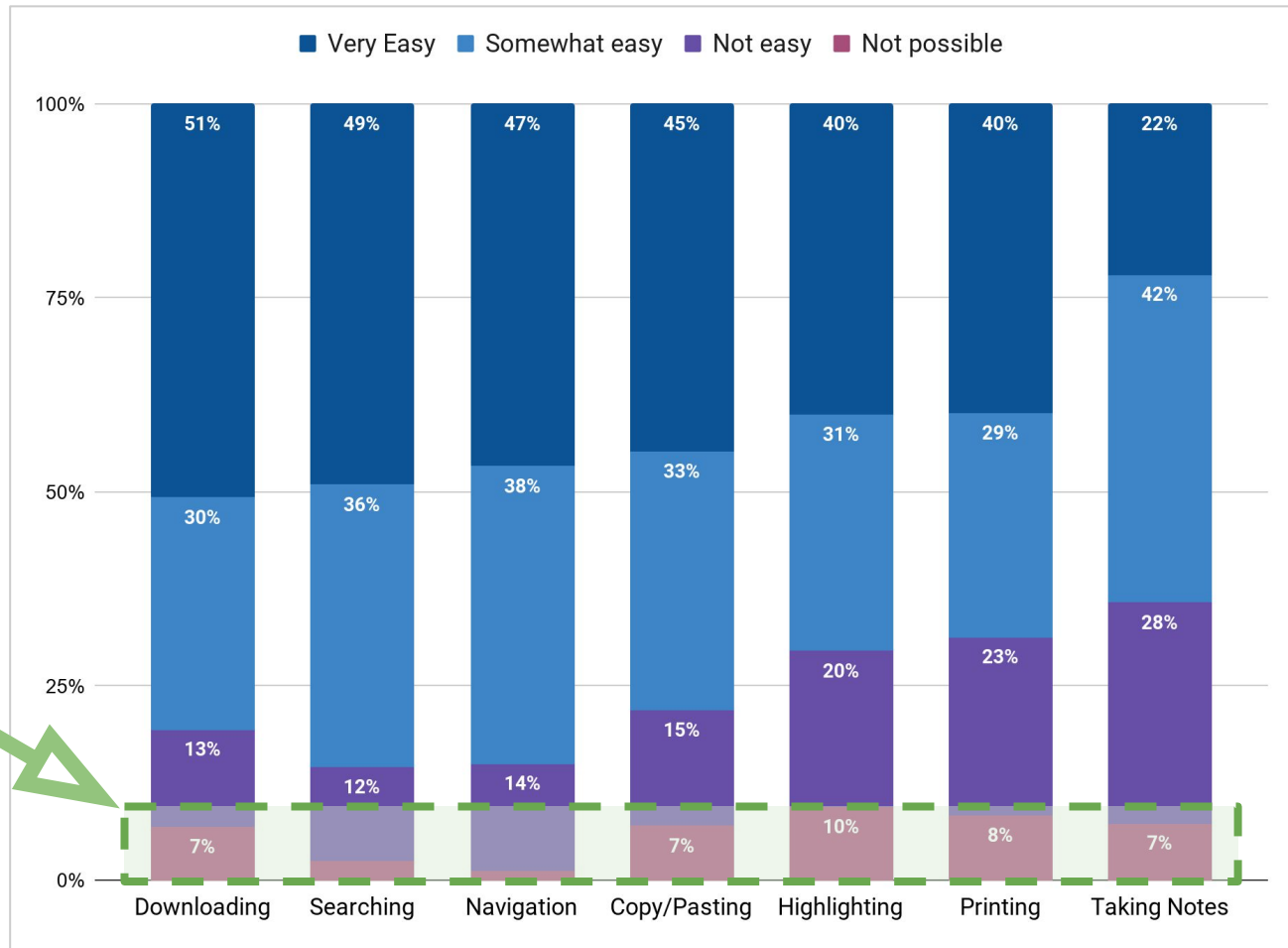
WHEN?	Responses	Percent
The first day of class	127	62.0
Before the first day	48	23.4
After class started	30	14.6

HOW?	Responses	Percent
Instructor Announcement	152	73.3
Course syllabus	110	53.4
Fellow students	36	17.5
Searched in library catalog	33	16.0
Library webpage	10	4.9



Ease of Use

eTextbook Features

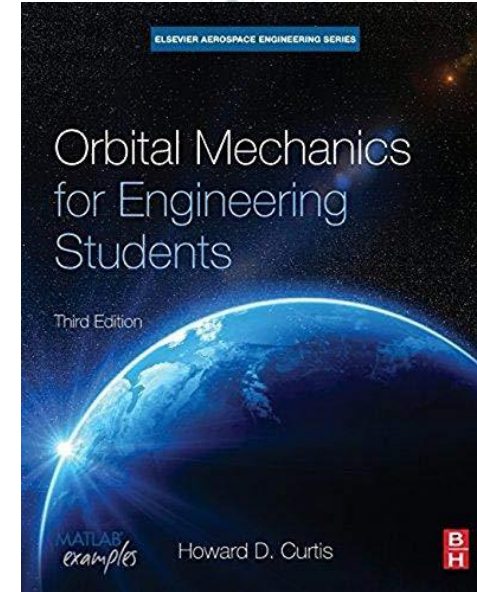


Student Comments

“ Most professors will not allow you to use eTextbooks on an exam...

“ Having the orbital mechanics textbook available free online this semester has been great. It's simply not feasible to carry multiple textbooks around, and not having it online would inhibit my ability to do homework problems.

“ Free eTextbooks are hugely useful to students who don't have much extra money for textbooks, and would otherwise ... be downloading pirated versions.



Methodology by the Numbers — Focus Groups

62 → 10

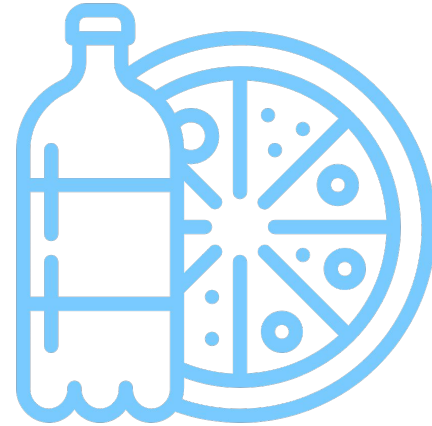
Student participants

13 → 5

CoE Departments represented

8

Questions asked



Focus Groups Comments

- **PDF Open Trade** period hosted on student-run FB pages at the beginning of each semester
- 85% of assigned textbooks can be found free online through pirating or friends
- One student stopped using her textbook altogether when it forced her to keep re-checking it out every three days
- Students are extremely passionate about downloadable PDFs



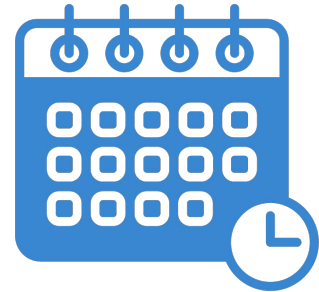
What **hasn't** changed in a decade?

- Preference for downloading PDFs
- **Highlighting and taking notes is important**
- Reading online prevents forming spatial memory
- **Using ebooks in an open book exam is a problem**



What **has** changed in a decade?

- Quality of ebooks has improved (images, blurry texts, illegible)
- More eTextbooks are available to students
- Students are aware of books earlier



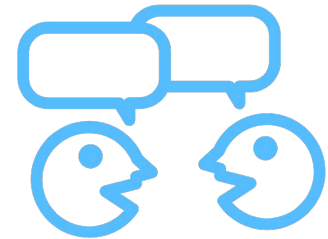
Conclusions

- 35% prefer print books, but will happily use ebooks if free
- Hard to draw conclusion regarding best vendor platforms
- Student preferences: downloadable PDFs, ability to highlight & take notes
- In both survey and focus group results, students expressed their appreciation for the eTextbook service



Future Work

- Survey & communicate with faculty
 - we only know about 18% of ENG courses
 - open-book exam issues
- Provide feedback to vendors
- Increase outreach & education about ebooks



Acknowledgements

- All engineering students who participated
- Colleague Janet Livingston who prepped eTextbook LibGuide
- Colleague Rebecca Price for early comments on our paper



#ASEEVC

**ASEE'S
VIRTUAL
CONFERENCE**

JUNE 22 - 26, 2020

At Home with
Engineering Education



Live Q & A

Thursday, 25 June 2020
10:40-11:00 a.m.

Leena Lalwani

llalwani@umich.edu

Library Facilitation of eTextbooks in Engineering Classes: Student Adoption & Perception

- List of eTextbooks available via subscription services
- Assess usefulness of the service
- Survey was distributed Fall 2019, followed by Focus Groups
- Paper reports on the results of survey and Focus Groups

UNIVERSITY OF MICHIGAN – Art, Architecture & Engineering Library

AUTHORS — Leena Lalwani, Paul Grochowski, Jamie Niehof & Craig Smith