

# Comparing Bananas with Grapes: Ebook Use Data from a Bunch of Vendors

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## Abstract

The Penrose Library at the University of Denver has access to hundreds of thousands of electronic books (ebooks) from a wide variety of aggregators and publishers. While many librarians have a great deal of experience in the analysis of journal use data, the analysis and publication of ebook use data is behind the curve. Many journal publishers provide "Counter Compliant" statistics to their subscribing institutions, but this is not the case for most ebook publishers. Thus, comparing ebook use from one vendor to the next can be difficult. Even though many ebook publishers do not provide "Counter Compliant" use statistics, several common data elements were used in this comparison. In order to keep the study focused, the presenter extracted use data from several vendors to analyze use in the subject areas of engineering and computer science. Ebook use data were also compared to print book use data in those two subject areas.

## Introduction

Librarians have been using electronic resource usage statistics for a long time, but they have not been evaluating e-book usage for nearly as long. One of my colleagues, Michael Levine-Clark, had surveyed and evaluated e-book usage here at the University of Denver, but the data evaluated e-book usage over the entire range of disciplines (Levine-Clark, "Electronic Book Usage" 285). As the Science and Engineering Librarian, I wanted to see how our usage of engineering and computer science e-books compared with each other and with the circulating print collection.

The University of Denver has been purchasing or subscribing to e-book packages since the late 1990's. Our first e-book package was consorcially negotiated with netLibrary. Many reference librarians were not happy with the interface, but at the time, we did not have much of a choice. However, many patrons were happy to have access to that first wave of electronic books (Levine-Clark, "Electronic Book Usage" 285). Levine-Clark also surveyed students in the humanities to determine their usage patterns and preferences. Because of the nature of their research, Michael found that researchers in the humanities still preferred printed books to e-books (Levine-Clark, "Electronic Books and the Humanities" 12).

Since the mid-2000's, the University of Denver has been purchasing or subscribing to e-books from a much larger number of e-book vendors, and many of those vendors have concentrated collections in the computer science and engineering subject areas. Some of the vendors the university provides access to include Books24x7, CRC ENGnetBASE, ebrary, Knovel, Morgan & Claypool Synthesis Library and ProQuest Safari. The author was able to retrieve usage statistics from all of those vendors except Books24x7.

## Prior Research

Cox, from the National University of Ireland, wrote a two articles examining how librarians can make sense of e-book usage data. He documents some of the common e-book usage metrics and some of the difficulties in evaluating e-book usage statistics (Cox, “E-Books: Challenges and Opportunities”; Cox, “Making Sense of E-book Usage Data” 195). However, my research includes data from some vendors not covered in Cox’s research (such as CRC ENGnetBASE, Knovel and Morgan & Claypool), but the difficulties involved in the evaluation remain the same.

Some of the metrics I encountered in the project include number of page view, full text page requests in PDF format, number of title requests, number of successful [e-book] section requests and user sessions.

Littman and Silipigni Connaway wrote an article that compared e-book usage with print book usage at Duke University. That study was completed over five years ago, and it covered all disciplines. This study suggested that college students are rapidly adopting e-books in their studies (Littman and Connaway 256).

## Findings

The e-book vendors used in this analysis are ebrary, knovel, CRC ENGnetBASE, ProQuest Safari, and Morgan & Claypool. Additionally, circulation data from our III catalog and the analysis tool spectra dimension was used to shed more light on the use of printed computer science and engineering books.

I was able to draw two types of data from the various vendors. One type of vendor provided section usage, and the other type provided data on individual e-book use.



The first section provides data from vendors with section usage. They were not able to provide data showing exactly which books were used within their collections. The “bananas” are large fruit, and they can’t be eaten in a single bite. The vendors in this category are Knovel and Morgan & Claypool.



The second section includes data from vendors that provided individual e-book usage statistics. The “grapes” are smaller fruit that can be examined and eaten individually. These vendors are ebrary, CRC ENGnetBASE and from ProQuest Safari. This type of vendor provided data that was COUNTER compliant. However, III circulation data also includes individual print book usage but they are not COUNTER compliant.

## Section One



Knovel provided section usage data using page views from June 2008 through May of 2009. Every section had some level of use.

Table 1

Secure Pages Viewed in the Knovel Subject Areas, June 2008 Through May of 2009

103	Food Science
85	Chemistry & Chemical Engineering
85	Plastics & Rubber
69	Mechanics & Mechanical ..
53	Electronics & Semiconductors
42	Oil & Gas Engineering
34	General Engineering & Engineering ..
27	Metals & Metallurgy
20	Biochemistry, Biology & ..
15	Aerospace & Radar Technology
13	Promotional Titles
11	Electrical & Power Engineering
8	Adhesives, Coatings, Sealants & Inks
5	Ceramics & Ceramic Engineering
4	Civil Engineering & Construction ..
3	Pharmaceuticals, Cosmetics & ..
3	Safety & Industrial Hygiene
2	Textiles
1	Earth Sciences
1	Environment & Environmental ..

Morgan and Claypool reported data for the various series they publish, not the individual e-books. Twenty-eight sections had zero use. For a time, the library did not have the correct Morgan & Claypool MARC records in the catalog, but that was rectified. In 2008, only 16 of 44 sections were used, and this resource appears to be underutilized.

Table 2

Number of Successful Full-text Article Requests (PDF requests) of Morgan and Claypool

E-books during 2008. Synthesis Lectures on:

12	Biomedical Engineering
9	Synthesis Lectures on Electrical Engineering
8	Digital Circuits and Systems
6	Energy and the Environment: Technology, Science, and Society
4	Antennas
3	Communications
3	Engineers, Technology and Society
2	Computational Electromagnetics

2	Engineering
2	Power Electronics
2	Signal Processing
2	Technology, Management, and Entrepreneurship
1	Artificial Intelligence and Machine Learning
1	Communication Networks
1	Image, Video, and Multimedia Processing
1	Speech and Audio Processing

## Section Two

The vendors in this section provided usage data for individual e-books. Data was derived from the following vendors: CRC ENGnetBASE, ebrary, ProQuest Safari, and circulation data from our III catalog system. An example screenshot is also displayed from Library Dynamic’s collection analysis tool called Spectra Dimension.

CRC ENGnetBASE provided individual e-book use data in COUNTER format. I received data over email concerning usage of all of the titles in the CRC NetBASE whether or not we subscribed to the title. The following e-books had three or more “successful title requests” during 2008. However, we currently have access to over 900 ENGnetBASE e-books so it appears as if this resource is underutilized.

Table 3

Number of Title Requests for CRC ENGnetBASE E-books during 2008

33	Microcontroller Programming: The Microchip PIC
15	Mechatronic Systems: Devices, Design, Control, Operation and Monitoring
14	Energy Management and Conservation Handbook
11	Handbook of Nanoscience, Engineering, & Technology
10	Understanding IPTV
8	Polymer Fiber Optics: Materials, Physics, and Applications
6	LabVIEW: Advanced Programming Techniques
5	Avionics: Elements, Software and Functions
5	Management of Professionals, Second Edition
4	Carrier Ethernet: Providing the Need for Speed
4	Ecotextiles: The way forward for sustainable development in textiles
4	Electromagnetics
4	Food Engineering Aspects of Baking Sweet Goods
4	MEMS: Introduction and Fundamentals
3	Design Engineering: A Manual for Enhanced Creativity
3	Electronics Handbook, Second Edition, The
3	Energy Conversion CRC
3	Fiber-Reinforced Composites: Materials, Manufacturing, and Design, Third

	Edition
3	MEMS: Design and Fabrication
3	Patent Law For Scientists and Engineers
3	Pipeline Engineering
3	Wind and Solar Power Systems: Design, Analysis, and Operation, Second Edition

ebrary provided individual e-book and category use in COUNTER format. I received them over email. Use statistics for the computers and technology categories are listed.

Table 4

ebrary Computers Section, 200 or More Pages Viewed from January 2007 through June 2009

Pages Viewed	User Sessions	Title
2440	56	Microsystem Design
1935	48	How to Do Everything with GarageBand
1051	12	Cyber Spying : Tracking Your Family's (Sometimes) Secret Online Lives
629	11	Virtualization with VMware ESX Server
601	10	UNIX for Dummies (5th Edition)
586	14	Oca/Ocp : Introduction to Oracle9i SQL Study Guide : Exam 1Z0-007
549	18	Guide to MATLAB : For Beginners and Experienced Users
498	11	Theory of Fun for Game Design
400	11	Carrier Class Voice-Over IP
400	10	PIC Microcontroller Project Book
358	10	Information Technology Investment : Decision-Making Methodology
337	4	Oracle PL/SQL 101
300	21	Python Programming for the Absolute Beginner
293	16	Art of Software Testing
293	9	ELECTRONIC ENTERPRISE: STRATEGY AND ARCHITECTURE
286	9	Collaborative Geographic Information Systems
273	13	Broadband Local Loops for High-Speed Access
253	3	Beginning XML (3rd Edition)
245	8	Who Goes There?: Authentication Through the Lens of Privacy
239	9	C++ : The Complete Reference (4th Edition)
213	5	Privacy Protection and Computer Forensics (Second Edition)
210	8	Steal This File Sharing Book : What They Won't Tell You about File Sharing

Table 5

Library Technology [Engineering] Section, 150 or More Pages Viewed from January 2007 through June 2009

Pages Viewed	User Sessions	Title
1269	25	Digital Signal Processing and Applications with the C6713 and C6416 DSK
698	13	Bast and Other Plant Fibres
641	8	Mechanics of Composite Structures
604	10	Carrier Grade Voice Over IP
457	7	Competition and Chaos: U.S. Telecommunications since the 1996 Telecom Act
429	7	DTV Handbook : The Revolution in Digital Video
276	10	Satellite Communications (4th Edition)
236	7	Advances in Latent Class Models
228	11	Hunt for Zero Point : Inside the Classified World of Antigravity Technology
224	11	Soft Edge: A Natural History & Future of the Information Revolution
218	1	Introduction to Radio Frequency Engineering
201	4	Seafood Choices : Balancing Benefits and Risks
201	7	Zinfandel : A History of a Grape and Its Wine
191	2	McGraw-Hill Illustrated Telecom Dictionary
188	12	Global Connect (4th Edition)
171	4	LabVIEW Digital Signal Processing
167	12	Neither Star Wars nor Sanctuary : Constraining the Military Uses of Space
164	5	Historical Encyclopedia of Atomic Energy

ProQuest Safari provided individual e-book use in COUNTER format. These e-books are the top “successful section requests” from January 1, 2008 through June 30, 2009.

Table 6

ProQuest Safari E-book Use from January 1, 2008 through June 30, 2009

Number	Title
2123	The Procurement and Supply Manager's Desk Reference
899	Joomla! A User's Guide: Building a Successful Joomla! Powered Website
852	Joomla!: Visual QuickStart Guide
806	Head First JavaScript
687	LabVIEW for Everyone: Graphical Programming Made Easy and Fun, Third Edition

644	C++ GUI Programming with Qt 4, Second Edition
617	Microsoft Office® Access™ 2007 Inside Out
542	Learning Web Design, 3rd Edition
512	PacketCable Implementation
499	Building Websites with Joomla! 1.5: The best-selling Joomla! tutorial guide updated for the final release
482	Alison Balter's Mastering Microsoft® Office Access 2007 Development
475	Building a WordPress Blog People Want to Read
463	Visualizing Data, 1st Edition
462	Learning SQL on SQL Server 2005
447	Design Patterns in Ruby
441	Pro SQL Server 2008 Relational Database Design and Implementation
435	Fundamentals of WiMAX: Understanding Broadband Wireless Networking
398	MediaWiki, 1st Edition
394	The New Rules of Marketing and PR: How to Use News Releases, Blogs, Podcasting, Viral Marketing, & Online Media to Reach Buyers Directly
363	Presentation Zen: Simple Ideas on Presentation Design and Delivery
347	Learning SAS® by Example: A Programmer's Guide
346	Core Java™, Volume I–Fundamentals, Eighth Edition
312	Fuzzing: Brute Force Vulnerability Discovery
309	Creating Dynamic Forms with Adobe® LiveCycle® Designer
301	Microsoft® Certified Application Specialist Study Guide: 2007 Microsoft Office System Edition
299	Apple Pro Training Series Logic Pro 8 and Logic Express 8
297	Visual Design for the Modern Web
287	COSO Enterprise Risk Management: Understanding the New Integrated ERM Framework
271	Microsoft® SQL Server 2005 Unleashed
266	The Digital Photography Book, Volume 2
258	The Rails Way

These printed books are the highest circulating books in their respective call number areas.

Table 7

Print Computer Science (QA75-76) Circulation from 1997 through July 12, 2009

TOTAL CHKOUTS	CALL #	TITLE
32	QA76.64.D47 1995	Design patterns : elements of reusable object-oriented software / Erich Gamma ... [et al.].
25	QA76.76.H94 M88 1998	HTML, the definitive guide / Chuck Musciano and Bill Kennedy.
24	QA76.76.H94 S257 1998	The advanced HTML companion / Keith Schengili-Roberts, Kim Silk-Copeland.

23	QA76.73.C15 K47 1988 SUPPL.	The C answer book : solutions to the exercises in The C programming language, second edition, by Brian W. Kernighan and Dennis M. Ritchie / Clovis L. Tondo, Scott E. Gimpel.
22	QA76.9.A73 P377 1996	Computer architecture : a quantitative approach / David A. Patterson, John L. Hennessy with a contribution by David Goldberg.
22	QA76.9.C643 H46 1998	Computer organization and design : the hardware/software interface / John L. Hennessy, David A. Patterson with a contribution by James R. Larus.
21	QA76.76.O63 S755 1990	UNIX network programming / W. Richard Stevens.
21	QA76.76.H92 G65 1998	XML handbook / Charles F. Goldfarb, Paul Prescod.
21	QA76.73.J38 D45 1998	Java : how to program / H.M. Deitel, P.J. Deitel.
20	QA76.73.C15 K47 1988	The C programming language / Brian W. Kernighan, Dennis M. Ritchie.
20	QA76.76.O63 S755 1998	UNIX network programming / by W. Richard Stevens.
19	QA76.9.D5 C68 1994	Distributed systems : concepts and design / George Coulouris, Jean Dollimore, Tim Kindberg.
19	QA76.76.O63 M7454 1995	The underground guide to UNIX : slightly askew advice from a UNIX guru / John Montgomery.
19	QA76.76.O63 W35 1987	UNIX System V primer / Mitchell Waite, Donald Martin, and Stephen Prata.
19	QA76.73.C153 B375 1999	Programming embedded systems in C and C++ / Michael Barr.
18	QA76.73.C15 B36 1991	The C book, featuring the ANSI C standard / Mike Banahan, Declan Brady, Mark Doran.
18	QA76.9.D3 I5376 1997	Data stores, data warehousing, and the Zachman Framework : managing enterprise knowledge / W.H. Inmon, John A. Zachman, Jonathan G. Geiger.
18	QA76.73.C15 S79 1991	The C++ programming language / Bjarne Stroustrup.
18	QA76.9.D3 A25 1995	Oracle, a beginner's guide / Michael Abbey, Michael J. Corey [foreword by Gary E. Damiano].
18	QA76.9.D3 R237 1998	Database management systems / Raghu Ramakrishnan.
18	QA76.889 .N54 2000	Quantum computation and quantum information / Michael A. Nielsen & Isaac L. Chuang.
18	QA76.758 .F46 1997	Software metrics : a rigorous and practical approach / Norman E. Fenton and Shari Lawrence Pfleeger.
17	QA76.73.J39 M37 1996	JavaScript essentials / Jason J. Manger.
17	QA76.6 .R65 1999	Writing Excel macros / Steven Roman.



17	QA76.76.T48 J97 2002	Software testing : a craftman's approach / Paul C. Jorgensen.
16	QA76.9.D3 E57 1994	Fundamentals of database systems / Ramez Elmasri, Shamkant B. Navathe.
16	QA76.9.D26 K575 1996	The data warehouse toolkit : practical techniques for building dimensional data warehouses / by Ralph Kimball.
16	QA76.73.C15 D44 1994	C : how to program / H.M. Deitel, P.J. Deitel..
16	QA76.73.J39 F53 1998	JavaScript : the definitive guide / David Flanagan.
16	QA76.6 .C662 2001	Introduction to algorithms / Thomas H. Cormen ... [et al.].
15	QA76.76.O63 R4443 1994	UNIX fundamentals : Unix for DOS and windows users / by Kevin Reichard.
15	QA76.73.B3 G855 1995	Teach yourself Visual Basic in 21 days / Nathan Gurewich, Ori Gurewich.
15	QA76.9.D37 D37 1998	The data warehouse lifecycle toolkit : expert methods for designing, developing, and deploying data warehouses / Ralph Kimball ... [et al.].
15	QA76.6 .P475 1998	Operating system concepts / Abraham Silberschatz, Peter Baer Galvin.
15	QA76.9.D26 S53 2001	The data model resource book / Len Silverston.
15	QA76.76.D47 T395 2003	Six Sigma software development / Christine B. Tayntor.
15	QA76.9.A73 P753 2004	A practical guide to enterprise architecture / James McGovern ... [et al.].

Table 8

Print Engineering (T-TP, TS) Circulation from 1997 through July 12, 2009

TOTAL CHKOUTS	CALL #	TITLE
22	TP248.65.F66 T45 2001	Genetically engineered food : changing the nature of nature / Martin Teitel and Kimberly A. Wilson foreword by Ralph Nader.
21	TD170.M36 1989	The control of nature / John McPhee.
21	TJ755.H45 1988	Internal combustion engine fundamentals / John B. Heywood.
21	TP248.65.F66 G47 2001	Genetically modified organisms in agriculture : economics and politics / edited by Gerald C. Nelson.
20	T58.5 .S72 2003	Case studies in information technology ethics / Richard A. Spinello.
19	T11 .W65 2001	Writing up qualitative research / Harry F. Wolcott.

19	TD794.5 .M395 2002	Cradle to cradle : remaking the way we make things / William McDonough & Michael Braungart.
19	TK5105.5.T36 1996	Computer networks / Andrew S. Tanenbaum.
19	TP248.65.F66 E86 2002	The ethics of food : a reader for the twenty-first century / edited by Gregory E. Pence.
19	TP248.65.F66 G458 2002	Genetically modified foods : debating biotechnology / edited by Michael Ruse, David Castle.
18	T385 .D875 2002	3D math primer for graphics and game development / Fletcher Dunn and Ian Parberry.
18	TD345 .S525 2002	Water wars : privatization, pollution and profit / by Vandana Shiva.
18	TK7867 .S39 1998	Microelectronic circuits / Adel S. Sedra, Kenneth C. Smith.
17	TA1637.B48 1995	Introduction to imaging : issues in constructing an image database / Howard Besser, Jennifer Trant.
17	TP248.65.F66 N67 1998	Eat your genes : how genetically modified food is entering our diet / Stephen Nottingham.
16	T14.5.D64 1994	Does technology drive history? : the dilemma of technological determinism / edited by Merritt Roe Smith and Leo Marx.
16	TA1637 .O7 1998	Digitizing historical pictorial collections for the Internet / by Stephen E. Ostrow.
16	TD195.D35 M33 2001	Silenced rivers : the ecology and politics of large dams / Patrick McCully.
16	TK5102.5 .K379 1993	Fundamentals of statistical signal processing : estimation theory / Steven M. Kay.
16	TK5102.5.W537 1985	Adaptive signal processing / Bernard Widrow, Samuel D. Stearns.
15	TA1632 .G66 2002	Digital image processing / Rafael C. Gonzalez, Richard E. Woods.
15	TK5105.5 .V58 1997	Virtual culture : identity and communication in cybersociety edited by Steven G. Jones.
15	TP248.65.F66 S64 2003	Seeds of deception : exposing industry and government lies about the safety of the genetically engineered foods you're eating / Jeffrey M. Smith.
15	TS171.4 .M39 2004	Massive change / Bruce Mau with Jennifer Leonard and the Institute without Boundaries.

Using Library Dynamic's collection analysis software tool called Spectra Dimension, one can see the title counts and circulation counts for either broad or specific call number areas. The data comes from the local library catalog and the circulation module. The library can also compare their figures with other libraries. Below is an image of a title count comparison in the T's where most engineering books are located (Library Dynamics 12).

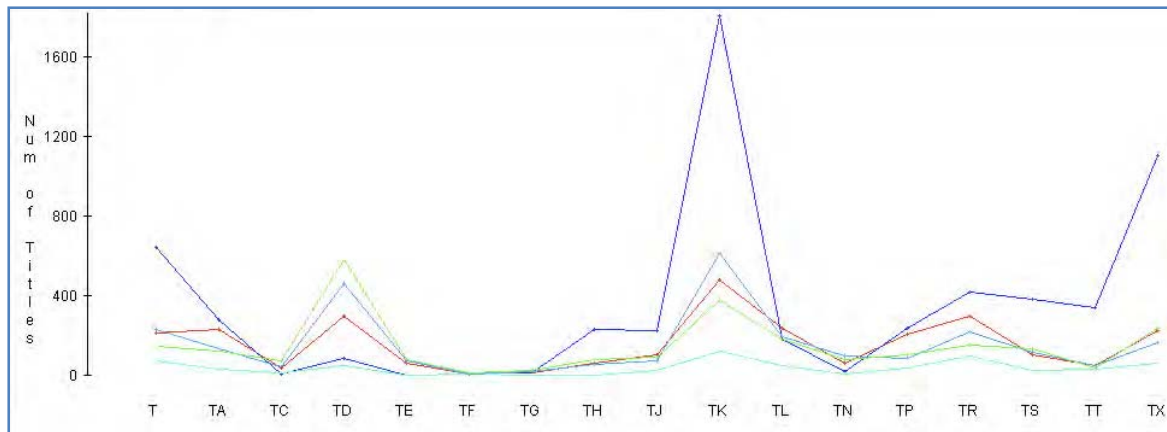


Fig. 1. Title count comparison, sub-class T

### Conclusions

It is no surprise that textbooks are popular when they are available in electronic format. I was also not surprised to see that some of the popular subject areas were genetic engineering and food related topics, nanotechnology, energy topics, C++, programming in Java, Joomla, SQL and UNIX. Considering the large number of printed books that were checked out concerning genetically modified foods, I will make sure our collection is up-to-date in that area. Some of the resources such as the CRC ENGnetBASE and the Morgan & Claypool database appear to be underutilized. The library may need to do a better job promoting some of these wonderful resources.

It is also difficult to say how much Google Books affects the current e-book reading behavior of the average undergraduate student. I am finding more and more scholarly and academic e-books that have some/most of their content available through that system. This comparison may be interesting for a future research project.

### Works Cited

- Cox, John. "Making Sense of E-book Usage Data." *Acquisitions Librarian* 19.3-4 (2007): 193-212. Print.
- Cox, John, "E-Books: Challenges and Opportunities." *D-Lib Magazine* 10.10 (2004): N. pag. Web. 14 July 2009 <<http://webdoc.sub.gwdg.de/edoc/aw/d-lib/dlib/october04/cox/10cox.html>>
- Levine-Clark, Michael. "Electronic Book Usage: A Survey at the University of Denver." *portal: Libraries and the Academy* 6.3 (2006): 285-299. Print.
- Levine-Clark, Michael. "Electronic Books and the Humanities: A Survey at the University of Denver." *Collection Building* 26.1 (2007): 7-14. Print.
- Library Dynamics. "A User Guide to Spectra Dimension and Spectra Momentum." *University of Colorado at Boulder-University Libraries*. University of Colorado at Boulder. 14 Oct.

2008. 14 July 2009. <[http://ucblibraries.colorado.edu/collectiondevelopment/  
User%20Guide%20to%20Spectra%20Dimension%20and%20Momentum  
%20081014.pdf](http://ucblibraries.colorado.edu/collectiondevelopment/User%20Guide%20to%20Spectra%20Dimension%20and%20Momentum%20081014.pdf)>

Littman, Justin and Lynn Silipigni Connaway. "A Circulation Analysis of Print Books and E-Books in an Academic Research Library." *Library Resources and Technical Services* 48.4 (2004): 256-262. Print.