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Global Reach: Use of the Nebraska Digital Commons in Developing Regions

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*University of Nebraska - Lincoln*

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Global Reach:
Use of the Nebraska Digital Commons in Developing Regions

Andrew Cano & Paul Royster
University of Nebraska-Lincoln

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University of San Diego
April 30, 2019
Keywords: developing countries, regions, Digital Commons, institutional repository, access, open access, Nebraska

Abstract

Developing countries comprise 40 percent of international downloads and 25 percent of all downloads from University of Nebraska-Lincoln’s institutional repository. This presentation will summarize the use of the Nebraska Digital Commons by representative countries in South Asia, East Asia and the Pacific, and Sub-Saharan Africa, the three regions where the most developing country downloads occurred in 2018. This summary includes the types of resources being downloaded and the types of organizations where the downloads occurred.

Discussion will focus on how further research can be conducted on whether such use of the Nebraska Digital Commons by users in developing regions is common among other institutional repositories. Furthermore, there will be discussion as to the implications of what types of resources are being accessed and what type of user is accessing them.
The repository

- Founded 2005
- Largest bepress installation
- Most visited subdomain of unl.edu (15%)
- Most downloaded IR in United States
- Avg downloads/item/year is around 70
- Numbers shown today are 2018 calendar year, or 12 mos. ending 3/31/19
We collect—and I am going to share—limited information concerning our users.
Impact on user privacy?  
Are we spying?

What we know about downloader

• Country of origin ~ 95%
• Geolocation < 90%
• Referring site ~75% (Google 97%, internal 1%, Bing 1%)
• Receiving institutional network ~ 20%
  (to the level of .com/.edu/.org/.mil, etc.)
Do we hold privileged information?

- If not signed in (sign-in not required to browse or download): No, nothing

- If signed in to personal account (to deposit or admin):
  Name, email address
  *optional*: affiliation

- **No** university ID, passwords, credit card, student status, library records, SSN. *(Digital Commons is completely separated from all campus networks.)*
Our audience is highly international (63%)
What is a “developing country”?  
World Bank definition: Average annual Gross National Income < $4,000

- Angola  
- Armenia  
- Bangladesh  
- Benin  
- Bhutan  
- Bolivia  
- Burkina Faso  
- Burundi  
- Cabo Verde  
- Cambodia  
- Cameroon  
- Central African Republic  
- Chad  
- Comoros  
- Congo, Rep.  
- Côte d’Ivoire  
- Djibouti  
- Egypt, Arab Rep.  
- El Salvador  
- Eritrea  
- Ethiopia  
- Gambia, The  
- Georgia  
- Ghana  
- Guatemala  
- Guinea  
- Guinea-Bisau  
- Haiti  
- Honduras  
- India  
- Indonesia  
- Kenya  
- Kiribati  
- Korea, Dem Rep.  
- Kosovo  
- Kyrgyz Republic  
- Lao PDR  
- Lesotho  
- Liberia  
- Madagascar  
- Malawi  
- Mali  
- Mauritania  
- Moldova  
- Mongolia  
- Morocco  
- Mozambique  
- Myanmar  
- Nepal  
- Nicaragua  
- Niger  
- Nigeria  
- Pakistan  
- Papua New Guinea  
- Philippines  
- Rwanda  
- São Tomé and Principe  
- Senegal  
- Sierra Leone  
- Solomon Islands  
- Somalia  
- South Sudan  
- Sri Lanka  
- Sudan  
- Swaziland  
- Syrian Arab Republic  
- Tajikistan  
- Tanzania  
- Timor-Leste  
- Togo  
- Tunisia  
- Uganda  
- Ukraine  
- Uzbekistan  
- Vanuatu  
- Vietnam  
- West Bank and Gaza  
- Yemen, Rep.  
- Zambia  
- Zimbabwe
What is “most popular” internationally - 2018

• Library Philosophy & Practice (e-journal)
  2,157 articles
  859,717 downloads (avg 399/article)

• Nebraska Tractor Test Reports
  2,394 reports
  194,299 downloads (avg 81/report)

• Robert Katz’s Physics (1958)
  49 chapters
  149,429 downloads (avg 3,049/chapter)

• Also “how-to” papers from ag extension system re farming & homemaking.
• Also series of “E-texts in American Studies”: digital facsimiles 16th-19th century publications
Open Educational Resources: OERs

• Mostly recent creations (past 5 years)
• Licensed CC-BY or CC-0
• Frequently complete courses
• Discovery via specialized search
Free Online Learning Objects: FOLO

• May be digitization of past pedagogical materials
• Frequently unconnected lessons, units, exercises
• A medley of licenses
• Discovery via general Google search
Downloads by type 4/18–3/19

- Research articles: 39%
- Journals, new & backlists: 28%
- Theses, dissertations, & student work: 17%
- Presentations, proceedings: 6%
- Documents: 5%
- Books, new or digitized: 2%
- Free online learning objects: 3%
Average downloads by item type

4/18—3/19
## Top 20 Countries for FOLO's

<table>
<thead>
<tr>
<th>Rank</th>
<th>Country</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>USA</td>
<td>42,572</td>
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<tr>
<td>2.</td>
<td>India</td>
<td>32,728</td>
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<tr>
<td>3.</td>
<td>Philippines</td>
<td>9,692</td>
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<tr>
<td>4.</td>
<td>UK</td>
<td>4,399</td>
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<tr>
<td>5.</td>
<td>Nigeria</td>
<td>4,076</td>
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<tr>
<td>6.</td>
<td>Canada</td>
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<td>Pakistan</td>
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<td>8.</td>
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<td>9.</td>
<td>Australia</td>
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<tr>
<td>10.</td>
<td>Ethiopia</td>
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<tr>
<td>11.</td>
<td>South Africa</td>
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<td>12.</td>
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<td>13.</td>
<td>Indonesia</td>
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<td>14.</td>
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<td>15.</td>
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<td>17.</td>
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<td>18.</td>
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<td>19.</td>
<td>China</td>
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<td>20.</td>
<td>Russia</td>
<td>928</td>
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</table>

“Developing countries”
3 Models of Developing Countries Usage

- Philippines
- Nigeria
- India
Download rates/million vs US & world avg.

<table>
<thead>
<tr>
<th></th>
<th>Downloads Apr'18-March'19</th>
<th>Population (millions)</th>
<th>Downloads per million pop.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Philippines</td>
<td>449,927</td>
<td>105</td>
<td>4,285</td>
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<tr>
<td>Nigeria</td>
<td>211,474</td>
<td>200</td>
<td>1,057</td>
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<tr>
<td>India</td>
<td>391,719</td>
<td>1,370</td>
<td>286</td>
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<tr>
<td>USA</td>
<td>2,440,556</td>
<td>329</td>
<td>7,418</td>
</tr>
<tr>
<td>World</td>
<td>7,021,446</td>
<td>7,696</td>
<td>912</td>
</tr>
</tbody>
</table>
Philippines

• Population 105 million
• GNI 314 billion
• Per capita $2,987.
• Downloads 450,000
• FOLOs 9,600 (2%)
<table>
<thead>
<tr>
<th>Title</th>
<th>Downloads</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effect of Social Media on Academic Performance of Students in Ghanaian Universities: A Case Study of University of Ghana, Legon.</td>
<td>68363</td>
</tr>
<tr>
<td>A Comparative Study of use of the Library and the Internet as Sources of Information by Graduate Students in the University Of Ghana</td>
<td>20526</td>
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<tr>
<td>Reading Habits Among Students and its Effect on Academic Performance: A Study of Students of Koforidua Polytechnic</td>
<td>14407</td>
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<tr>
<td>Social Media Network Participation and Academic Performance In Senior High Schools in Ghana</td>
<td>13152</td>
</tr>
<tr>
<td>Internet Use and its Effect on Senior High School Students in Wa Municipality of Ghana</td>
<td>7765</td>
</tr>
<tr>
<td>A Case Study of Reading Instruction in a Philippine Classroom</td>
<td>6802</td>
</tr>
<tr>
<td>Being There: A Grounded-Theory Study of Student Perceptions of Instructor Presence in Online Classes</td>
<td>5988</td>
</tr>
<tr>
<td>The Effect Of Social Networking On Students’ Academic Performance: The Perspective Of Faculty Members Of Periyar University, Salem</td>
<td>5202</td>
</tr>
<tr>
<td>E-book Reading and its Impact on Academic Status of Students at Payame Noor University, Iran</td>
<td>4931</td>
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<tr>
<td>Mental health help seeking among Filipinos: a review of the literature</td>
<td>4725</td>
</tr>
<tr>
<td>The Impact of Students' Academic and Social Relationships on College Student Persistence</td>
<td>4558</td>
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<tr>
<td>High School Home Economics Students’ Perceptions of Subject Matter Needs in Home Economics Curriculum</td>
<td>4277</td>
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<tr>
<td>Parental Involvement Among Low-income Filipinos: A Phenomenological Inquiry</td>
<td>3639</td>
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<tr>
<td>How Students Choose a College: Understanding the Role of Internet Based Resources in the College Choice Process</td>
<td>3340</td>
</tr>
<tr>
<td>Comparative Study of Library and Internet Use as a Source of Information by Graduate Students of the University for Development Studies, Ghana</td>
<td>3304</td>
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<tr>
<td>A Descriptive Analysis of Demographic Characteristics and Their Influence on Student Attendance at Programming Board Events</td>
<td>3105</td>
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<tr>
<td>Influence of social networking sites on students’ academic and social lives: The Ghanaian Perspective.</td>
<td>2622</td>
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<tr>
<td>Improving Problem Solving by Improving Reading Skills</td>
<td>2488</td>
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<tr>
<td>The Effects of Social Media on the Undergraduate Students’ Academic Performances</td>
<td>2468</td>
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<tr>
<td>Adolescent Alcohol Use: Mixed Methods Research Approach</td>
<td>2193</td>
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<tr>
<td>An Analysis Of The Effects Of Financial Education On Financial Literacy And Financial Behaviors</td>
<td>2156</td>
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<tr>
<td>The Caring Teacher: A Multiple Case Study That Looks at What Teachers Do and Believe about Their Work With At-Risk Students</td>
<td>2075</td>
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<td>Relationship of Teaching Styles and Learning Styles to Classroom Environment</td>
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<td>NF94-186 Functions of Baking Ingredients</td>
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<tr>
<td>A Phenomenological Study of Millennial Generation Cooperative Extension Educators' Development of Core Competencies</td>
<td>1632</td>
</tr>
</tbody>
</table>
61% from Manila region
44% from Manila proper
Philippines — comments

• Pretty normal set of articles

• Some preference for Philippine subjects, but only 3 of 25

• Most-popular materials are library science, education, and psychology research articles

• Significant use of *Library Philosophy & Practice*

• 18,000 different items were downloaded

• 9,000 “FOLO” downloads, but none in top 25.

• Accessed from variety of consumer, government, corporate, & educational networks
Nigeria

- population: 200 million
- GNI: 376 billion
- Per capita: $1,880
- Downloads: 211,000
- FOLOs: 4,000 (2%)
Nigeria – Most downloaded items

Effect of Social Media on Academic Performance of Students in Ghanaian Universities: A Case Study of University of Ghana, Legon. 4056
School Library Media Resources Availability As A Predictor Of Secondary School Students Academic Achievement In Social Studies in Ondo State, Nigeria 3083
Cataloging and Classification Skills of Library and Information Science Practitioners in their Workplaces: A Case Analysis 2952
Influence Of Students’ Industrial Work Experience Scheme On Professional Development Of Library And Information Science Students in South-West, Nigeria 2867
An Assessment of the Use of Radio and other Means of Information Dissemination by the Residents of Ado- Ekiti, Ekiti-State, Nigeria. 2637
Reading Habits Among Students and its Effect on Academic Performance: A Study of Students of Koforidua Polytechnic [Ghana] 2205
The impact of Information and Communication Technology (ict) on News Processing, Reporting and Dissemination on Broadcast stations in Lagos, Nigeria. 1969
Library Information Resources And Services Utilization As Correlates Of Creativity Of Senior Administrative Staff Of Polytechnics in South West, Nigeria 1839
Application of ICTs in Nigerian Secondary Schools 1803
Curbing Youth Restiveness in Nigeria: The Role of Information and Libraries 1453
Freedom Of Information Bill, Its Relevance And Challenges In National Development: The Nigerian Experience 1368
The Role Of Auditors In Fraud Detection, Prevention And Reporting In Nigeria 1311
The Challenges of Promoting Reading Culture in Nigerian Children through Story Hour, Book Talks and Exhibition: A Case Study of selected Secondary Schools in Owerri, Imo State, Nigeria. 1289
The Impact of Information and Communication Technology (ICT) in Nigerian University Libraries 1285
Effective Utilisation of University Library Resources by Undergraduate Students: a case study of Federal University Oye-Ekiti, Nigeria 1177
A Review of Problems and Challenges of Library Professionals in Developing Countries including Pakistan 1169
Evaluating the use of Polytechnic Libraries in Nigeria: A Case Study of Federal Polytechnic, Offa, Library, Kwara State, Nigeria 1167
Public Library Information Resources, Facilities, and Services: User Satisfaction with the Edo State Central Library, Benin-City, Nigeria 1059
Population Control In Nigeria: Implications For Librarians 1029
Herdsmen/Farmers Crises In Nigeria: The Role Of Librarians In Resolving Crises 1008
Management And Preservation Of Non-Book Materials In Academic Libraries: A Case Study Of Three University Libraries In Nigeria 1003
The Nigerian Freedom of Information Law: Progress, Implementation Challenges and Prospects 969
Information Needs, Sources and Information Seeking Behaviour of Women Artisans in Offa Metropolis [Nigeria] 948
A Comparative Study of use of the Library and the Internet as Sources of Information by Graduate Students in the University Of Ghana 944
Poor Reading Habits Among Nigerians: The Role of Libraries 942

Showing 1 to 25 of 15,512 entries

Green = Nigerian subject; Blue = Ghana
59% from Lagos
pop. 22 million

19% from Port Harcourt
pop. 2 million

18% from Abuja
pop. 1 million
Lagos is the most populous city in Africa and the continent’s major financial center.
Nigeria — comments

• It’s all about Nigeria! 20 out of top 25 have Nigeria in the title (and 3 have Ghana, next door).

• Heavy users of (and contributors to) *Library Philosophy & Practice* e-journal

• But 15,000 different items were downloaded.

• 4,000 FOLO downloads, but none in top 25.

• Access/connections through university, telephone, & bank networks
India

- Population: 1,370 million
- GNI: 2,600 billion
- Per capita: $1,898.
- Downloads: 392,000
- FOLOs: 33,000 (8%)
India — Most-downloaded items

Physics, Chapter 11: Rotational Motion (The Dynamics of a Rigid Body)  9692
The Green Revolution of the 1960's and Its Impact on Small Farmers in India  5103
Physics, Chapter 16: Kinetic Theory of Gases  3215
Physics, Chapter 9: Hydrodynamics (Fluids in Motion)  2635
Reading Habits Among Students and its Effect on Academic Performance: A Study of Students of Koforidua Polytechnic [Ghana]  2387
Development of Public Libraries in India  2160
Sine, Cosine, and Tangent Table: 0 to 360 degrees  1853
Effect of Social Media on Academic Performance of Students in Ghanaian Universities: A Case Study of University of Ghana, Legon.  1841
Physics, Chapter 13: Properties of Matter  1816
Significant Themes in 19th-Century Literature  1802
Cataloging and Classification Skills of Library and Information Science Practitioners in their Workplaces: A Case Analysis  1699
Physics, Chapter 2: Motion of a Particle (Kinematics)  1696
A Comparative Study of use of the Library and the Internet as Sources of Information by Graduate Students in the University Of Ghana  1550
Physics, Chapter 28: Electrical Conduction in Liquids and Solids  1339
An Introduction to the Special Theory of Relativity  1279
Sampling For PM10 and PM2.5 Particulates  1246
Physics, Chapter 38: Mirrors and Lenses  1172
The Role of the Student-Teacher Relationship in the Lives of Fifth Graders: A Mixed Methods Analysis  1136
Marketing Yourself with a High Five! PowerPoint Presentation  1099
Physics, Chapter 8: Hydrostatics (Fluids at Rest)  1069
Physics, Chapter 1: Fundamental Quantities  1069
Using Student Feedback to Improve Teaching  1054
Field Techniques and Research Methods in Geography  1025
Oral and Written Communication in Classroom Mathematics  955
Information Needs of the Rural Farmers : A Study from Maharashtra, India: A Survey  945

Showing 1 to 25 of 29,046 entries

Red = FOLO; Blue = Indian subject
India — comments

• Broad usage: 29,000 different items were downloaded (30% of the IR)

• 11 of top 25 are FOLOs (red)

• 3 of 25 most popular are India-centric (cyan)

• Heavy use by university & research networks (example of New Delhi)
Goa 12%
Mumbai 24%
Calcutta 6%
Ahmedabad 8%
Chennai 7%
Delhi 16%
Guwahati 7%

Custom Date Range: 04/01/2018 to 03/31/2019
New Delhi is India’s capital; its population is 22 million
Don't want to miss this attraction.
University networks in New Delhi that downloaded

1) Delhi University North Campus 14) Gaurbanga University
2) Alagappa University Karaikudi 15) Central University of Kerala
3) Jawaharlal Nehru University 16) National Institute of Health and Family Welfare New Delhi
4) Indian Agricultural and Research Institute (IARI) New Delhi 17) National Agri-Food Biotechnology Institute Punjab
5) Mizoram University 18) Institute of Himalayan Bioresource Technology
6) Jamia Millia Islamia University New Delhi 19) National Law University Odisha (NLUO) Cuttack
7) NKN Institute 20) ICAR Research Complex Umiam Meghalaya
8) Assam Agricultural University 21) ICAR-Indian Institute of Soybean Research MP
9) Central Food Technological Research Institute Karnataka 22) Delhi Technical University
10) Kerala Veterinary & Animal Science University 23) Gandhigram Rural Institute University
11) Inter University Centre UGC-DAE Consortium for Scientific Research 24) Rajendra Agriculture University
13) Karnataka State Women University

These all show normal distribution of downloads, consistent with college research projects.
R. Katz’s *Physics*, ch. 11 is “King of the FOLOs”
These are the downloads we could place by country.

<table>
<thead>
<tr>
<th>Country, United Republ</th>
<th>Downloads</th>
<th>Country</th>
<th>Downloads</th>
<th>Country</th>
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<tr>
<td>United States</td>
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<td>Denmark</td>
<td>49</td>
<td>Morocco</td>
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<td>India</td>
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<td>Puerto Rico</td>
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<td>Libya</td>
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<td>Poland</td>
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<td>62</td>
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<td>Venezuela, Bolivarian Republic</td>
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<td>162</td>
<td>Jordan</td>
<td>60</td>
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<td>Syrian Arab Republic</td>
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<td>Colombia</td>
<td>57</td>
<td>Somalia</td>
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<td>157</td>
<td>Bangladesh</td>
<td>53</td>
<td>Czech Republic</td>
<td>20</td>
<td>Macedonia, The Former Yugoslav Republic</td>
<td>8</td>
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<td>Finland</td>
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Who is Robert Katz?

• b. 1917 New York City
• B.A. Brooklyn College 1937; M.S. Columbia U. 1937; PhD. U. of Illinois, 1949
• Developer of “particle-track physics”: how radiation impacts cells and biological materials
• Published Physics textbook in 1958 with Henry Semat
• d. 2011 Lincoln, NE

He remains our most downloaded author. (155,000 past year)
Not just 3rd-world secondary schools

Massachusetts Institute of Technology

<table>
<thead>
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<th>Article</th>
<th>Downloads</th>
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<tr>
<td>Chapter 11: Rotational Motion (The Dynamics of a Rigid Body)</td>
<td>110</td>
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<td>Chapter 9: Hydrodynamics (Fluids in Motion)</td>
<td>24</td>
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<tr>
<td>Chapter 26: Electrical Conduction in Liquids and Solids</td>
<td>5</td>
</tr>
<tr>
<td>Chapter 28: Electrical Conduction in Liquids and Solids</td>
<td>3</td>
</tr>
<tr>
<td>Class Notes for Math 918: Cohen Macaulay Modules, Instructor Roger Wiegand</td>
<td>4</td>
</tr>
<tr>
<td>Chapter 16: Kinetic Theory of Gases</td>
<td>3</td>
</tr>
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<td>Chapter 25: Capacitance and Dielectrics</td>
<td>3</td>
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<tr>
<td>Chapter 31: Forces on Moving Charges and Currents</td>
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<td>1</td>
</tr>
</tbody>
</table>

Showing 1 to 10 of 16 entries
Conclusions

1) Usage in less developed countries varies by nation but is overall similar to usage everywhere else.

2) FOLOs are used everywhere at rates higher than typical scholarly journal articles, but are not currently a large segment of usage.
Is this actionable intelligence?

- Why are these materials being used?  
  *Free, convenient, discoverable, university-branded, Google-delivered*

- And for what?  
  *Instruction, research, reference, professional development*

- And what does that mean for the IR?  
  *It means we are the best vehicle for delivering ad-free educational content.*
Impact on IR management?

• Does this change the way you manage the repository?
• The crux is still and always “Content, content, content, .... and more content.”

Is the IR a silo, or an elevator?
Impact on strategy

• Does this change how you recruit content?

• Where do you put your time and effort to do the most good?

• Who are we playing with or against?

• Do you see “a friend in need”? 

C. M. Coolidge, A Friend in Need (1903)
Foraging strategies

1. Stalking hunters
2. Roaming grazers
3. Stationary filterers
Advice for IR builders:

• Don’t ignore opportunities for classic content: break it out of retirement.

• Don’t choke the user or the pipeline: break it into convenient-sized pieces—ideas as well as bytes.

• Don’t overshoot the mark—break it down to basics; KISS. Our mission includes things other than rocket science and brain surgery.
Where does this fit in the **mission** of the IR?

1. Promoting faculty work (makes them happy).
2. Showing faculty their global reach (makes them excited & energized).
3. Branding university research
4. Recruiting students (and faculty)
5. *Promoting open scholarship to and from the global South.*
Is this helping my school?

• We must make the case that it is.

• Share results with administrators.

• IRs are a fabulous success, and we all need to push that story.

• If you don’t have the bepress Dashboard, join the RAMP project, support development of results technology.  http://ramp.montana.edu/
Time for questions

“Please be sure to phrase your response in the form of a question.” - Alex Trebek
Contact

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https://digitalcommons.unl.edu/