

July 2010

A Study on the Usage, Application and Value of Online Books on ScienceDirect in an Academic Environment

Interim results July 2010

Exclusive interim results webinar entitled
Elsevier Ebooks Usage Study
What are researchers, teachers & students saying about ebooks?

Available from
<http://www.scholarlyperspectives.com/webinars>

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Research carried out by Pleiade Management & Consultancy
(www.pleiade.nl)

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Overall Study Design and Scope

Beginning in March 2010, a number of universities were approached by Elsevier to participate in a global study on the usage, application and value of Online Books on ScienceDirect. This study seeks to better understand how online books are used by researchers, teachers and students within an academic environment.¹

With final results expected in October 2010, this white paper outlines the scope and design of the study. In addition, interim results are presented, including key findings from initial interviews and one focus group together with an analysis of the Online Books on ScienceDirect usage data from institutions from around the world.²

The goal of the study is to better understand how web-based search and reference tools are used to find trusted, peer-reviewed content subscribed to by the library. In addition, the bibliometric impact of access to Online Books on ScienceDirect on research will also be considered. For this, the work of highly cited researchers from participating universities will be examined to record the incidence of book citations within journal article references. This will serve to demonstrate the value of Online Books on ScienceDirect in the research process.

Both quantitative and qualitative research methods are being employed and include personal interviews, focus groups, and logbook analyses. A look at ScienceDirect usage data will show how Online Books on ScienceDirect are accessed and used over time.

The complete collection of Online Books on ScienceDirect consists of over 12,000 titles and includes reference works, handbooks, eBooks (monographs), and book series.³

The academic portion of this study is underway with the generous participation and support of the following universities:

- Indiana University (CIC Consortium), USA
- Middle East Technical University, Turkey
- Paris Descartes, France
- Purdue University (CIC Consortium), USA
- Université de la Méditerranée Aix-Marseille II, France
- University of Hong Kong, Hong Kong
- University of Aberdeen, Scotland
- University of Illinois Urbana Champaign (CIC Consortium), USA
- University of Stellenbosch, South Africa

¹Researchers from corporate Research and Development departments will be included in the latter part of this study.

²This white paper is the next in a series about electronic books from Elsevier. A previous white paper, entitled *The Evolution of the Book: Defining The Value of Content in Academic Knowledge Discovery - And Differentiating the Value of Online Books On The ScienceDirect Platform*, explored the migration from print books to electronic books within libraries and by researchers.

³Due to the similar content and structure of book series to journals, book series were not included in the usage analysis portion of this study. It should also be noted that the respondents spoken to thus far do not necessarily distinguish between these book categories and tend to refer more generally to online books.

Interview Respondents and Focus Group Participants

- Yekbun Adig zel, Postdoctorate researcher, Middle East Technical University
- Ozgur Balkiliu, PhD student, Middle East Technical University
- Sohina Bhattacharaya, Senior Lecturer, University of Aberdeen
- Gözde Citir, Master's student, Middle East Technical University
- Eda Do an, Research Assistant, Middle East Technical University
- Ellen Faubert, PhD student, University of Aberdeen
- Ayse G I Gözen, Associate Professor, Middle East Technical University
- Hasan Güllü, Master's student, Middle East Technical University
- Robert Hobkirk, PhD student, University of Aberdeen
- Barbara Isabella Holzweber, PhD student, University of Aberdeen
- Gül Inan, PhD student, Middle East Technical University
- Hediye T ydes Jaman, Associate Professor, Middle East Technical University
- Seda Kayra, Master's student, Middle East Technical University
- Meliz Metbulut, PhD student, Middle East Technical University
- Nicola Miller, PhD student, University of Aberdeen
- Nur Erkan Oger, Research Assistant, Middle East Technical University
- Abby Othman, PhD student, University of Aberdeen
- Tugba Özaktas, PhD student, Middle East Technical University
- Grant Reaber, PhD student, University of Aberdeen
- Philip Sage, PhD student, University of Aberdeen
- Shakti Shresta, Master's student, University of Aberdeen
- Chris Sutherland, PhD Student, University of Aberdeen
- Gerhard Wilhelm Weber, Professor, Middle East Technical University

"I prefer electronic books over print books. More users can use it simultaneously and you can download the PDF on your laptop."

PhD student , University of Aberdeen



Focus Group with participants from Middle East Technical University, Tuesday, June 3, 2010
Left to right: Maurits van der Graaf from Pleiade Management and Consultancy, Gözde Citir, Tugba Özaktas, Gül Inan, Ozgur Balkiliu, and Yekbun Adig zel. Photo courtesy of Dr. Emre Hasan Akbayrak, Associate Director, Middle East Technical University Library.

Study Interim Results

The Online Books on ScienceDirect Usage & Value Study seeks to address four key questions:

1. How are Online Books on ScienceDirect presently used and valued by researchers at the partner universities?
2. How are Online Books on ScienceDirect presently used and valued by teachers and students (graduate/ 3rd-4th year undergraduate) at the partner universities?
3. What is the value of Online Books on ScienceDirect in comparison to online books from other publishers?
4. How are Online Books on ScienceDirect used and valued in comparison to other electronic resources in the R&D workflow at partner corporations?

Interim results presented here focus on the first two of the four research questions stated above. As of June 2010, 15 interviews have been completed with participants from both Middle East Technical University (METU) and the University of Aberdeen⁴. A focus group has also been held with eight postgraduate students from METU.

How Books Fit In to the Research Workflow

In contrast to journal articles which are considered by respondents to contain information which is more timely, detailed and possibly cutting-edge, **books provide general knowledge about a topic; knowledge “that is agreed upon” by the wider community**. Respondents therefore report turning to books when they need background information or historical data on a particular topic⁵. This is often the case when beginning research on a new or unfamiliar topic or if they encounter an unknown concept or formula in their own field of expertise. In some cases they need to learn the basics about several topics that are related to, or bordering on, their specialty. One example, highlighted from the first set of study interviews, tells of a pharmacologist who needs to know everything in detail about the pharmacological action of a certain drug but only needs to have general knowledge about the disease for which it is used. In this case, he would refer to book sources for information about the disease.

Interviews with respondents thus far therefore support findings previously reported in the white paper entitled

⁴University of Aberdeen has access to the Complete eBooks and Major Reference Works Collection on ScienceDirect, while Middle East Technical University has access to the eBooks Collection on ScienceDirect for the publication years 1995 to 2007.

⁵When searching intentionally for books, researchers often use Google Scholar or their library catalogue.

The Evolution of the Book: Defining the Value of Content in Academic Knowledge Discovery—and Differentiating the Value of Online Books on the ScienceDirect Platform. The graph below⁶ further demonstrates the importance of book content to fulfill a variety of information needs and re-emphasizes its continued value throughout the research process.

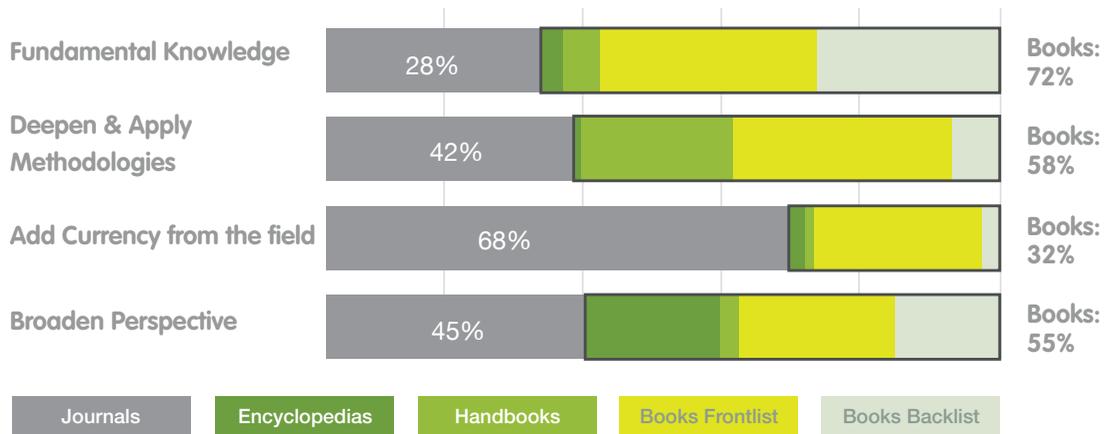


Figure 1: The Value of Content to the Research Workflow

How Do Researchers Apply Books?

For researchers, books are most useful for background research when starting a new project, writing a paper or book or putting together a research proposal, especially for the introduction and methodology sections. One respondent noted that she refers to books at the start of her research for more general information and then moves on to journal articles for specific details about her topic. Books are often used to fill in knowledge gaps and explore fundamental concepts which are being discussed in a journal article.

How Do Teachers Apply Books?

Teachers tend to prefer the broad content of books over journals, especially for teaching undergraduate and Master's students. One respondent said online books are especially useful for those teachers with students based in rural areas and studying via distance education.

How Do Students Apply Books?

Students often turn to books for class assignments such as essays and literature reviews. Many Master's students reference several books in addition to journal articles for their theses.

During the second phase of the study (to be conducted from July to October) we will seek to better understand and document the primary role of online books in the teacher and student's workflows more specifically.

⁶Reproduced from *The Evolution of the Book: Defining the Value of Content in Academic Knowledge Discovery—and Differentiating the Value of Online Books on the ScienceDirect Platform.*

Usage Behavior for Online Books

Findings From Interviews and Focus Group

Online Books on ScienceDirect are primarily accessed by researchers in one of two ways: **Passively** while performing an online topic search and actively to fill particular information needs during their research workflow, such as performing background research on a new topic.

For those respondents who came across book results passively while performing a topic search, most were able to identify book results immediately from the list of results. Whether or not the books were used depended on their needs at that time, and according to their research stage. Three distinct phases can be recognized within this workflow: **Discovery, Assessment** and **Reading**.

During the **Discovery** phase, book results may be displayed following a topic search which usually begins with a search engine such as Google or Google Scholar, or an A&I database such as Scopus or Web of Science. Often the researcher has no intention of searching for books specifically but may come across a title which appears to be relevant for their research.

Before downloading or reading the book, all respondents proceed with an **Assessment** phase during which they decide whether or not the book will be useful for their research. To assess relevance, most researchers will look at the title, author and content page. In addition, some may also scan a few chapters or perform a keyword search if the book is available electronically. Once the book is determined to be useful, most respondents will only download the relevant (usually one or two) chapters they plan to read. The minority will download the entire book even if they only plan to read selected chapters. As one respondent pointed out she usually downloads the entire book in case she needs to refer to additional chapters later in her research as it can be difficult to find the same source again.

Once the book, or parts of it, has been downloaded, most respondents continue with their search and come back to the Reading phase at a later time. Approximately half the respondents reported reading the PDF directly from the screen while the other half prefer to make a print-out. Usually the printed copies were also used for marking key passages and taking notes.

Findings From ScienceDirect Platform Usage Log File Analysis (Analysis based on ScienceDirect Global Online Books Customer Base)

• Access

Based on the log file analysis portion of this study, usage behaviour amongst ScienceDirect’s global customer base suggests that Online Books on ScienceDirect are accessed primarily via library websites, followed by the ScienceDirect search & discovery platform itself, and Google.⁷ This is in contrast to journals which are most often accessed via Google first and then the library website or Medline/Pubmed.

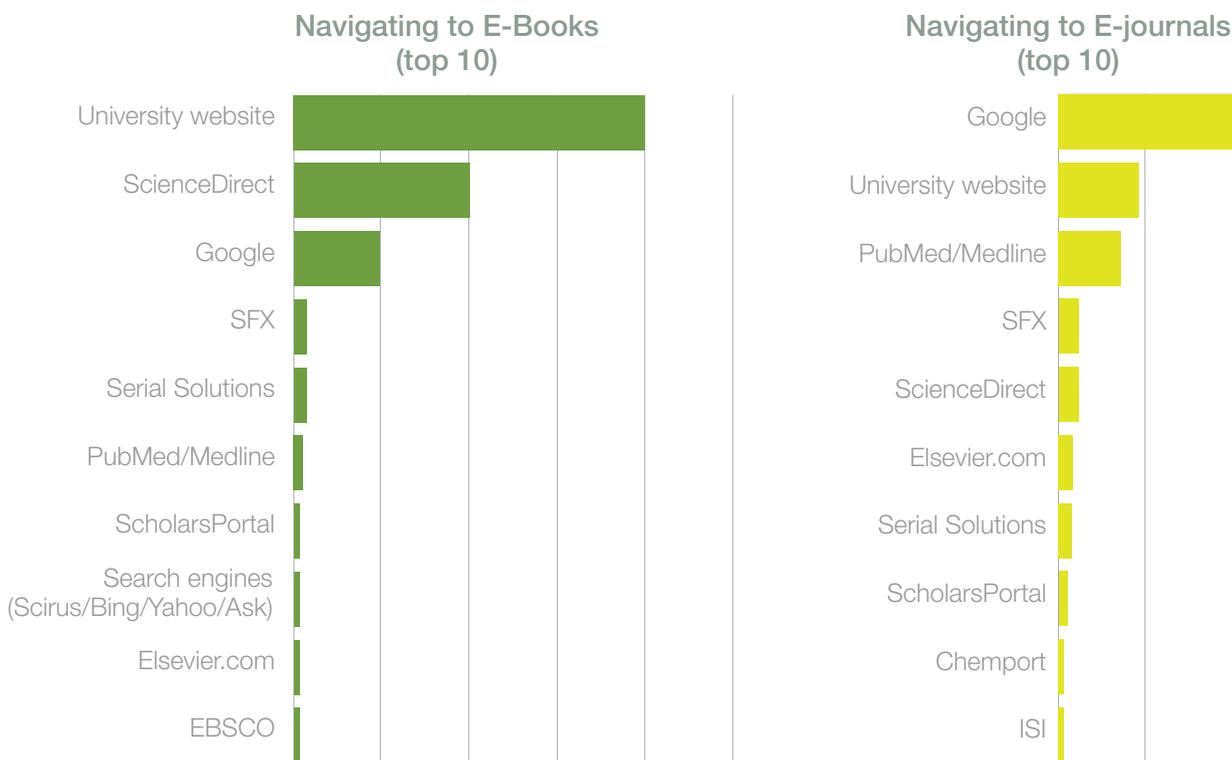


Figure 2: How online books and journals hosted on the ScienceDirect platform are accessed

• Usage session length

Sessions where full-text from Online Books on ScienceDirect was accessed and downloaded lasted considerably longer than sessions involving full-text journal articles. More than half the sessions with full-text book chapter usage lasted longer than 10 minutes; 10% lasted less than one minute. By comparison, 45% of sessions where full-text journal articles were accessed lasted less than one minute while only 25% lasted longer than 10 minutes.

The increased length of book sessions is likely due to the different discovery and assessment patterns shown by researchers when looking at online books. First they want to ascertain the relevance of a particular book for their research and then, once they decide it is relevant, they choose which chapters to download. In some cases they will download the entire book even if they only plan to read one or two chapters. Many respondents spoke of the inter-connectedness of book content; the entire book is downloaded in case they must refer to additional chapters at a later stage to better understand topics which have been introduced in other parts of the book.

⁷This highlights the importance of indexing Marc21 Records for eBooks in library catalogues.

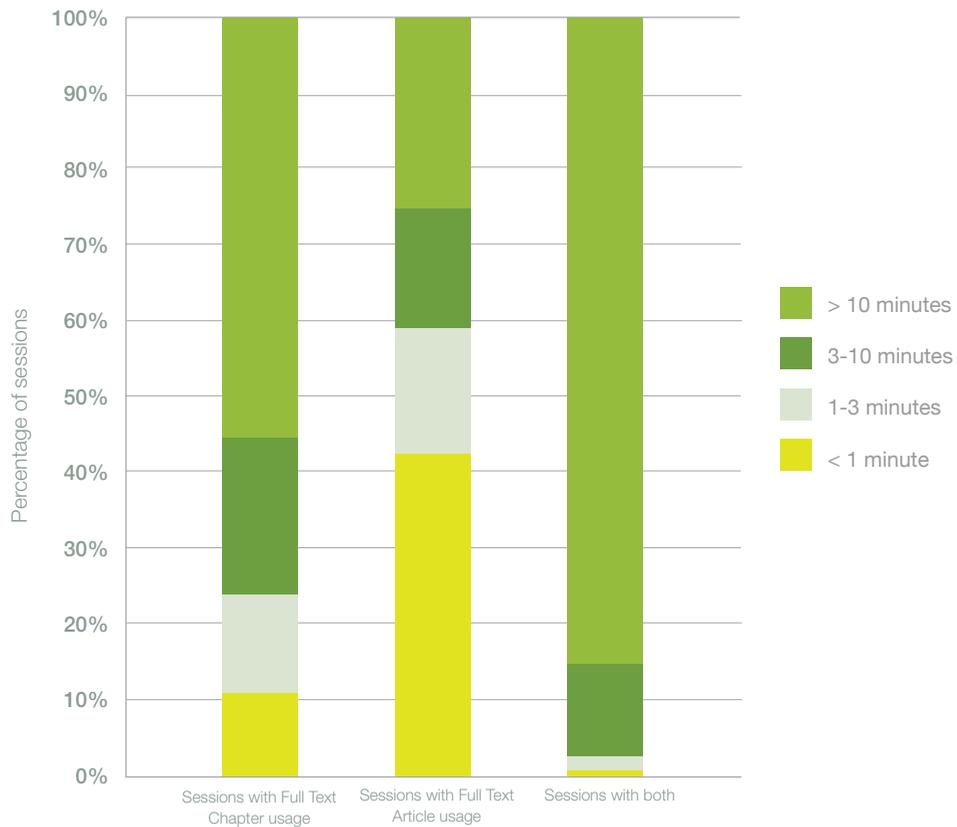


Figure 3: Session length with full-text usage of books and journals on ScienceDirect

"I push students to use online books. If we have a tutorial planned, everyone is heading to the library for the printed books; with electronic books, you have unlimited, immediate access."

PhD student with teaching tasks, University of Aberdeen

- **ScienceDirect Online Book and Journal Usage in a 24-hour period (Europe, Middle East and Africa)**

A look at usage of ScienceDirect over a 24-hour period for all academic customers in Europe, the Middle East and Africa shows that a considerable portion of full-text book and article downloads occur outside a library's opening hours. This points to one of the main benefits of online books as recognized by researchers: They are always available and many users can access them concurrently.



Figure 4: 24-hour usage of ScienceDirect by customers in Europe, the Middle East and Africa

- **Usage based on publication year**

While the usage of more recent monographs is understandably high, the usage of monographs with older publication years can still be considered strong. This reflects the nature of book content: background information and historical data; knowledge “that is agreed upon.”

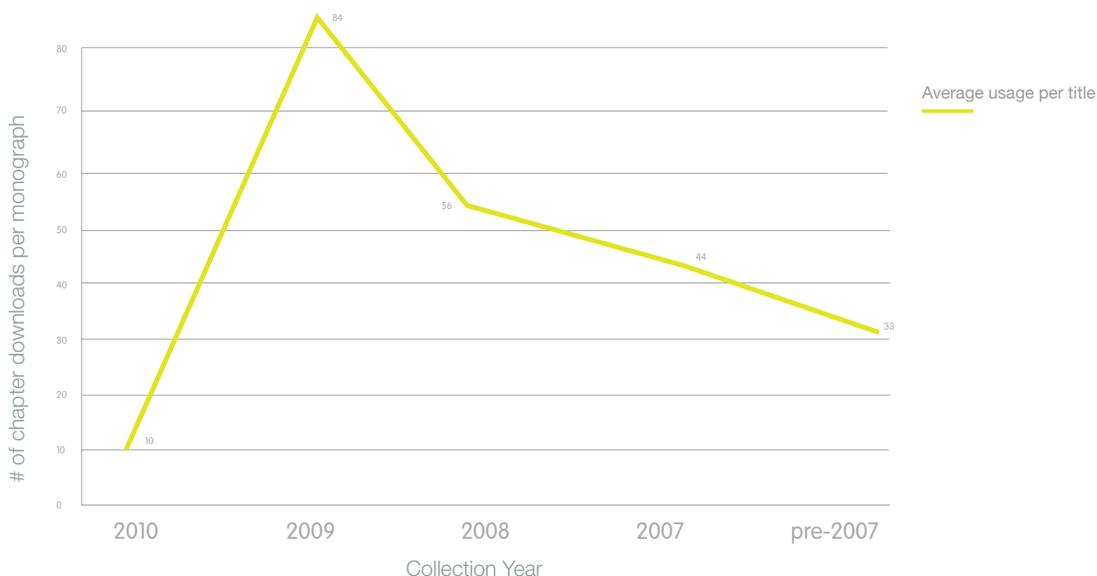


Figure 5: Average usage per monograph title per publication year during the first three months of 2010

Usage of Online Books on ScienceDirect by customers with the complete eBook collection further reveals how monographs are used over time. When looking at usage for the first three months of 2010 more than half of the usage is of titles published prior to 2007. This reflects the sheer volume of work that is available for that period as well as the continued usefulness of the content contained therein.

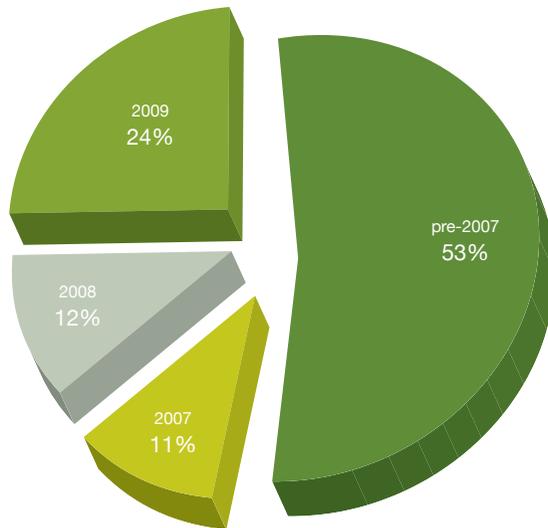


Figure 6: Monographs per publication year: Usage during the first three months of 2010

The Value of Online Books vs. Print Books

Respondents identified the following benefits regarding online books vs. print books:

- **Access:** Online books are always available anytime and from anywhere.
- **Searching:** Respondents find it helpful to search for keywords and pinpoint relevant sections for reading.
- **Accessibility:** Those with visual handicaps and/or dyslexia appreciate the availability of special software that assists with reading.
- **Easy reference:** Most users download the PDF which means it is easy to transport and refer to when necessary. A number of respondents were therefore displeased with some product interfaces which limit downloads.

Print books (and printed PDFs) were sometimes preferred for longer reading and some respondents remarked they read print simply “out of habit.” Most respondents disliked having to carry around heavy books, however, and appreciated the option to download a PDF copy to their hard drive.

Suggested Enhancements to Online Books

When asked whether they had any suggestions as to how online books could be enhanced, respondents made the following recommendations:

- Increase “findability” of online books (in many cases search terms are only searched using title and author name, not full text, and consequently relevant results are missed)*
- Include an option to search online books only*
- Make online book chapters discoverable as separate units*
- Make online book chapter downloads more usable as separate units (add/include summary, reference list, content page, index)
- Add links from journal articles to online books
- Show links to related online books

**Functionality already provided on ScienceDirect*

“We can sacrifice the established access point of the printed book for the pure power of the search on a e-platform that covers both books and journals”

Research Assistant, Middle East Technical University

Conclusion

Based on the responses received thus far, key highlights from the Online Books on ScienceDirect Usage & Value study, to date, include:

- Books are rarely read in their entirety. The majority of respondents read one to two individual book chapters. Some users, however, will download the entire book in case they need to refer back to additional chapters further on in their research. This points to the inter-connectedness of book content; each chapter builds on the content from previous chapters.
- Based on the usage log file analysis, usage sessions where full-text from books is downloaded last longer, on average, than those sessions where full-text journal articles are downloaded. This is likely due to the increased time users will spend on assessing whether the book is relevant for their research and if so, which chapters they plan to read.
- Usage analysis points to a long life cycle for books. While recent books are used more frequently, older books still attract considerable usage. This finding points to the type of content available in books: background knowledge and historical data which remain relevant for long(er) periods of time.
- Books are mainly used for background information on a topic and constitute knowledge “that is agreed upon” vs. journal articles which are thought to contain more timely (and possibly controversial) research. Books are especially useful when beginning research on a new or unfamiliar topic or if they encounter an unfamiliar concept or formula in their own field of expertise. In some cases they need to learn the basics about several topics that are related to, or bordering on, their specialty. The use of books in this way reaffirms findings from an earlier white paper⁸, published in August 2009, which defined such background knowledge as “fundamental knowledge.”

Upon completion of the study in October 2010, final results will be published in a subsequent white paper.

⁸The Evolution of the Book: Defining the Value of Content in Academic Knowledge Discovery – and Differentiating the Value of Online Books on the ScienceDirect Platform may be downloaded in PDF format from <http://info.sciencedirect.com/content/books/>.

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