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Harvesting Scholarly Communication Padi Seeds via Mendeley Institutional Edition for your Academic Libraries

Nurhazman Abdul Aziz
Swets Information Services, Singapore
naziz@sg.swets.com

Keita Bando
MyOpenArchive, Japan
info@myopenarchive.org

Wan Ahmad Hanis Bin Wan Yahya
Universiti Teknologi MARA, Malaysia
hanisyahya88@gmail.com

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Abstract
With the advent of internet technologies in today’s information science landscape, a number of researchers and scholars are using new media into their professional communication and scholarly work. This action shifted the patterns in using beyond than just a reference management tool and place a challenge in library science’s service on the reflection of new demographic pool’s patrons behavior and usage in using the library’s model. Librarians have to keep up on their toes, with these attributes in acquiring knowledge, tools, resources and operations to serve a unique information service model to their patrons, especially in academic and research libraries. Understanding the needs of the librarians, here at Swets, the partnership with Mendeley aims to set a milestone ahead to aid and provide a strategic alignment model for their on-progress challenging model. Together, in this paper, the illustration will focus on the discussion topic to invest and align strategically, a tool that is designed to be part of the ecological cycle in current scholarly communication lifestyle. Mendeley is not only build for a basic reference management tools to aid academics and researchers (or even undergraduate) in their daily academic writing. But, that will be beyond than just a scholar’s imagination. This includes topics as access, visible, preserve, collaborate, share, knowledge transfer, mobile and openness. This is because Mendeley rides on the open science concept, indirectly immerse the usage of the product in part of a scholar’s life in a university. This will seeds a good, positive seeding investment for librarians and research managers to look beyond the basic service model, along with the other productive competitive services and platforms, especially for Malaysia’s and South East Asia’s library and information science industry to leverage for the future in open science development.

Keywords
Introduction

In most scholarly work, the key activities is conducting the research process, where it is made of a number of different stages. On top, researchers are often engaged with a number of projects and responsibilities in hand. This includes a day to day activities too. In addition researchers based in universities may or required to have teaching which add another self-contained activity to their work - finding papers to use as teaching materials. Similar to students, their academic life fall in similar with the approach. When it comes to discuss the practical tools researchers and students can use to assist with their workflow, it is important to note that the work is far more dynamic than moving gently through the research process.

For the past couple of decades, to aid this needs of the students and the researchers (including the academicians), librarians have provided an in-depth service model such as instructional services. This instructional service is commonly to ensure the provision of quality campus-wide library instructional programmes. Hence, students and staff of the institution are empowered with the necessary information literacy skills for their study, research, teaching and work; thus enriching and contributing towards their advancement of knowledge and life-long learning. In addition, top of the objective list in this area of work, these librarians will plan and oversee the development of library instructional programmes, such as information literacy, literacy, literature review, information retrieval and resources in specific subject areas (information skills). And, this leads to the development in expertise and contribute to research and professional literature on information literacy and information skills issues. In most libraries, they have adopted Endnote and RefWorks, as their basic reference management tools (Butros & Taylor, 2011; Kern, 2011; McMinn, 2011). Using this tool, the knowledge is shared and taught to their community at the university.

As the behavior and characteristic of today’s researchers (or students) in an academic setting evolves, the word - collaboration, sharing, mobility, access and ubiquity starts to change and influence in the activities cycle of research workflow (Flynn, Gilchrist, & Olson, 2004; Fry & Rich, 2011; Wendling & Johnson, 2008). Tools, such as Endnote and RefWorks, have to go beyond than the original functionally. This is because the availability and access to research journals, articles and resources in various formats are now easy made to be reach, download and analyse for their academic work. And, due to this, most researchers start to face information overload. In short, overwhelm with all the research articles to read, managed and annotate. Furthermore, a need to collaboration and share is a need in mostly today assignment, due to encourage the understanding better (Vehmas, 2007). This has been a big question to most librarians and also lecturers.

In today’s situation, the librarian are being tasked to aid their patrons with this challenges and knowledge (Benson, 1995; Darch & De Jager, 2012; Ekkebus, 1985). A very big challenge for them, especially on the other side of the institution, it is another situation. A need to raise the profile of the institution, and this is done via the visibility of research works in the researchers and academics.
A Journey into Scholarly Communication

Recently, a number of universities have started to adopt scholarly communication into their service model. This is because there has been widespread belief that the traditional system for disseminating scholarship has reached a state of crisis, due to the business model that most publishers had adopted (Eugene, 1998). And, this has seen a crucial part of research and researchers are often judged by their academic output and list of publications. Most universities, their promotions will normally take in to account the number of publications and how prestigious the journals they were published in (for example: Nature and The Lancet are seen as very prestigious journals within the sciences). A researcher's publication list will help create them a reputation within their disciplines.

In the library scene, especially at the library consortiums, many have been calling for changes to the ways scholarly communication takes place, particularly in light of internet creating new and low cost methods to disseminate research, while still maintaining a 'peer review' process to ensure the quality of research is maintained (Alexander & Goodyear, 2013; Harris, 2012). Developments such as open access and institutional repositories at universities are seen vehicles for changing or improving the scholarly communication process (Van de Sompel, Payatte, Erickson, Lagoze, & Warner, 2004). The challenge for academic librarians is greater (Harris, 2012). This is because they have to face the reality and competitiveness in the fast evolution of information management, dissemination and sharing, just to meet the demands of the patrons’ needs for their research works (Branin & Case, 1998).

A Need For A New Research Tool Kit

Generally, most researchers will just need the access to their institutional digital library and reference manager software to aid their initial write up (or research) for their first draft in the research work. In this workflow, usually, their university has purchased an institutional license wide to download and install a reference manager tool. Mostly have adopted Endnote, while other RefWorks. Both are the two domain market leaders in reference management software, which every undergraduate student has to pick up this knowledge and learn how to use it in academic life. Lectures and workshops are being organized and integrate part of their curriculum knowledge while studying in the university. Unfortunately, once they have graduated from the university, their access to this tool is expired too. This is will be a disappointment to them, if they proceed their interest and career into the research industry or even publishing industry. But, has no choice but to purchase the software under personal license.

The rise of open source technology come in and many tools are free and available online, such as, OpenOffice, EverNote, DropBox and etc (Allen, 2010; Miller, Voas, & Costello, 2010). With the model that current reference management software provides are holding, many researchers interest fades away in investing own budget for this (Hedgebeth, 2007). But, they know they still in need of a better research toolkit, which looks and covers into (i) managing information, (ii) using information, (iii) adding to information, (iv) referencing information and (v) protecting information. A platform that able to address these topics: access, visible, preserve, collaborate, share, knowledge transfer, mobile and openness. This is because due to the nature of today’s working ethical and the evolution of technology that’s drive the demands, perceive and adoption in the needs of a new research toolkit. Partly, this is also due to the globalisation of researchers that comes to the university.
Adopting Last.fm model for Research

The initial idea that the two founders of Mendeley, Victor Hening and Jan Reichelt is exploring based on the principles of new media service, Last.fm (http://last.fm) (Henning & Reichelt, 2008a). Last.fm is one of the largest social music services which has the model and can be applied to research. For instance, such as to build an open and interdisciplinary database, usage-based reputation metrics, and collaborative filtering. And, this will place a competitive challenges to most in the world of research.

Understanding the model of Last.fm, which is based on aggregating the user’ existing music libraries, relationships between artists writing songs in different genres, and the users’ music listening behavior, this can be applied in the research domain. That is literally translate based on aggregating scholars’ existing research paper libraries, relationships between researchers writing papers in different disciplines, and the scholars’ paper reading behavior (Hoyt, Reichelt, & Henning, 2009). Both have envisioned that such a tool consists of two parts:

1. a desktop application which helps researchers manage their academic papers and anonymously tracks their reading habits and literature usage.

2. a website where the users can discover aggregated statistics, top papers, trends and charts for each discipline, paper recommendations, and introductions to people with similar research interests.

And, this narrows down in the concrete idea laid by Henning & Reichelt (2008b) which lead to the three important ones as quoted:

1. The creation of an open and interdisciplinary database:

   Adapting to Last.fm’s model, there is need to build a tool that aggregates metadata, tags and article usage of a large number of researchers could lead to an open, interdisciplinary and ontological database of research, providing a free and invaluable source of information to every individual researcher. This can be done if they work in conjunction with Open Access libraries. And, this would be another cornerstone in building alternatives to expensive pay-walled databases.

2. Usage-based reputation metrics and real-time statistics:

   Usage-based reputation metrics, which could be described as “Nielsen ratings for science”, would alleviate many of these problems associated with traditional citation-based reputation metrics. A starting point for usage-based metrics would be to track the pervasiveness of research papers, i.e. whether they are present on the computers of a wide-ranging, distributed sample of academics. This would be a measure of the popularity or awareness that a paper – and by association, its author, publication journal, and topic – is enjoying.

   A second, more fine-grained usage metric would be the actual time spent reading each research paper (on screen, e.g. in Adobe Reader), and the number of repeat readings per paper. This would be a measure of the intensity with which the paper (its author, publication journal, and
topic) is being examined – did readers only skim through a paper, or did they peruse it in detail? Finally, these metrics could be augmented with quality ratings and tags that help differentiate mere measures of attention from explicit quality judgments.

(3) Collaborative filtering:

Usage data would also be the basis for developing paper recommendation engines based on collaborative filtering (CF) principles. It has been argued that citations already recommendations and recommendation models based on co-citations or citation networks (“localized act as reading graph search”) already exist. CF recommendations, however, have additional potential. First, they could increase the interdisciplinary of research because they may be better in uncovering parallels between academic disciplines than citation networks. For example, when doing research on the psychology of emotion, a psychologist would typically also have read published in adjacent fields papers on emotion (philosophy, literature, linguistics, neurophysiology).

However, due to space constraints, he would mostly limit his citations to papers published in psychology journals. Picking up such patterns, CF recommendations would to identify thus help researchers to discover literature that could be of interest to them, even though it is not found in the citation network of their existing library. Moreover, CF would enable researchers research interests (based on their paper libraries) and thus foster collaboration and academic people with similar networking. Finally, CF would start generating a rich network of relationships for a paper as soon as it is published, rather than having to wait months or years to get cited.

Mendeley, a Free Reference Manager and Academic Social Network

One of the first attractions to the idea is to build a free application. Similar like other social web applications, such as Facebook, YouTube and Last.FM will definitely attract and drive towards the high number of adoption rate. Adopting that belief, Mendeley is built based on a free reference manager and academic social network. This will enable most researchers and librarians to organize their research, collaborate with others online, and discover the latest research.

In order for the researcher embarks on their work in managing their research findings, they can download the Mendeley Desktop. Within the desktop screen, they able to cite search and select their citation style from a rapidly growing community managed database, or create new styles with the new CSL Editor. Citing seamlessly into their working research paper will be easy and smooth without leaving Microsoft Word.
This is followed by formatting the citations and bibliography according to the chosen style. This also allows flexible formatting such as hanging indents, the use of “Ibid.”, author disambiguation. In addition, the desktop looks after the details of creating a bibliography so the researcher can focus on writing. Collaborate on bibliographies is a possibility that includes, sharing bibliographies with other fellow colleagues through a private group. Any member can add or edit any cited references.

In the meantime, the desktop allows researchers to read, annotate highlight their research articles in PDF format. This is a save time navigation too, where these PDF can be open in multiples and separated tabs. Sharing, save and print the annotations are possible as the desktop allow the researcher’s idea to travel with him.
The rest of the positive points in the desktop are about leading to productivity in seconds, which constructing your research paper. And, not to forget the mobility is another factors that adds into the positive adoption in this desktop. Being part of the network, researchers will face no more risk of losing their PDFs and annotations. By default, they will provide each Mendeley users with 1GB of free online storage to automatically back up, secure and synchronize their library across desktop, web and mobile. This includes interoperability in terms of operating system, devices and platform.

In addition, with Mendeley Institutional Edition (MIE) by SWETS, it will adds as a valuable analytical tool that gives many academic libraries and faculties qualitative and quantitative insight to information otherwise unavailable. Recently, under MIE package, the MIE for Teams is introduced to support the fully capacity in research collaboration and sharing. In addition and up to date, it has become a popular tool amongst students and researchers to collaborate with colleagues and peers in a population of 2 million people and to find their way in a database of over 300 million documents. This is because is designed to enhance research and analysis and to drive better and more efficient behavior in educational establishments.
Apart from just a tool and a platform, Mendeley has Citation Style Editor based on (What You See Is What You Get) and a developer platform that support Open API and Data. These will encourage developers to build creative application on top of Mendeley’s infrastructure.
Mendeley Institutional Edition
For academic & research institutions, Mendeley Institutional Edition is (i) a tool to analyze what Mendeley users within an institution read and how well the library (or research) collection is in line with (ii) the wishes of the user- where they publish, (iii) how well the publications are read (impact factor) and (iv) how actively they are collaborating. This positions the librarian (or the head researcher) back in the center of the information (or research) policy, by providing insights in the use of their collection and a tool for acquisition management and it gives faculty management insight in the level and impact of publications of their staff and thus, a good tool to prove the quality of the faculty.

It gives us qualitative and quantitative insight to information, otherwise unavailable. The more members of an institution use Mendeley (particularly the researcher’s profile is built), the more valuable Mendeley Institutional Edition will be for librarians and faculty management. If an institution acquired MIE, all joining members will get a special upgrade to their free account, with larger group size (from 3 to 5) and more storage space. This allows them to extend collaboration and benefit from the social components of Mendeley. It is a free addition for the end-users to convince more people to use Mendeley. Thus, this will improve the quality of the MIE statistics based on a crowd sourcing approach.
Mendeley Institutional Edition for Teams
In addition to the analytics tool, the librarians (or institutions) can consider to want to increase their user collaboration power. This can be via Mendeley Institutional Edition for Team as their researchers frequently collaborate in large groups within the own organization, or even with researchers in other organizations. It happens more and more that researchers from different organizations collaborate in a project. Bundling forces have the two benefits:

(1) Provide more funding opportunity streams;
(2) Bring more visibility to the researchers.

This explains why inter-institutional collaboration is heavily promoted in many circles and working with peers from other faculties or even universities or research centers, requires more advanced collaboration tools. Hence, in the combination Mendeley Institutional Edition for Teams, the offer related to the analytics of regular MIE to the library (research institution) and a special Mendeley for Team package to all users who join the institutional group:

(1) Teams with a maximum of 25 collaborators (worth € 1,639./-year)
(2) Available for all members of the institutional group
(3) Unlimited number of private groups within the teams
(4) Unlimited storage space

Libraries and the Mendeley Institutional Edition by SWETS
The Mendeley Institutional Edition (MIE) powered by SWETS creates a place for the institutional library (or research institution) to exist within the collaborative Reference Management system. A public profile acts as a landing page for users wishing to know more about an institution. The public profile is an up to date, dynamic picture of the library that will demonstrate its latest activity, rather than a piece of static web copy that is quickly outdated. The profile can showcase recent publications from researchers at the institution and highlight which public groups their researchers are involved with.

This is an important tool for institutions, who are always engaged in recruiting new students and researchers. The Mendeley profile page provides transparency for incoming researchers and students on the research, focus and impact of the institution. The profile page can also play a role in disseminating the work of the institution; providing an interface to browse to the institution members and their publications.
A dashboard view helps manage the institutional page; it shows how researchers are collaborating with one another and which groups are most popular. It will be easy to see trending topics within the organisation providing librarians with an on-going insight into their users’ requirements.

The MIE allows librarians to create their own group and invite members of their institution with existing Mendeley profiles to join. Once researchers and students join the group the librarian will be able to see reports on the titles users have in their personal library; providing an insight into the articles they are reading.

Additionally, librarians will be able to see from the user’s profile the articles and books they have recently authored and published. The MIE enables much greater transparency in this area, since it’s not always simple for librarians to discover all the recent publications from all their researchers. Reports on the readership for these publications are also available. In addition all libraries using Symplectic (http://www.symplectic.co.uk/) as the central repository can upload all publications created by their researchers from Mendeley into Symplectic to ensure they are not missing out on any titles.
Another important functionality is the option to assist librarians in making Mendeley more useful for their researchers by uploading their A-Z lists including the ability to link to the electronic resources of the library. This internal overview allows librarians to genuinely understand which topics are being explored by researchers and students; they make decisions based on the type of content that

**Research collaboration in the age of Social Media**

The diagram below illustrates on the combination of the Mendeley Institutional Editions and the Mendeley platform join to a unique solution that will drive research productivity and collaboration, supported by the library and research institution.

![Diagram of Mendeley Institutional Editions and Mendeley platform](image)

**Figure 9.0**

Via this model, the communication and collaboration will be part of the vital aspects in the 21st century librarianship, particularly for librarians in branch and regional settings who are often separated from their system colleagues by both physical distance and administrative structures are able to play an effective and efficient roles in supporting the research life cycle and scholarly communication too (Bottorff, Glaser, Todd, & Alderman, 2008; Ducas & Michaud-Oystryk, 2004; Taraborelli, 2011a). In addition, it forms a bridge between the information provider (librarians) and also the information seeker to use and reuse the knowledge to improve their research visibility. This also means allow the librarians to strength their holdings in their collection development to support the resources needs by their community.
Feedback on Mendeley Institution Edition

Below are some of the comments shared about Mendeley Institution Edition, adopted by the early adopter libraries.

“Mendeley Institutional Edition is just the right application for our researchers to connect to their resources, databases and journal citations anytime, anywhere,” says Ms Khan Quay Kin, Senior Librarian at the University of Nottingham Malaysia Campus. “It supports access via multiple devices, across different platforms and browser environments. It is simple and intuitive to use and the web importer feature enables the citation of references within seconds!”

Ms Khan Quay Kin, Senior Librarian
University of Nottingham, Malaysia Campus

Head Librarian at University of Western Ontario, Joyce Garnett, described Mendeley Institutional Edition as a “significant addition to our digital toolbox”, and that “it will facilitate citation management for individual researchers, collaboration for research groups, and, through use of its analytics capacity, enable librarians to assess the relevance and use of our collections”.

Joyce Garnett
Head Librarian
University of Western Ontario

The VTT Technical Research Centre of Finland (the largest applied research facility of its kind in Northern Europe) are also a new customer, commenting that “Mendeley Institutional Edition give us the opportunity to collaborate within our research community.”

VTT Technical Research Centre of Finland

Lisa Kurt from University of Nevada in Reno adds, “the collaborative nature of Mendeley is a game-changer for our institution. Mendeley is solving a very real problem in a rather elegant way”.

Lisa Kurt
University of Nevada
Beyond Mendeley & Mendeley Institutional Edition (Open API)

Working towards the big data movement, Mendeley does not just stop their creative and scalability at neither the desktop, platform or even at Mendeley Institutional Edition. Mendeley embrace and harness on the concept of providing Open API services. Here, Mendeley’s Open API might be able to disrupt the academic publishing industry (Jack et al., 2010). Via the Open API, Mendeley's data set is available for download from the Mendeley Developer Portal (http://dev.mendeley.com/).

Developers can write in to datachallenge@mendeley.com with the following information:

- Your name;
- Institutional affiliation;
- Contact details (physical address and phone number).

The portal also provides an API that allows developers to gain access to much of the data that is available on the Mendeley Web. Developers should note that the user and article ids employed in the API do not correspond to the ids used in the data set to ensure user anonymity. The data set is being provided for non-commercial scientific use only.

With this opportunity, scalability and interoperability, a number of applications are developed on top of the data. One of them is openSNP (http://opensnp.org/) that allows their patrons of direct-to-customer genetic tests to publish their test results, find others with similar genetic variations, learn more about their results, get the latest primary literature on their variations and help scientists find new associations. Here the APIs of Mendeley and PLoS have shown the creativity of developers can re-use Mendeley data APIs in many ways. There is another interesting application that has developed further and also in the lead is ImpactStory. The application located at this URL, http://impactstory.org/, aggregates Altmetrics presenting the diverse impacts from your Mendeley’s articles, datasets, blog posts, and more (Howard, 2012; Judyluther, 2012; Priem, Piwowar, & Hemminger, 2012; Taraborelli, 2011b; Wassef, 2011).

In general, Mendeley open the doors of Open Science to bring in creativity in exploring information. This also give greater visibility to researchers’ work and increase access for libraries to provide a larger collection development. With this activities on-going, this contributes to the statistic monitoring that will be capture and display in Mendeley Institutional Edition. Hence, libraries should embrace this concept of knowledge repository to seed their scholarly communication ahead in a progressive direction.
Conclusion
In general, the Mendeley Institutional Edition strives to bring the library (and research) into the social space that Mendeley creates. This can be argued and perspective as a space that goes far beyond the functionality that the name Reference Manager would imply. A couple of questions is raised here for librarians. Do researchers need academic libraries (or research resource space) in the age of the internet? The question is likely to be asked again and again over the coming decade, just as it was in the last. It contains the assumption that a library (or a resource centre) is essentially a place to store books, rather than seeing the librarian partnering with researchers, providing guidance to students and contributing to the strategic goals of the institution. The Internet has become an essentially social space, creating a far more important question:

1. Does the academic community need academic librarians in the age of the Internet?
2. Where do the researchers collaborate and showcase their publication profile for wider visibility?

The answer is an emphatic yes and we hope that the Mendeley Institutional Edition will become the most indispensable tool. But, before that, this thought has to be seed into the work of scholarly communication for padi seeds to harvest for the future.

Notes
More information on Mendeley Institutional Edition, please head to this website to request for:


References


Aziz, Bando et Wan Yahya, 2013

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