

Taking Mendeley as Multimedia-based Application in Academic Writing

Andi Anto Patak^{#1}, Hamimah Abu Naim^{#2}, Rahmat Hidayat^{*}

[#] *Measurement and Evaluation, Faculty of Education, Universiti Teknologi Malaysia, Skudai, Johor 83100, Malaysia*
E-mail: ¹andiantopatak@gmail.com; ²hamimahnaim@utm.my

⁺ *English Department, Faculty of Languages and Literature, Universitas Negeri Makassar, Indonesia*

^{*} *Department of Information Technology, Politeknik Negeri Padang, Padang, Sumatra Barat, Indonesia*
E-mail: rahmat@polinpdg.ac.id

Abstract— Mendeley is one of the references managers that provide web, desktop, and mobile version. This research aims at exploring the Indonesian Mendely users' preference on Mendeley use as multimedia-based application in academic writing. The researchers conducted survey research design to find data for deciding the obvious groups' characteristics on certain topic or issue in a diverse group. Data on this research was taken in 2015 to explore 100 Indonesian Mendeley users' preference on Mendeley features as web based application in academic writing. The researchers used weighted average find out rate and percentage adjusment for the influence of a binary confounder. The weighted average in this research was automatically generated by SurveyMonkey analytic. This research indicated what Mendeley features as multimedia web application for academic writing that Indonesian Mendeley users took in and out.

Keywords— Mendeley; multimedia-based application; academic writing.

I. INTRODUCTION

Mendeley is essentially a reference manager for organizing sources [1]-[6]. However, unlike other reference managers, Mendeley has a social network that allows users to connect to other researchers and share full text references [7]-[11]. Mendeley frees 2 GB web storage and works through the entire browser and operating systems.

Mendeley has web and mobile based application, but also requires a desktop download (Mendeley Desktop) as local personal library. The web and mobile based documents are synchronized automatically once a user opens the Mendeley Desktop in an internet connection. However, Mendeley Desktop works in an offline connection, but the synchronization to web and mobile based application work once the desktop connected to the internet. Mendeley takes account of citation and reference manager, PDF reader and organizer, import and export citation, and web importer. Mendeley supports more than 4 thousands citation styles.

Mendeley lets users to upload PDF documents for web, mobile, and desktop version [12]. Mendeley web, mobile, and desktop application system enable users to conduct title and keyword search of the stored citation or documents as

well as search for author. Additionally, Mendeley makes users easy to have some documents open at once, and to easily move them by dragging from one folder to dropping to another right folder for easy category.

Along with the search feature, Mendeley Desktop also provides features of highlighter, notes, and annotation for PDF full text. This feature helps the authors to jot down thoughts and page numbers for PDF full text and beneficial in helping users to revision. The highlighted, noted, and or annotated PDF full text could be shared to other researchers for collaborative critical reading and or research evaluation [13].

One of the fascinating features of Mendeley for many users is web interface in a social-media nuance. Mendeley tempts users to post onto feed and attracts contacts or friends to comment. Each user can also establish research groups and has the preference to preserve research collections private (share references and full-text files and only group members can see the group), invite only (share references only and public can follow the group only), or open (share references only member or follow the group). In order to conduct collaborative research with colleagues, it is essential to create 'open' group to share references in PDF full texts

[10]. However, to explore the Indonesian Mendely users' preference on Mendeley use as multimedia-based application in academic writing required research on Mendeley features to Mendeley users.

II. METHOD

In this research, the researchers applied survey research to find data to decide the explicit groups' characteristics [14]. Conducting survey research is subject to measure respondents' perception on certain scope either specifically or globally [15]. Survey research is also popularly used to find out the respondents' characteristics on certain topic or issue in a diverse group. The data of this research was taken in 2015 to find out the responses from 100 of Indonesian Mendeley users on the features of Mendeley as web based application in academic writing [16]. The researchers used weighted average 'to adjust rates and percentages for the influence of a binary confounder'[17]. The weighted average in this research was automatically generated by SurveyMonkey analytic.

III. RESULTS AND DISCUSSIONS

The six default features of Mendeley consisting of (1) reference manager, (2) read and annotate, (3) add and organize, (4) collaborate, (5) back up, sync, and mobile, (6) network and discover were measured based on weighted average score. Table 1 below showed the adjustment of rates and percentages of each item in each features in the influence of a binary confounder. However, the researchers provided manual weighted average score for each feature to compare what feature(s) the Indonesian Mendeley users perceive well. The higher the weighted average score, the higher level of Mendeley users perceived its features based on their experiences using Mendeley multimedia web application in academic writing as in Table 1.

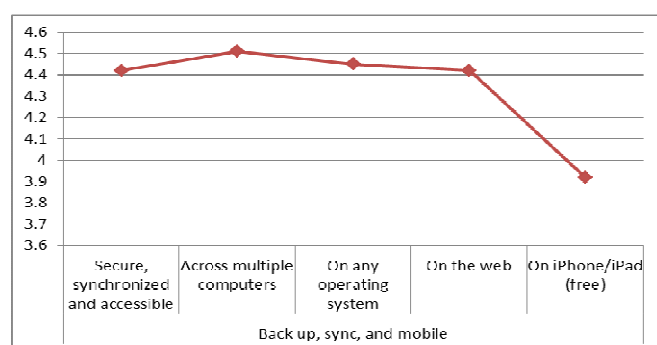


Fig. 1 Weighted average of 'Back up, sync, and mobile' feature

Figure 1 above indicated that feature (5) 'Back up, sync, and mobile' was in the highest weighted average score (4.34). The weighted average score of each item between 4.41 and 4.51 showed that Indonesian Mendeley users perceived most the secure synchronization and access files across multiple computers using any operating system (from Mendeley Desktop to Mendeley web or vice versa). Automatic synchronization is one of the significant features in the cloud-based storage that enable people to save their files in the cloud whenever they have access to the internet

[18], [19]. However, Indonesian Mendeley users considered mobile synchronization was less important that was in a 3.92 weighted average score.

The second highest of weighted average score was 'Add and organize' feature. The weighted average score of feature (3) 'Add and organize' was 4.27. Figure 2 below showed the weighted average score of each item on 'Add and organize' feature.

TABLE I
MENDELEY FEATURES

No.	Features	Items	Weighted Average
1.	Reference manager	Quick and simple installation	4.53
		Citation styles for thousands of journals	4.42
		Create bibliographies instantly	4.50
		Flexible formatting	3.97
		Collaborate on bibliographies	3.78
		Total weighted average	4.24
2.	Read and annotate	Save time navigating PDFs	4.52
		Annotate and highlight	4.34
		Share annotations with others	3.71
		Save and print annotations	3.71
		Total weighted average	4.07
3.	Add and organize	Organized PDF's	4.53
		Easily sorted	4.55
		Comprehensive search	4.23
		Intuitive navigation	3.79
		Total weighted average	4.27
4.	Collaborate	Team plans	3.89
		Share papers and collaborate	4.20
		Communication made easy	4.13
		All your ideas in real time	3.74
		Total weighted average	3.99
5.	Back up, sync, and mobile	Secure, synchronized and accessible	4.42
		Across multiple computers	4.51
		On any operating system	4.45
		On the web	4.42
		On iPhone/iPad (free)	3.92
		Total weighted average	4.34
6.	Network and discover	Search millions of papers	4.52
		Public groups	4.03
		Build an online presence	3.84
		Discover new collaborators	3.91
		Total weighted average	4.07

Based on Table 1 above, the researchers described the rate of Indonesian Mendeley preference either by features or items. This description is subject to detailed explanation of

features and items that Indonesian Mendeley users take in and take out. The researchers described what the Indonesian Mendeley users take in and out starting from 'Back up, sync, and mobile' feature as the highest weighted average score as in Figure 1.

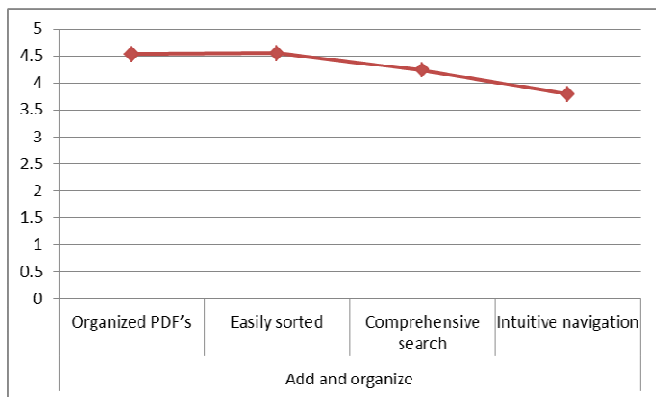


Fig. 2 Weighted average of 'Add and organize' feature

Figure 2 above indicated that Indonesian Mendeley users perceived well organizing, sorting, and searching files or documents that reached 4.23 to 4.55 of weighted average score, but they seemed ignored to intuitive navigation as weighted average score was in 3.79. However, this feature supports the classical database and organization of knowledge as well as improve metadata searching performance [20], [21]. Besides, this feature also is an academic portfolio in the digitalization era [22].

The third Mendeley feature that Indonesian Mendeley users recognised was feature (1) 'Reference manager'. This feature was in 4.24 weighted average score. The detailed of 'Reference manager' feature was provided in Figure 3 below.

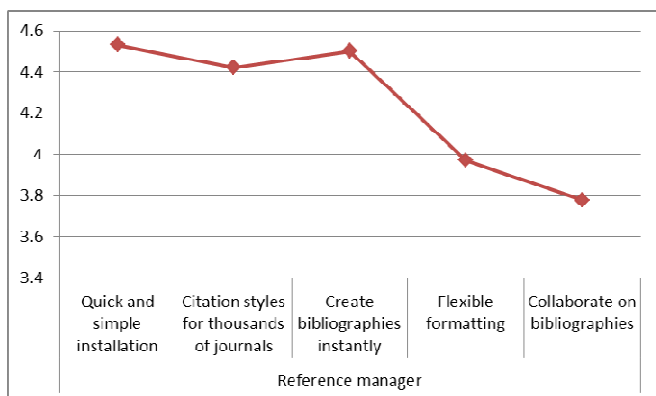


Fig. 3 Weighted average of 'Reference manger' feature

Figure 3 above showed that Indonesian Mendeley users noticed the easy installation, citation styles, and bibliographic creation, but took out the formatting and collaborating on bibliographies items. Unfortunately, bibliographies collaboration aims at assisting other librarians in the database creation [23].

The fourth feature recognized by Indonesian Mendeley users were feature (2) 'Read and annotate' and (6) 'Network and discovery'. Both of these features were in 4.07 weighted average score respectively. Figure 4 below indicated the

Indonesian Mendeley users preference on feature 'Read and annotate' and 'Network and discover'.

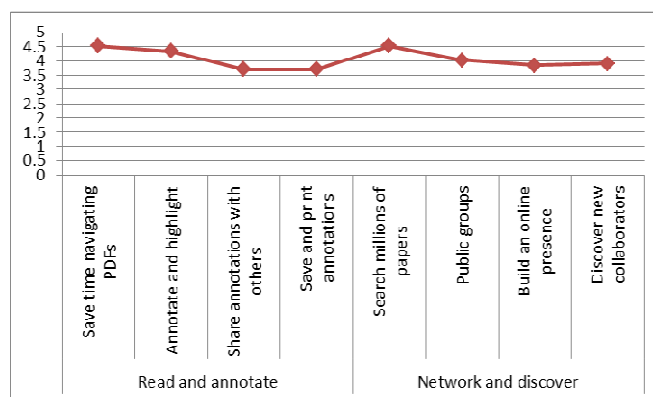


Fig. 4 Weighted average of 'Read and annotate' and 'Network and discover' feature

Figure 3 above showed that Indonesian Mendeley users remarked time saving when they navigated PDFs, comfortable of annotate and highlight [24], and searching millions of papers as well as joining public groups. However, they did not take in the feature of using mobile phone, building an online presence, and discovering the new collaborator.

Among the six features, feature (4) 'Collaborate' was in the least weighted average score as in Figure 5 below.

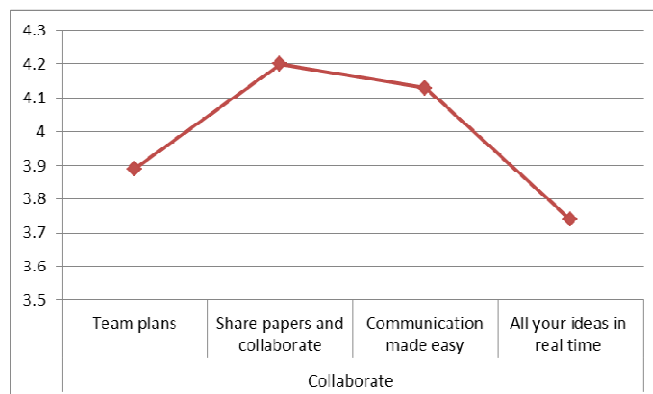


Fig. 5 Weighted average of 'Collaborate' feature

Figure 5 above showed that the weighted average score of feature 'Collaborate' was in 3.99. Although this feature is considered less important for Indonesian Mendeley users, they indicated they preferred paper sharing collaboration and easy communication to team work and real time ideas.

IV. CONCLUSIONS

This research showed the features of Mendeley as multimedia web-based application for academic writing that Indonesian Mendeley users took in and out. Indonesian Mendeley users took in the secured synchronization and documents access through many computers using any operating system. However, they considered synchronization using mobile phone was less significant. Indonesian

Mendeley users comprehended organizing, sorting, and searching documents, but disregarded to intuitive navigation.

Indonesian Mendeley users regarded the easy installation, citation styles, and bibliographic creation, but took out the formatting and collaborating on bibliographies items. They take in time saving when they navigated PDFs, comfortable of annotate and highlight, and searching millions of papers as well as joining public groups, but took out the mobile phone use, online presence building, and new collaborator discovery. Although collaborate was considered less essential, Indonesian Mendeley users showed preference on paper sharing collaboration and easy communication, rather than team work and real time ideas.

REFERENCES

- [1] D. L. Lorenzetti and W. A. Ghali, "Reference management software for systematic reviews and meta-analyses: an exploration of usage and usability," *BMC Med. Res. Methodol.*, vol. 13, no. 1, p. 1, 2013.
- [2] R. Gilmour and L. Cobus-Kuo, "Reference management software: A comparative analysis of four products," *Issues Sci. Technol. Librariansh.*, vol. 66, 2011.
- [3] M. Fitzgibbons and D. Meert, "Are Bibliographic Management Software Search Interfaces Reliable?: A Comparison between Search Results Obtained Using Database Interfaces and the EndNote Online Search Function," *J. Acad. Librariansh.*, vol. 36, no. 2, pp. 144–150, 2010.
- [4] M. K. Hensley, "Citation Management Software: Features and Futures," *Ref. User Serv. Q.*, vol. 50, no. 3, pp. 204–208, 2011.
- [5] D. Childress, "Citation Tools in Academic Libraries: Best Practices for Reference and Instruction," *Ref. User Serv. Q.*, vol. 51, no. 2, pp. 143–152, 2011.
- [6] C. M. Smith and B. Baker, "Technology in nursing scholarship: Use of citation reference managers," *Int. J. Ment. Health Nurs.*, vol. 16, no. 3, pp. 156–160, 2007.
- [7] W. Jeng, D. He, and J. Jiang, "User participation in an academic social networking service: A survey of open group users on Mendeley," *J. Assoc. Inf. Sci. Technol.*, vol. 66, no. 5, pp. 890–904, 2015.
- [8] D. Macmillan, "Mendeley: Teaching Scholarly Communication and Collaboration through Social Networking," in *Proceedings of the IATUL Conferences*, 2012.
- [9] Y. Zhang, "Comparison of Select Reference Management Tools," *Med. Ref. Serv. Q.*, vol. 31, no. 1, pp. 45–60, Jan. 2012.
- [10] H. Zaugg, R. E. West, I. Tateishi, and D. L. Randall, "Mendeley: Creating Communities of Scholarly Inquiry Through Research Collaboration," *TechTrends*, vol. 55, no. 1, pp. 32–36, Jan. 2011.
- [11] P. Sud and M. Thelwall, "Not all international collaboration is beneficial: The Mendeley readership and citation impact of biochemical research collaboration," *J. Assoc. Inf. Sci. Technol.*, p. n/a–n/a, Jun. 2015.
- [12] J. Raubenheimer, *Mendeley: crowd-sourced reference and citation management in the information era*. True Insight Publishing, 2014.
- [13] E. Mohammadi and M. Thelwall, "Mendeley readership altmetrics for the social sciences and humanities: Research evaluation and knowledge flows," *J. Assoc. Inf. Sci. Technol.*, vol. 65, no. 8, pp. 1627–1638, Aug. 2014.
- [14] A. Aldridge and K. Levine, *Surveying the Social World*. Buckingham - Philadelphia: Open University Press, 2001.
- [15] J. R. Fraenkel and N. E. Wallen, *How to Design and Evaluate Research in Education*, 7th ed. McGraw-Hill Higher Education, 2009.
- [16] M. Basri and A. A. Patak, "Exploring Indonesian students' perception on Mendeley Reference Management Software in academic writing," in *2015 2nd International Conference on Information Technology, Computer, and Electrical Engineering (ICITACEE)*, 2015, pp. 8–13.
- [17] P. Bidgood, *Assessment Methods in Statistical Education*. Chichester, UK: John Wiley & Sons, Ltd, 2010.
- [18] P. Casas and R. Schatz, "Quality of experience in cloud services: Survey and measurements," *Comput. Networks*, vol. 68, pp. 149–165, 2014.
- [19] X. Zhang, A. Kunjithapatham, S. Jeong, and S. Gibbs, "Towards an Elastic Application Model for Augmenting the Computing Capabilities of Mobile Devices with Cloud Computing," *Mob. Networks Appl.*, vol. 16, no. 3, pp. 270–284, Jun. 2011.
- [20] B. Hjørland, "Classical databases and knowledge organization: A case for boolean retrieval and human decision-making during searches," *J. Assoc. Inf. Sci. Technol.*, vol. 66, no. 8, pp. 1559–1575, Aug. 2015.
- [21] J. Liu, D. Feng, Y. Hua, B. Peng, and Z. Nie, "Using provenance to efficiently improve metadata searching performance in storage systems," *Futur. Gener. Comput. Syst.*, vol. 50, pp. 99–110, 2015.
- [22] P. Bhargava, V. B. Patel, R. S. Iyer, M. Moshiri, T. J. Robinson, C. Lall, and M. T. Heller, "Academic Portfolio in the Digital Era: Organizing and Maintaining a Portfolio Using Reference Managers," *J. Digit. Imaging*, vol. 28, no. 1, pp. 10–17, 2014.
- [23] K. Wise, A. Bridges, and M. Baggett, "Reimagining the Bibliography: Database of the Smokies," *J. Web Librariansh.*, vol. 9, no. 1, pp. 42–55, 2014.
- [24] M. Hallo, S. Lujan-Mora, A. Mate, and J. Trujillo, "Current state of Linked Data in digital libraries," *J. Inf. Sci.*, vol. 42, no. 2, pp. 117–127, Apr. 2016.