A study on awareness of bibliographic management software for the academic writing activity in higher education

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Abstract

Academic writing has become a necessary activity in the higher education institution (HEI). Although various supporting academic writing tools are widely available, they are not fully utilized by the HEI's academic community. The purpose of this study is to present the current understanding of the awareness, perceptions, and preferences of the academic community at HEI on the use of a Bibliographic Management Software (BMS). The approach used in this study is a quantitative analysis using a questionnaire. A total of 144 academic community from various HEI in Indonesia were involved in this research. This study's findings indicate that the awareness of the academic community in Indonesia regarding BMS is still low. Their ignorance of the existence of BMS affects their awareness of the use of BMS. However, most of the academic community showed a preference to continue using BMS when they found the benefit of using BMS. This study can be useful for HEI management to promote BMS to their academic community and for BMS service providers to increase promotion and service satisfaction.

1. Introduction

University is one of the first gates for a researcher to create or start scientific research. Publishing a research article is important in scientific research. Thus, writing is a mandatory activity for a researcher. The research process begins with reading existing research, improvement, development, or implementation of existing research is one form of scientific contribution. An acknowledgment of the previous research is a must, and it can be done by making referrals to previous research through an appropriate citation process [1]. The citation process of a research paper must be well managed in order to trace the linkages between studies.

Various models of reference writing can undoubtedly be a hindrance and require a great deal of effort to write. However, the use of bibliographic management software (BMS) to organize the bibliography writing in reference is commonly used by researchers [2]. The ease of editing, converting multiple writing styles into instant are some of the value-added. Based on observations made in libraries from state and private universities in Indonesia [3], it was found that there were still many errors found in the procedures for writing bibliographies in student scientific papers. This finding means that students lack an understanding of the importance of the citation process. Therefore, this study surveyed several public and private universities in Indonesia to measure the student's awareness of using BMS to help them...
write their scientific research. Assessing the awareness of BMS is important to improve the quality of the produced scientific papers.

BMS is a software for building a reference database in research activities and formatting the bibliographic or citation when the researcher writes a paper [4]. Based on the license type, not only proprietary BMS are available such as Mendeley, and EndNote. Free BMS is also widely available such as JabRef, and Zotero. There are also different types of subscriptions, such as institutional subscription, individual subscription or project-based subscription. Some of the main features available in some BMS, besides the search feature in the bibliographies database and formatting citation, are the collaboration features that allow authors to work together in writing a paper. Besides that, there is also an editing feature that enables the author to create bibliographies, edit bibliographies, select publication type (e.g., book, book chapter, journal article, etc.), create folders/groups, and complete of metadata [5].

The previous studies on BMS awareness have been conducted on single respondents categories, such as faculties member [6,7], undergraduate, and graduate students [3]. Survey results from arts faculty indicated that more than 40% of faculty members did not use any BMS, and Zotero was the most used RMS [6]. From Kuwait University Faculty findings, 60% of members were not familiar with any BMS, and EndNote was the most used BMS [7]. Majority of scientist in Ghana were aware of BMS [8]. The awareness of BMS has a positive significant relationship with the usage [9]. Furthermore, the use of BMS was considerably to be used in a simple level across scientists, even they consider it as the basic requirement for preparing a publication [10]. In the Indonesia context, several previous studies explored only the student's perspective and awareness of BMS [3,11,12]. It was found that both undergraduate and graduate students have self-awareness of using BMS for their paper writing tasks, but there is still improvement needed to follow bibliographic writing standards, one of which is influenced by the familiarity with the BMS features.

There is no researches study awareness in a broader group of respondents in the Indonesia context. This paper aimed to investigate the Indonesia HE academic community's awareness of Bibliographic management software by involving researchers, lecturers, and post-graduate students. From this study, we will get more comprehensive insight from the Indonesian academic community.

2. Methodology
This study aims to present the current understanding of the awareness, perceptions, and preferences of the academic community at HEI on the use of a BMS. For the research sample, this study involved 144 academic communities from various HEIs in Indonesia (see Table 1) to provide an assessment of the awareness, perceptions, and preferences about BMS.

| Table 1. Profile of the participants |
|-------------------------------------|
| Gender                             |
| Female                             | 58 | 40.28% |
| Male                               | 86 | 59.72% |
| Profession                         |
| Student                            | 88 | 61.11% |
| Lecturer                           | 56 | 38.89% |
| Age                                |
| 17-20                              | 10 | 6.94%  |
| 20-30                              | 67 | 46.53% |
| 30-40                              | 40 | 27.78% |
| 40-50                              | 25 | 17.36% |
| >50                                | 2  | 1.39%  |
For the research design, we compiled a questionnaire consisting of two parts. The first part of the questionnaire contains questions related to the respondent's demographics. The second part of the questionnaire contains questions about the awareness, perceptions, and preferences about BMS. Data collection was carried out in September 2019 to February 2020 using google form so that it can be accessed online. In addition, for the data analysis, this research uses descriptive statistical analysis to describe how the awareness, perceptions, and preferences of the academic community at HEI on the use of a BMS.

3. Result
The summary results of the awareness about BMS can be seen in Table 2.

| Table 2. Results of the awareness about BMS |
|-------------------------------------------|
| Awareness       | Description       | Number | Percentage |
|-----------------|-------------------|--------|------------|
| 0               | Not Aware         | 18     | 12.50%     |
| 1               | Slightly Aware    | 23     | 15.97%     |
| 2               | Moderately Aware  | 39     | 27.08%     |
| 3               | Aware             | 50     | 34.72%     |
| 4               | Strongly Aware    | 14     | 9.72%      |

Table 2 shows that, based on 144 samples, the academic community's awareness towards BMS is relatively low. There were only 44.44% of respondents have an adequate level of awareness about BMS. In comparison, 55.56% of other respondents have a low level of awareness about BMS, and 12.50% have low awareness about BMS.

The summary results of the awareness and preference of BMS can be seen in Table 3.

| Table 3. The awareness and preference of BMS |
|-------------------------------------------|
| BMS            | Awareness Number | Percentage | Preference Number | Percentage |
|----------------|------------------|------------|-------------------|------------|
| Mendeley       | 106              | 73.61%     | 82                | 56.94%     |
| EndNote        | 55               | 38.19%     | 13                | 9.03%      |
| Zotero         | 31               | 21.53%     | 10                | 6.94%      |
| Others         | 9                | 6.25%      | 3                 | 2.08%      |
Table 3 shows that from the collected responses, Mendeley is the top BMS according to them. 73.61% of respondents surveyed in this study already knew about Mendeley, followed by EndNote and Zotero, while the rest was for other BMS. The table also shows that Mendeley is the most preferred BMS to be used by academicians in HEI with 56.94%, followed by EndNote, and Zotero with 9.03% and 6.94%.

The summary results of the frequency of usage of BMS can be seen in Table 4.

| Frequency | Number | Percentage |
|-----------|--------|------------|
| Never     | 41     | 28.47%     |
| Rarely    | 22     | 15.28%     |
| Sometimes | 30     | 20.83%     |
| Often     | 34     | 23.61%     |
| Very often| 17     | 11.81%     |

Table 4 shows that 28.47% of academicians have never used BMS in the academic writing activities, and 15.28% still rarely use BMS, while 56.25% have a fairly good BMS frequency. It shows that 28.47% of academicians have never used BMS in the academic writing activities, and 15.28% still rarely use BMS, while 56.25% have a fairly good BMS frequency.

The summary results of satisfaction of usage of BMS can be seen in Table 5.

| Satisfaction      | Number | Percentage |
|-------------------|--------|------------|
| I Never using BMS | 41     | 28.47%     |
| Dissatisfied      | 0      | 0%         |
| Neutral           | 16     | 11.11%     |
| Satisfied         | 36     | 25.00%     |
| Highly Satisfied  | 51     | 35.42%     |

Table 5 shows that 71.53% of the academic community in Indonesia are highly satisfied toward usage of BMS in supporting academic writing activity, while 28.47% have not known about BMS's benefits because they have never used it.

The summary results of the preference to continue using BMS can be seen in Table 6.
Table 6. The preference to continue using BMS

| Benefit       | Number | Percentage |
|---------------|--------|------------|
| Very likely   | 67     | 62.2%      |
| Likely        | 36     | 33.3%      |
| Neutral       | 5      | 4.63%      |
| Unlikely      | 0      | 0%         |
| I Stopped using BMS | 0  | 0%         |

Table 6 shows that 62.20% of the academic community prefers to continue to use BMS to support academic writing, and 33.33% tend to be willing to keep using it, while 4.63% believe that they are neutral.

To corroborate the descriptive finding as described in Table 1 until 6, we evaluate the relationship between awareness, perception, and preference of BMS with the participants' profile. These relationships are essential due to an understanding of the use of BMC in higher education in Indonesia. Table 7 depicts these relationships. Since the type of participant's variables is the nominal scale, the chi-square test is used to evaluate the relation between the type of participant and awareness, perception, and preference for using BMS. Hence, the analysis is only about whether there is a relation or no among them.

Table 7. Relationship between type of participant with awareness, perception and preference of using BMS by using chi-square test

| Profile of the participants | p-value |   |   |
|-----------------------------|---------|---|---|
|                             | Awareness | Perception | Preference |
| Gender                      | 0.685    | 0.774     | 0.606      |
| Profession                  | 0.000    | 0.000     | 0.000      |
| Age                         | 0.001    | 0.003     | 0.001      |
| Type of campus              | 0.491    | 0.202     | 0.266      |

As shown in Table 7, Gender and Type of campus have no significant relation with awareness, perception and preference of using BMS. However, profession and age have significant relation at confident interval (CI) 95% with awareness, perception and preference. These findings corroborate several previous studies. Regarding profession, the significant relation also means there is difference awareness, perception and preference the suing of BMS between lecturer and student. Lecturer has better awareness of BMS rather than student [2] [8]. Since lecturer has obligation to write a scientific paper compared with student, meanwhile student still has difficulty in writing scientific paper since has little awareness of BMS [3]. Regarding age, this is also could explain according to the profession findings. Lecturer older than student, that why age has significant relation with awareness, perception and preference of using BMS.

Regarding type of campus, there is no significant relation which means there is no difference awareness, perception and preference of using BMS among private campus and government campus. This finding
is in line with previous study which states the awareness and ability of using BMS is across scientists, since they consider it as the basic requirement for preparing a publication [10]. Similar to type of campus, gender also plays the same with no significant relation, since BMS is not designed for a specific gender and writing a scientific article are mandatory for all lecturer and student, no matter their gender.

4. Conclusion
This study has assessed the level of awareness of the academic community in HEI for BMS. In particular, this research focuses on the awareness, perceptions, and preferences of the HEI's academic community in Indonesia. The results of data analysis involving 144 students and lecturers from various HEIs in Indonesia indicate that Indonesia's academic community still has a low level of awareness of the use of BMS to support their academic writing activities. Lack of information related to BMS has affected the awareness of students and lecturers about BMS. Also, most of the academic community showed a preference to continue using BMS when they found the satisfaction of using BMS. This study's results can contribute by providing empirical evidence on awareness, perception, and preference of academic communities in Indonesia for BMS based on demography variables (gender, profession, age, and type of campus). This study's results can also give BMS providers and policymakers a better understanding of HEI's academic community's awareness level. It will support the stakeholder in formulating efforts to increase awareness on BMS.

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