Distribution of Scientific paper from Sulawesi Island State Universities on Social Media Using an Altmetric Approach

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Abstract

Altmetric is a set of measurements and statistics that measures how scientific papers interact with social media using the information gathered. This study examines the distribution of scientific papers of Sulawesi island state universities on social media. This study uses a quantitative descriptive. Problem identification, data collecting, data pre-processing, altmetrics method analysis, and discussion conclusions are the steps of this research. This study was carried out online using data from scientific paper citations, which included keywords related to the state university of Sulawesi Island and a restricted time frame of 2020–2022. Data on social media was obtained from Altmetrics.com by extracting DOIs from all scientific publications on Scopus.com. Twitter, Facebook, blogs, and Mendeley are the social media platforms on which this study primarily focuses. The outcome of this research show that the distribution of scientific papers of state universities on the island of Sulawesi on social media is Mendeley with a total of 15,378 Readers, Twitter with 3,124 Mentions, Blogs with 77 Posted and Facebook with 30 Shared. These findings demonstrate that public universities on the island of Sulawesi are well-liked not just on academic platforms but also in foreign journals (Scopus), blogs, and Facebook.

Keywords: Altmetrics; Social media; Sulawesi Island state university

A. Introduction

Research is something that is important for developing science and the world of education. Research is also considered a means of development and progress of human civilization.(Darmuki et al., 2021). The standard for assessing progress in the world of education is a published scientific paper (Ekawati, 2021). Scientific paper is the result of studies or thoughts that are published and written using scientific ideas and ethics(Nasution, 2017). Higher education cannot be separated from the publication of scientific paper. A university can be said to be successful if it has met an indicator, namely the achievement of the scientific paper produced.(Mathar et al., 2017). Scientific publications are not only for campus academics in the world of education, in addition to instructors, scientific publications are employed to raise educational standards so that learning in schools can be of higher quality and meet eligibility standards in carrying out tasks to realize national education goals and increase teacher professionalism.(Hasan & Rahmani, 2021).

In the current era of information technology development, social media is one of the platforms used by the general public to interact via online social networking sites. Currently, the use of social media is experiencing very rapid development, not just as a medium for communication and exchanging ideas, but social media has developed into various functions, starting from being a platform for business, academics and education. Researchers in academia can utilize one of the functions of social media in the academic field, specifically, by posting academic articles or other publications on their individual social media pages like Twitter and Facebook offer a great opportunity for the distribution of innovative research techniques in scientific journals. (Yoshimura et al., 2021) In addition, the growth of social media has significantly increased the distribution of published scientific publications to readers at different societal levels.(Seyyedhosseini et al., 2021). However, researchers must be mindful of the social consequences of their research publications when posting scientific papers on social media (Seyyedhosseini et al., 2021). Researchers may use social media to see how the general public has responded to their scientific studies through comments, duration of the read activity, downloaded, liked, also other metrics. Because of this, simple statistical computations have been developed to account for the influence of the publication of scientific papers on social media. This new metric technique is called altmetrics (Prasetyawan, 2018).

Altmetrics is a technique for measuring and assessing the social media impact in the publishing scientific journal articles (Ibrahim et al., 2019). According to the definition, Altmetrics is a quantitative data matrix that offers a variety of information on how frequently scientific journals also different research findings are spread globally (Seyyedhosseini et al., 2021). Based on mentions on various social media platforms, including Twitter, Facebook postings, comments on YouTube videos, Wikipedia, and other places, altmetrics gauge the overall influence of scientific papers (Yoshimura et al., 2021). Altmetrics also covers internet sharing tools (Twitter, Topsy, Facebook, Reddit, News Articles, Blog Posts, Google+, Youtube, Figshare, Mendeley), further modifications like as (Github), scientific social networks (ResearchGate or Academia), online citation managers (CiteULike, Zotero, and Mendeley), applications for storage (Mendeley, CiteULike, Delicious, Github, Twitter, Slideshare) platforms for evaluation (Faculty of 1000, Blog Posts, Article comments, Facebook comments), sites for conference organizers (Lanyrd. com), also statistics on social media users (Figshare, Slideshare, Dryad, Facebook, Youtube). Altmetrics are commonly used by researchers to assess the posting effect on scientific papers on social media (Seyyedhosseini et al., 2021).

The publishing Papers of Indonesian scientific articles from Indonesian organizations, like in university or institute that disseminated on international platform of journal such Scopus and Web of Science.(Ibrahim et al., 2019). Scopus, also known as Web of Science, is one of the largest journal platforms in the world, and it is frequently used as a reference and reference material in research. Where (Ibrahim et al., 2019) said, the scientific journal article has been released or posted on Scopus or Web of Science, it carries an elevated significance and has an excellent quality as far as in novelty of ideas, complexity of material, and the writing system.

In Indonesia, certain universities publish the scientific journal papers in Scopus, namely state universities on the island of Sulawesi. The shortage of competition from State Universities on other islands influenced the selection of State Universities in the Sulawesi area. Through the Clustering of Universities from the Decree of the Director of Research, Technology and Community Service No. 0241/ES/DT.06.01/2023 on 28 February 2022 regarding the position of Hasanudin University in 12th place, and in cluster 2 followed by Makassar State University and Sam Rtulangi University in 22nd and 32nd places.

From the description above, several state universities on Sulawesi still occupy the low cluster. By Scopus index data, the average publication of universities on Sulawesi articles is 38 to 11,523 publications. The number of publications is very low compared to

the University of Indonesia which reached 31,064 article publications (SINTA, 2023). This means it needs improvement in terms of publication of scientific papers and distribution of scientific papers. To achieve this, each university is working hard to increase the number of publications of research results because this will have an impact on the ranking of higher education institutions (PT) in the SINTA (Science and Technology Index) data base.(Sugilar et al., 2019). To boost the productivity of lecturers and students in the field of analytical papers, every university should develop various strategies that are implemented to encourage lecturers' interest in excelling in writing scientific papers. A strategy that can be used is by sharing scientific paper on social media, researchers can expand the reach of their publications to a wider audience. This creates opportunities for researchers to create other scientific paper(Lamongan et al., 2016).

The distribution of state universities' publication of their scientific papers can be seen using almetrics. Which is where almetrics is a website that can trackhow often results study quoted, tweeted, liked, shared, bookmarked, visited, downloaded, mentioned, favorited, reviewed or debated(Chaubey, 2018). Altmetrics.com is one Altmetrics service that may be used as a measuring tool to quantify the impact of publishing scientific journal articles. Altmetrics.com is a platform for assessing the influence of scientific journal article publication on social media, such as journals, articles, conferences, and others (Ibrahim et al., 2019). In accordance with the foregoing, the author intends to do research on the distribution of scientific papers at Sulawesi Island State Universities via social media using an almetric approach.

B. Literature Review

Scientific paper

A scientific paper is a written report that will be published that shows the findings of study or studies conducted by a researcher who followed the scientific norms and ethics agreed upon by the scientific community. Scientific paper is the result of someone's thoughts whose truth has been tested and can be accepted and written scientifically.(Zulmiyetri, et al., 2019).

Almetrics

Altmetrics are metrics also quantitative data to show how frequently journal articles and other scientific works are debated and utilized on social media throughout the world.(Seyyedhosseini et al., 2021). Altmetric (or alternative metric) created by Jason Prime in 2010 in a tweet andonin 2011 it developed as an alternative way to measure impact by expanding reach.(Dhiman, 2015). Altmetric is a term used to describe web-based measurements for scientific content influence, with a concentration on social media sites to be data sources. Altmetrics measure the frequency with which research findings are quoted, tweeted, liked, shared, bookmarked, visited, downloaded, discussed, favorited, reviewed, or argued (Chaubey, 2018).

Social Media

Mayfield (2008) It is a collection of new types of online media that have the majority or all of the following qualities. involvement, openness, dialogue, community, and connectivity. It has 5 characteristics, namely: (1) Participation, (2) Easy to access or open, (3) Can communicate, (4) There is a community or group, (5) Connected to each other.

DOI (Digital Online Identifier)

DOI (Digital Object Identifier) a digital object identifier is a standard for identifying information about electronic documents that is provided on the Internet (International, nd). In reality, a DOI is a link to the permanent location of a document on the Internet where the relevant information about the document may be obtained. (Paskin, 1999); (Pavlovska, 2017)
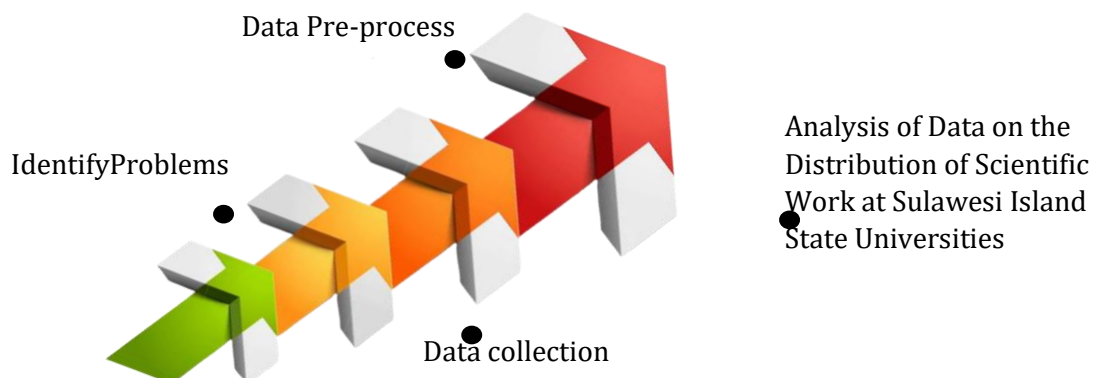
C. Research Method

Data Scientific papers from Sulawesi Island State Universities for 2020-2022 were obtained from Scopus.com. The following are Sulawesi Island State Universities:

Table 1. Sulawesi Island State University

No	Sulawesi Island State University
1.	Universitas Sam Ratulangi
2.	Universitas Negeri Manado
3.	Universitas Sulawesi Barat
4.	Universitas Negeri Makassar
5.	Universitas Halu Oleo
6.	Universitas Sembilan Belas November Kolaka
7.	Universitas Negeri Gorontalo
8.	Universitas Hasanuddin
9.	Universitas Tadulako
10.	Politeknik Negeri Manado
11.	Politeknik Negeri Nusa Utara
12.	Politeknik Pertanian Negeri Pangkajene Kepulauan

This study employs a descriptive quantitative technique with an almetric methodology. Descriptive quantitative research involves looking at, reviewing, and describing a thing as it is and drawing conclusions based on the occurrences seen throughout the investigation (Son,2015). Identifying Problems, Data Collection, Data Pre-processing, Describing the Distribution of Scientific Papers at State Universities on Sulawesi Island are all steps in approaching AL metrics.

Data Identification

This research begins by identifying the problem, namely grouping data inception ison Altmetric.com which is included in the social media category. Researchers used a systematic literature review approach to identify social media contained in the Altmetric.com data source. Researchers determined the social media Twitter, Facebook, Blog, and Mendeley.

Data Collection

This research data is from 13 Sulawesi Island State Universities from 2020-2022 with Universitas Sam Ratulangi 127 articles, Universitas Negeri Manado 58 articles, Universitas Sulawesi Barat 131 articles, Universitas Negeri Makassar 468 articles, Universitas Halu Oleo 335 articles, Universitas Sembilanbelas November Kolaka 47 articles, Universitas Gorontalo 213 articles, Universitas Hasanuddin 1356 articles, Universitas Tadulako 219 articles, Politeknik Negeri Manado 13 articles, Politeknik Negeri Nusa Utara 14 articles, Politeknik Pertanian Negeri Pangkajene Kepulauan 8 articles.

Table 2. Number of publication Sulawesi Island State Universities from 2020-2022

No.	PTN Sulawesi Island	Number of Publications 2020-2022
1.	Universitas Sam Ratulangi	127
2.	Universitas Negeri Manado	58
3.	Universitas Sulawesi Barat	131
4.	Universitas Negeri Makassar	468
5.	Universitas Halu Oleo	335
6.	Universitas Sembilanbelas November Kolaka	47
7.	Universitas Negeri Gorontalo	213
8.	Universitas Hasanuddin	1356
9.	Universitas Tadulako	219
10.	Politeknik Negeri Manado	13
11.	Politeknik Negeri Nusa Utara	14
12.	Politeknik Pertanian Negeri Pangkajene Kepulauan	8

Data Pre-process

The data pre-processing stage involved gathering publication data on scientific publications from Sulawesi Island State Universities in Scopus for the years 2020-2022. After the data is acquired, it is filtered and extracted using Altmetric.com so that analysis may take place. Data analysis was carried out by (a) confirmation that had DOIs; (b) submition DOIs to Altmetric.com; (d) extract and export to CVS; and (e) synthesising data.
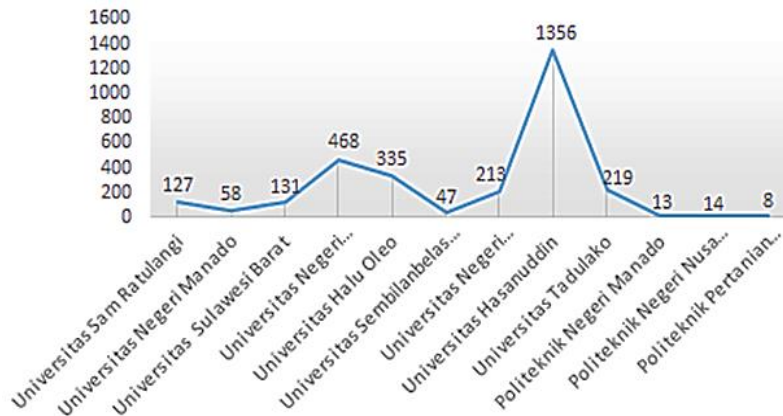
Analysis of Data on the Distribution of Scientific paper at Sulawesi Island State Universities

Publication of Scientific paper from Sulawesi Island State Universities on Scopus. Analysis was carried out to evaluate the data Altmetrics or social media contained in the Altmetric.com data source, in this case Twitter, Facebook, Blog, Mendeley. Researchers analyzed the amount of information on Twitter: tweets/mentions; Facebook: shares; Blog: blog_posts; and Mendeley: readers; scientific paper from Scopus through social media data extraction on Altmetric.com. as well as visualization using Vosviewer.

D. Result and Discussion

Results

In this research, in order to find out the distribution of scientific paper at universities, the first thing to do is identify publication data for each university based onyear2020-2022 publications obtained from Scopus. The following is data on publication of scientific papers by universities on the island of Sulawesi for 2020-2022 which is presented in the following diagram in figure 1:
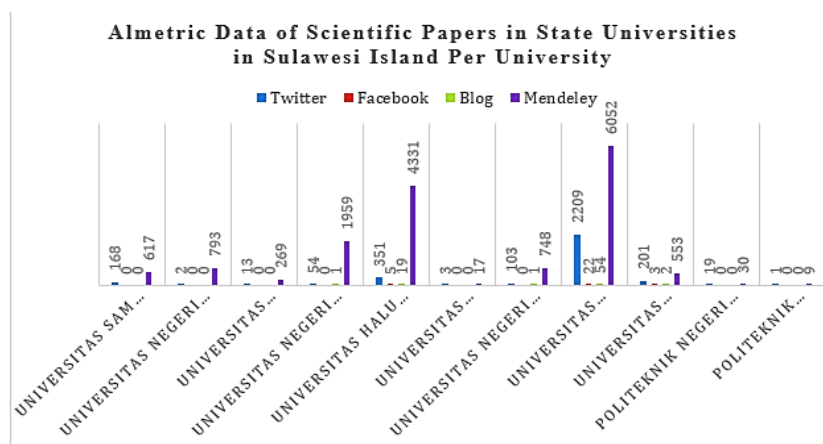

Figure 1. Number of Publications from Sulawesi Island State Universities in 2020-2022
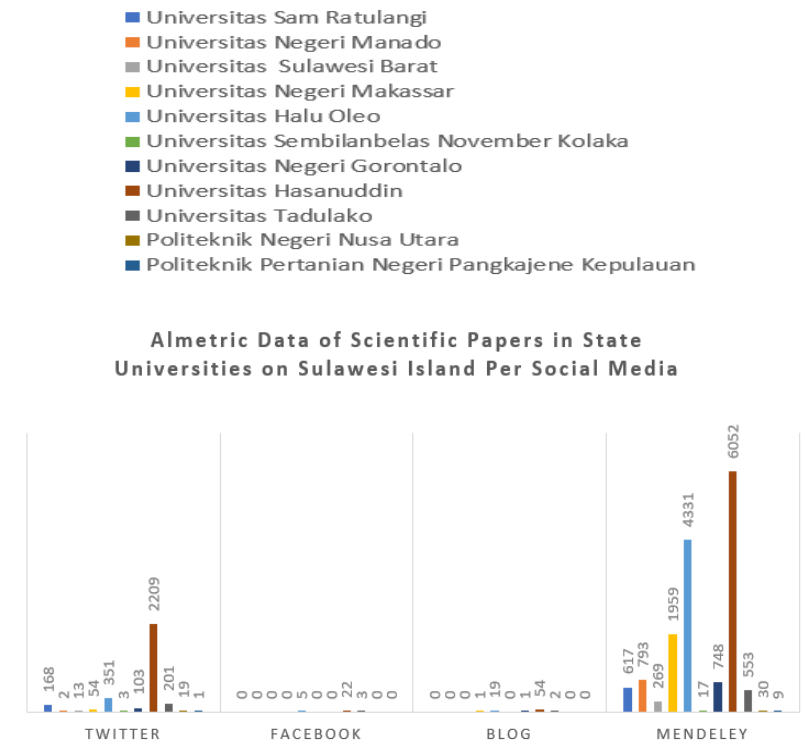
The diagram above shows the number of scientific paper publications on the island of Sulawesi University in 2020-2022, where the highest number of publications is Universitas Hasanuddin, followed by Universitas Negeri Makassar, Universitas Halu Oleo and the lowest is Pertanian Negeri Pangkajene Kepulauan.

Altmetrics Data (Social Media) Publication of Scientific paper from Sulawesi Island State Universities

Impact of publication of scientific paper at Sulawesi Island State Universities in 2020-2022 on social media. The first thing done in this research is to categorize social media according to their characteristics. According to Mayfield (2018) social media has five traits: involvement (there is a group of individuals in it), easy to access or open, can communicate, there is a communityorgroups, and are connected to each other. Based on several characteristics of social media mentioned by Mayfield (2008), in this research the social media Twitter, Facebook, Blog and Mendeley were used to collect data via Altmetrics.com; Altmetrics Explorer for librarians. The following is an illustration of the distribution of scientific papers on social media in figure 2 and figure 3:
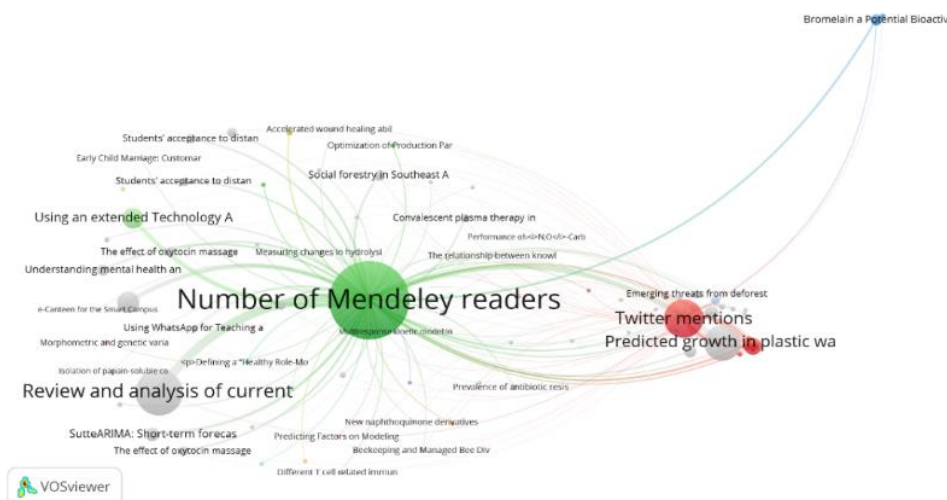

Figure 2. Almetric Data of Scientific paper in Sulawesi Island State Universities Per University

Universitas Sam Ratulangi
Universitas Negeri Manado
Universitas Sulawesi Barat
Universitas Negeri Makassar
Universitas Halu Oleo
Universitas Sembilanbelas November Kolaka
Universitas Negeri Gorontalo
Universitas Hasanuddin
Universitas Tadulako
Politeknik Negeri Nusa Utara
Politeknik Pertanian Negeri Pangkajene Kepulauan

Almetric Data of Scientific Papers in State Universities on Sulawesi Island Per Social Media

Figure 3. Almetric Data of Scientific paper at Sulawesi Island State Universities Per Social Media

The graph above depicts the distribution of all Scopus-indexed scientific publications on social media platforms Twitter, Facebook, Blog, and Mendeley based on the altmetrics category. The image also depicts University. The island of Sulawesi has been successful in maximizing numerous social media platforms, with Mendeley and Twitter being the most influential. However, there is an opportunity to continue developing the strategy on other platforms such as Facebook to be delivered at a larger audience and support the wider dissemination of knowledge.

The top 10 most altmetrics data from scientific article titles at the University of Sulawesi Island for 2020-2022 are based on the overall amount of social media mentions, but they are not only popular on one particular social media but are popular on other social media, which can be seen in Figure 4.

Figure 4. Top 10 Scientific papers of Sulawesi Island State Universities

Top 10 scientific article titles at Sulawesi Island State University 2010-2022 which are the most popular with many mentions (mentioned) on social media Twitter, Facebook, Blog and Mendeley. According to this table, the Universitas Halu Oleo article with the most mentions is **"Review and analysis of current responses to COVID-19 in Indonesia: Period from January to March 2020,"** which ranks first on Twitter, Facebook, Blog, and Mendeley with 3820 mentionsA review and examination of the present COVID-19 responses in Indonesia: January to March 2020 is an article about the impact of COVID-19 Pandemic in Indonesia and the quick reaction. It focuses specifically on the reactions of governments, non-governmental organizations, and communities. It identify the gaps and restrictions in the reaction based on our rapid analysis of media material from government speeches and reports, social media platforms, and mainstream media. We provide five ideas for a more speedy, effective, and comprehensive response.

Discussion

Scientific publications are an important thing for researchers to disseminate their scientific paper. Social media is one of various channels that may be utilized to publish scientific publications. According to Mayfield (2018), social media has various features, including participation (a group of individuals), open or simple access, communication, community, and they are connected to each other. Based on these criteria, this study used social media platforms such as Twitter, Facebook, a blog, and Mendeley to collect altmetrics data for scholarly papers at the University of Sulawesi Island during the academic year 2020-2022. Social media is online media that can be used for scientific communication such as Twitter, Facebook, Blogs, and Mendeley. But behind that, Researchers must also pay attention to the impact of their publication because it will become evaluation material for developing further research. Altmetric.com is one method for measuring the influence of scientific papers on social media. As a result, the Altmetric.com website was used to collect social media data from scholarly articles at the University of Sulawesi Island for 2020-2022.

Social media Facebook and Twitter are social media that are developing very rapidly, as stated by Chai and Kim (2012) in Zheng & Ling (2021) that social networking sites like Facebook have become a popular means for people to establish their own brand. as well as their own networks with others. Since its debut, social media has gained in popularity in many nations due to its benefits such as ease, entertainment, and information access. However, one study yields different results, with Mendeley being the most popular social media platform for spreading scientific knowledge.

Overall, the analysis results show that Sulawesi Island State University has succeeded in utilizing various social media platforms to disseminate its scientific paper. Notably, the Mendeley platform emerged as the most effective in attracting the attention of academics and researchers, reaching a total of 15378 readers. This platform proves the importance of university scientific publications in the wider academic community. Furthermore, the Twitter platform also had a significant impact, with 3124 mentions in the context of discussions and deliberations. This indicates active engagement in conversation and dissemination of scientific insights among Twitter users. Meanwhile, more traditional platforms such as blogs also still have an important role with 77 posts. This shows the university's efforts to utilize diverse online resources to support the dissemination of knowledge. However, Facebook is recorded as the platform with the least share of scientific paper, with only 30 shares. It is comparable to the results of the findings of a previous study published in an international journal by Azizah et al., (2022) titled "The Influences of Social Media and Scientific Citation in Universitas Hasanuddin and Universitas Halu Oleo: An Altmetric Approach." In this study, the social media used to examine the most popular platforms in the publication of scientific papers at Universitas Hasanuddin and Universitas Halu Ole.

Mendeley users are shown as an indicator of social media users in publishing articles, and reference searches in research include bibliographic processing with easy access for individuals, especially students. According to Kosasi (2019), Mendeley is a well-liked program that is simple to use with synchronization process to be completed whenever is convenient, sharing articles with others is simple, and citing or quoting articles to support research needs is simple.

Theresponse that social media is useful for writing and publishing papers they create on social media including likes, shares and others. Topics can be efficiently identified through evaluation and interest gained from social media and then explored for future research.. Seyyedhosseini et al., (2021) explain the influence of social media for communication and collaboration in making research and getting information on certain sciences and for the assessment of relevant research results.

The expanding field of science, Sulawesi Island State University can offer guidelines to academics, both lecturers and students. By using social media as a platform for scientific communication, lecturers also students can easily publish yet exchange scientific papers with the public on a global scale. Information collection must thus be done more quickly thanks to technology, as it has become a necessity for survival. (Yani & Saputra, 2018).

E. Conclusion

The social media platforms features: participation (a group of individuals), ease of access or opening, ability to engage, presence of a community or group, and interconnectedness. Based on a variety of social media features, this study selected Twitter, Facebook, Blog, and Mendeley for data collection using Altmetrics.com and Librarians' Altmetrics Explorer. Mendeley is the most popular social media platform for sharing scientific papers at Sulawesi Island State University, with a total of 15378 Readers, followed by Twitter with 3124 Mentions, 77 Posted, and Facebook with 30 Shared. Meanwhile, the university with the most social media shares is Universitas Hasanuddin, with a total of 8337 shares on social media, followed by Universitas Halu Oleo with 4706 shares on social media, and Universitas Negeri Makassar with 2014 shares on social media. It is hoped that there will be improvements in future research with data integration, duration and research subjects related to research topics, especially regarding papers and sulawesi state universities. Additionally, it is recommended that Sulawesi Island State University use social media to publish or disseminate research articles on a global scale.

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