



Trend analysis of Islamic educational institutions on Indonesian social media in 2018-2023

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ABSTRACT

Social media is a valuable means for educational institutions to engage with the wider community. However, it is necessary to understand more deeply how these trends develop in the realm of social media. This study aims to scrutinize the patterns of Islamic education institutions in Indonesia. Islamic Religious Universities (PTKI), Madrasah, and Pesantren were researched through the Google search engine and Google Trends to collect data from social media content and search queries. The social media platforms analyzed were Facebook, Instagram, Twitter, TikTok, and YouTube. An analysis of social media content was conducted to identify trends associated with Islamic education institutions. Additionally, the study employed Google Trends data to compare the available content and gain an empirical depiction of public interest in related subjects. The findings demonstrate that YouTube has a higher availability of content pertaining to "PTKI" (42.6%), while Facebook has a higher availability of content on "pesantren" (57.1%) and "madrasah" (51.6%). The correlation of content data with search data shows a weak correlation, so there is no empirical evidence that increasing content availability affects interest in content search. This research is significant in revealing the extent to which social media content reflects people's interests.

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1. INTRODUCTION

According to the 2023 Digital research report by WeAreSocial.com (We Are Social, 2023), the number of social media users in Indonesia reached 167 million people in January 2023, which accounts for around 60.4% of the total population of Indonesia. The extensive number of social media users in the country undoubtedly illustrates how digital presence has stimulated fundamental changes in the accessibility, distribution, and comprehension of information.

The presence of Islamic educational institutions in Indonesia offers significant potential for disseminating knowledge through social media. Consequently, social media platforms can be strategically utilized by these institutions (Ghozaly & Nasih, 2021).

Islamic educational institutions are vital establishments for the development of Indonesian Islamic society. They contribute to producing religiously literate and understanding youth (Lukens-Bull, 2019). In the digital era, Islamic education Institutions also utilize social media as a means to disseminate information and promote their activities (Ghozaly & Nasih, 2021).

Social media offers great potential for supporting the presence of Islamic educational institutions in Indonesia. However, gathering the necessary data poses significant challenges. Precisely and legally measuring the amount of content available on popular platforms like Facebook, YouTube, Instagram, Twitter, and TikTok, and determining ways to obtain this data within a particular timeframe are complex issues that require careful consideration.

Several earlier studies, such as social media content analysis (Maemonah et al., 2023), analyzed the ways that SD NU Yogyakarta, SD Muhammadiyah Yogyakarta, and SDIT Taruna Alquran Yogyakarta, three faith-based schools in Yogyakarta, Indonesia, utilized social media as a platform for promoting their religious identity and educational ideologies. The research drew data from the content uploaded on the schools' social media accounts, which included texts, images, and videos.

Research has been conducted to compare the communication of Swiss Higher Education Institutes through social media platforms such as Facebook, Instagram, and Twitter (Sörensen et al., 2023). The study utilized quantitative data and content analysis, considering college types such as universities of applied sciences, universities of teacher education, and research universities. The findings indicated a rise in HEI content on Instagram, whereas no significant increase was observed on Facebook or Twitter. Research universities predominantly use Twitter, whereas universities of applied sciences post the most on Instagram and Facebook. Teacher education universities exhibited the lowest activity across all social media platforms.

Furthermore, based on research on social media usage patterns in higher educational institutions (Aleksandrova & Parusheva, 2019), the current study focuses on the way students use social media for academic purposes. Two main themes have been chosen, namely communication and the knowledge process. The data used in this study is an online survey to collect students' responses. Social media use is identified through questions about social media profiles and the frequency of use of the most popular social networks: Facebook, Twitter, LinkedIn, Google+, YouTube, Reddit, Flickr, Instagram, Snapchat, and forums.

Analyzing content related to Islamic educational institutions on social media has its own challenges. The usual method of analysis is to fill in a questionnaire with a few questions and study the literature, but this process takes a long time (Aleksandrova & Parusheva, 2019; Maemonah et al., 2023; Munadi & Annur, 2021). Therefore, this study aims to fill the knowledge gaps with a more comprehensive approach. This study compared the conversational activity with data on the amount of content related to Islamic educational institutions in Indonesia on five social media platforms, such as Facebook, YouTube, Instagram, TikTok, and Twitter, characterized by the use of the queries '*pesantren*', '*madrrasah*', and '*PTKI*' through the Google search engine. It was analyzed by exploring the data (Komorowski et al., 2016), to see if there were any significant patterns in the amount of content related to Islamic educational institutions on each social media platform, leading to the possibility of one or more platforms being more dominant in discussing certain types of educational institutions. In addition, this study will determine whether there is a relationship between social media posting activity and the level of public interest, as measured by search patterns on Google Trends (Sarwoprasodjo & Lubis, 2004), related to the queries '*pesantren*', '*madrrasah*' and '*PTKI*'. It is assumed that there is a relationship between the amount of content on social media and search interest on Google Trends, which may reflect the influence of social media

conversations on the level of search for more information about Islamic educational institutions.

There has been a prior investigation (Kharis et al., 2023), that explored the analysis of public interest in Artificial Intelligence (AI) using Google Trends. The study found that Indonesian interest in AI predates Society 5.0 and that interest levels vary among different regions of the country. Numerous previous studies have utilized Google Trends data and analyzed information patterns to determine public interest (Hidayat et al., 2022; Kurniawan et al., 2023; Marwantika, 2022). Hence, this research can aid in enhancing the understanding of the employment of social media and Google Trends within the milieu of Islamic educational institutions in Indonesia.

This research can assist Islamic educational institutions in Indonesia to enhance their usage of social media platforms to spread their institutional identity and publicize their initiatives. Consequently, it can contribute to the wider circulation of Islamic knowledge and the formation of a younger generation with religious comprehension. Furthermore, this research can offer a thorough comprehension of social media patterns associated with Islamic educational establishments in Indonesia. This can assist establishments in gaining insight into the extent to which content on those platforms mirrors public interest and pinpointing the platforms that are most fruitful in promoting their activities. To increase awareness and make Islamic educational institutions in Indonesia a popular option among children while choosing their educational level, especially among the Muslim community.

2. RESEARCH METHOD

This chapter discusses the methodology of this research, an explanation of data collection techniques, data dimensions, and methods used.

2.1. Dataset

The study analyzed data from five social media platforms: Facebook, YouTube, TikTok, Instagram, and Twitter, focusing on Islamic educational institutions in Indonesia between July 2018 and July 2023. The data includes information on the volume of content and the number of searches conducted, which is quantitative data.

a. Data on Total Social Media Content

Data was collected via the Google search engine using relevant queries to identify content related to Islamic Religious Universities (PTKI), pesantren, and madrasah. The amount of content identified was recorded. Variations of abbreviations and common forms of the entities were used, including "UIN", "Universitas Islam Negeri", "IAIN", "Institut Agama Islam Negeri", "PTKI", "Perguruan Tinggi Keagamaan Islam", "PTKIN", and "Perguruan Tinggi Keagamaan Islam Negeri" to represent PTKI. A range of search terms was employed to refer to Islamic boarding schools (pesantren) and Islamic schools (madrasah), such as "Pesantren", "Ma'had", "Mahad", and "Ibtidaiyah", "Madrasah Ibtidaiyah", "Tsanawiyah", "Madrasah Tsanawiyah", "Aliyah Negeri", and "Madrasah Aliyah". The data collected comprises the date variable, query type: "PTKI", "pesantren", "madrasah", content volume, and the social media platform on which the content was discovered. The entire dataset encompasses 915 rows and 4 columns.

b. Data Google Trends

Data was collected via Google Trends to ascertain the search volume for designated keywords, specifically "Pesantren," "Madrasah," "UIN," and "IAIN." The keywords "UIN" and "IAIN" were combined into the search query "PTKI". The variables obtained from the Google Trends data encompassed the dates, the search terms employed: "Pesantren", "Madrasah", "PTKI", and the total number of searches conducted.

The data collection period spans from July 2018 to July 2023, comprising 198 rows and 3 columns of data.

c. Search Engine

The Google Search Engine operates through three main stages: crawling, indexing, and ranking (Google Help, 2023). These stages involve the exploration of websites, the organization of their content, and the prioritization of search results based on relevance. The initial stage, crawling, involves search engines scouring the internet to retrieve the content and code of each discovered page URL. To execute this task, Google employs automated programs known as crawlers or spiders, which proceed to follow links from one page to another while gathering information about each. The second stage of indexing consists of storing and organizing the content discovered during the crawling process. Google will crawl the webpage and add it to its extensive database, known as the Google index. Subsequently, once a web page is indexed, the search engine will proceed to process the user's query and utilize the ranking function to establish the sequence of web pages that are most relevant to the query (Shahzad et al., 2020).

d. Ranking Function

Search engines use an algorithm called the ranking function to determine which order of results best fits a user's query. This algorithm evaluates numerous factors, including content relevance, page popularity, and backlink quality, to determine the most fitting arrangement of search results that aligns with the user's search (Luh et al., 2016). Some of the factors that influence the ranking function are the keywords used in the content, the quality and structure of the page, the number of links pointing to it, and more. PageRank, developed by Google founder Larry Page, is a crucial factor in determining a webpage's quality and authority according to the number and quality of links that point to it (Bezhovski, 2015).

The evolution of ranking functions on Google undergoes periodic alterations. Algorithm updates are frequently released by Google to refine the quality of search results. Notable algorithm updates comprise Panda, Penguin, and Hummingbird. The 2011 release of Panda aimed to reduce non-high-quality content and enhance search results' quality. The 2012 Penguin update aimed to subdue unethical link manipulation practices. In 2013, Google launched the Hummingbird update with the purpose of enhancing its search engine's comprehension of users' query meanings (Patil et al., 2021). Algorithm updates persist as Google endeavors to optimize search results and enhance users' search experiences.

e. Pearson's Correlation

Correlation is a crucial statistical technique for measuring the extent to which two variables move in tandem. It also provides insights on whether changes in one variable tend to coincide with changes in the other (Franzese & Iuliano, 2022). Three types of correlations are available: Pearson correlation, Spearman correlation, and Kendall's Tau correlation. For this study, Pearson correlation was used due to its strength in measuring linear relationships between two numerical variables (Profillidis & Botzoris, 2019).

Pearson's correlation is represented by the symbol r , and its formula is defined as follows:

$$r = \frac{\sum(X - \bar{X})(Y - \bar{Y})}{\sqrt{[(\sum(X - \bar{X})^2)(\sum(Y - \bar{Y})^2)]}} \quad (1)$$

Where X and Y are the observed variables and the number of sample observations. The correlation coefficient is a numerical value between +1 and -1. A positive correlation coefficient indicates a direct, or unidirectional, relationship between

two variables, meaning that when variable X increases, variable Y also increases, or when variable X decreases, variable Y also decreases (Senthilnathan, 2019).

3. RESULTS AND DISCUSSION

This chapter discusses the results and discussion of the analyzed data so as to get some insights, as follows:

3.1 Comparison of Total Contents with Total Users across Social Media

The visualization in Figure 1, shows the comparison between the number of contents about Islamic educational institutions in Indonesia and the number of social media users in Indonesia in January 2023, obtained based on data from We Are Social (We Are Social, 2023).

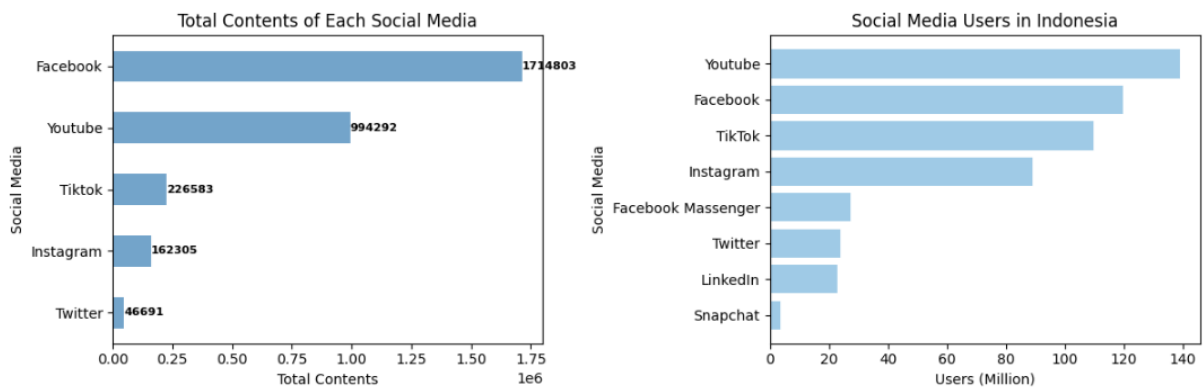


Figure 1. Total Contents and Total Social Media Users in Indonesia

There are over 1.7 million pieces of content on Facebook, one of the most popular social media sites in Indonesia, that are connected to these institutions. This is in line with the nearly 120 million active users worldwide. This implies that Islamic educational institutions have a significant potential audience on Facebook.

Facebook has 139 million users, while YouTube has nearly a million, despite having a lot more content. This shows that YouTube, which may have a larger audience than Facebook, is a crucial medium for sharing information about Islamic educational institutions.

TikTok is a noteworthy platform with 109.9 million users and a comparatively small number of contents (about 226 thousand). This shows that TikTok has a lot of room to grow as a platform for promoting Islamic educational institutions.

Instagram boasts 89.15 million users and roughly 162,000 related content. Instagram is still a valuable tool for deeper and more visual community engagement, even with its comparatively small amount of content.

Among the other platforms, Twitter has the least amount of content (about 46k). Nonetheless, Twitter continues to be a hub for news and significant conversations, so Islamic educational institutions should continue to pay attention to it.

3.2 Interaction between Query and Social Media

In Figure 2, the analysis conducted, it can be seen that each query may have a dominance on certain social media platforms.

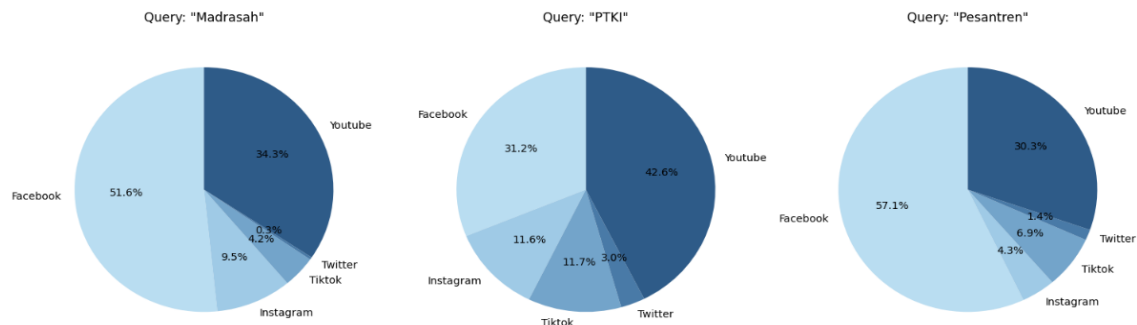


Figure 2. Total Contents Comparison across Social Media

Figure 2, shows that conversations about Islamic universities are more common on the YouTube platform (42.6%). Videos on YouTube may provide more time and space for users to present more in-depth and complex information, which may suit the type of query, such as Islamic universities. Meanwhile, conversations are more common on Facebook for queries about "*pesantren*" and "*madrasah*". This could be due to the more interactive nature of the community on Facebook, where people tend to discuss more in writing and share their views or experiences on this topic of Islamic education.

In terms of other platforms, such as Instagram, Twitter, and Tik Tok, the content related to the three Islamic educational institutions tends to be less available. This indicates that the three platforms have a time limit on each piece of content, which limits the discussion of the content.

3.3 Correlation with Google Trends Data

The correlation value between the volume of social media contents and the number of Google Trends data searches (Google Trends, 2018), for each institution and as a whole, as shown in Table 1, results in diverse percentages.

Table 1. Percentage of Correlation Results

Correlation Results	Percentage
Madrasah	33%
PTKI	8%
Pesantren	13%
Overall	-7%

In the "*Madrasah*" category, a significant positive correlation of 33% suggests that greater amounts of Madrasahs-related content on social media coincide with higher levels of Google search interest for the topic. Conversely, in the "*PTKI*" category, there is a weaker correlation of 8%, indicating a less strong relationship between the amount of content and search interest on Google.

However, a 13% positive correlation was discovered in the "*Pesantren*" category, indicating a rise in social media content focused on pesantren alongside escalating Google search interest.

Conversely, the overall correlation findings revealed a negative value of 7%, suggesting a low or even negative correlation between the amount of content and people's interest in Islamic educational institutions in general. The negative value indicates the opposite direction of the correlation, although the value is very close to zero, which means that an increase in the amount of content does not affect people's interest in searching for that content, so there is no visible correlation. As in the research (Tijerina et al., 2019), which analyzes public interest in breast beauty procedures using Google

Trends data. The results of the correlation analysis show that there is no strong empirical evidence of a relationship between the amount of content and the number of searches by the public.

It should be noted that the search count data used in this analysis is Google Trends data, which essentially focuses on the spatial aspect of information, i.e., how search trends evolve over time and by geographic location. This data provides an insight into how search interest fluctuates, particularly at a regional level (Mavragani & Ochoa, 2019). Therefore, the low correlation between the amount of content on social media and search data indicates that Google Trends data focuses more on the spatial dimension and does not reflect a direct correlation between the amount of content and the number of searches.

3.4 General Analysis

From July 2018 until July 2023, in Figure 4, graphical analysis highlights the increase in contents across five social media platforms: Facebook, YouTube, Instagram, TikTok, and Twitter. This research compares three types of Islamic education institutions in Indonesia: Pesantren, Madrasah, and PTKI. The visualization demonstrates the average amount of content available and outlines the changes that occurred between 2018 and 2023. The peak average was highest in 2023, with 5801 contents posted in just under a year (January to July). Each year, the three queries underwent a significant increase, with the topic of Pesantren increasing at a faster pace than the other two. This suggests that social media users have become more interested in sharing and creating content about Pesantren.

Figure 4, shows a significant increase in 2019–2020 and again in 2022–2023. Further analysis of the content produced during these periods reveals several factors that could potentially account for this trend.

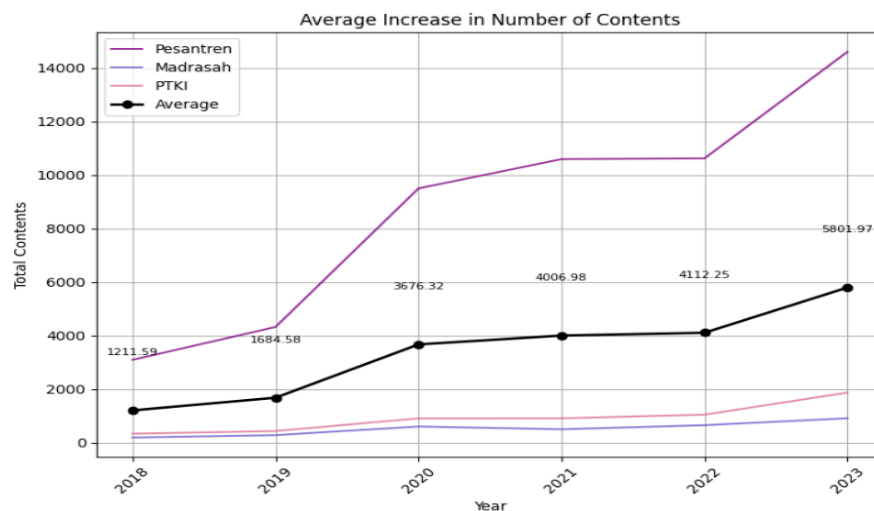


Figure 4. Graph of Increase in Average Number of Content

The content largely stays within established topics such as enrollment details, admission pathways, and official educational institution accounts. This is additionally substantiated by prior research (Munadi & Annur, 2021), examining the usage of social media within Islamic universities in Indonesia. This indicates that social media users' conversations and interests remain concentrated on identical subjects, as depicted in Figure 5: 2019–2020 Contents WordCloud and Figure 6: 2022–2023 Contents WordCloud.



Figure 5. WordCloud Contents 2019–2020



Figure 6. WordCloud Contents 2022–2023

It is possible that the rise in content volume is a result of an increase in the involvement of educational institutions, social media users, or both. The bigram depicted in Figure 7, indicates that over the period of 2019–2020, there was a potential rise in the use of social media platforms by educational institutions to disseminate information about Madrasah Aliyah. This could have led to an increase in the amount of content. Moreover, as illustrated in Figure 8, there could be a rise in the use of social media platforms by educational institutions to disseminate information about state Islamic universities, especially in 2022–2023, which could, in turn, increase the amount of content. Moreover, as illustrated in Figure 8, there could be a rise in the use of social media platforms by educational institutions to disseminate information about state Islamic universities in 2022–2023, which could, in turn, increase the amount of content.

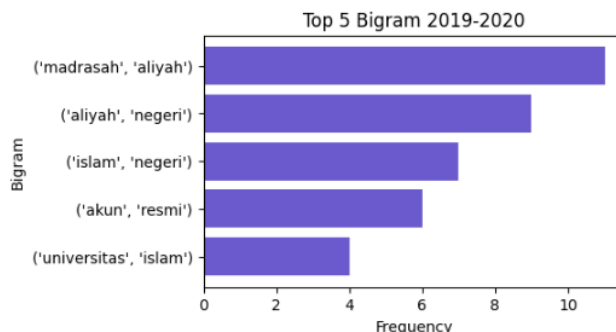


Figure 7. Bigram Contents 2019–2020

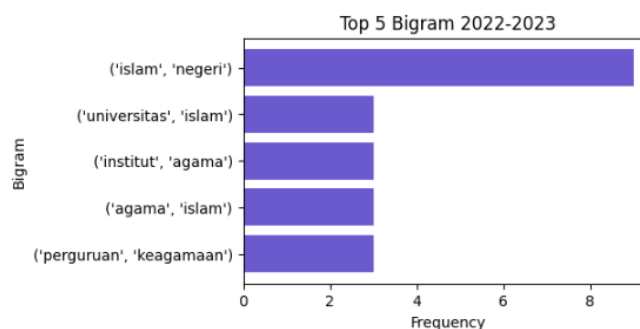


Figure 8. Bigram Contents 2022–2023

Certain seasonal factors may influence the quantity of content. For instance, the surge in 2019–2020 could be mainly attributed to the raised level of interest in the admissions process, which frequently transpires at the beginning of the academic year.

In 2021–2022, the trend of discussions regarding Islamic education institutions on the five social media platforms did not significantly increase or decrease, as illustrated in Figure 4. This implies stability in the Islamic education sector during this timeframe. The topics and information frequently explored on social media appear to be consistent, with no notable occurrences or adjustments leading to an upsurge in discussions. This could be indicative of the increasing knowledge acquisition of social media users, with Islamic education establishing itself as a consistent and continuous subject matter on the platform.

Additionally, this trend might reflect the influence of the COVID-19 pandemic, which has impacted numerous aspects of life, including education (Syah, 2020). The unpredictability and alterations related to the crisis could have caused an attention shift from the education subject to other, more urgent matters during the period.

4 CONCLUSION

This study examined content data from 2018 to 2023 regarding social media trends regarding Islamic educational organizations in Indonesia. The analysis has provided valuable insights on how these organizations can effectively harness social media platforms to enhance their institutional identity and publicize their activities. The research presents a thorough examination of the trends in Islamic educational institutions in Indonesia across diverse social media platforms like Facebook, Instagram, Twitter, TikTok, and YouTube. The study outcomes show that YouTube showcases a greater quantity of content about "PTKI" compared to Facebook, which displays more content related to "*pesantren*" and "*madrasah*". Nevertheless, the correlation analysis between the official accounts of Islamic educational institutions and public search interests depicted a meager association, indicating the presence of other variables that necessitate additional scrutiny. The study is limited by the utilization of solely three main queries that were conducted for three Islamic educational establishments in Indonesia during the past five years. Additionally, the analysis of the materials created by users was not comprehensive and only a limited number of samples were examined. To improve upon these findings, future research ought to investigate the general effect of user-generated content on public interest along with investigating seasonal trends in the effectiveness of social media strategies with regard to Islamic education in Indonesia.

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