



Sentiment Analysis of Social Media X Users Towards Legislators Engaged in Online Gambling Using Naïve Bayes Algorithm

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Abstract: This research analyzes public feelings toward legislative members participating in online gambling applying the Naïve bayes classification technique. The collected data were processed, labeled, cleaned, preprocessed, and classified using RapidMiner Studio software, while conducting the sentiment analysis according to a systematic approach from each of those steps described above, namely, data crawling, cleaning, preprocessing, and classification of the Twitter data. Sentiment distribution yielded 286 negative and 90 positive sentiments with a prediction accuracy of 73.10%. These findings illustrate an overwhelmingly negative public response to this behavior and the expectation society has for legislators as public figures.

Keywords: Sentiment Analysis; Twitter; Online Gambling; Legislative Members; Naïve Bayes; RapidMiner.

1. Introduction

Social media, especially Twitter, has become an important platform for digital communication, allowing its users to share their views on many subjects, including political topics. Twitter's immediacy and wide reach are conducive to discussions on controversial subjects that may expose legislators' online gambling work to public scrutiny and criticism. Such elder-led actions can dilute public trust in legislative institutions at large and pose a threat to the credibility of the entire political system [1][2][3]. Networking websites, such as Twitter, have become a colosseum of political interaction, where users discuss their opinions on political leaders and policies. Previous studies have shown that users on Twitter often express exaggerated sentiments and emotions about political events, potentially contributing to polarization and echo chambers [4][5]. In the case of online gambling, what is the similarity between legislative integrity and the public interest? For example, sentiment analysis methods use the Naïve Bayes algorithm to classify and interpret feelings expressed in tweets [2][3][6].

The power of social media in shaping public opinion is undeniable. Evolving political narratives are launched and fought on sites like Twitter, where users—political journalists, political influencers, and the like—interact with their followers in an attempt to change minds. These interpersonal dynamics not only reflect user sentiment but also spill over into larger discourses about political accountability and transparency, particularly on controversial issues like online gambling [7][8]. Analyzing social media sentiment toward legislators who engage in online gambling can help understand the ongoing implications of this activity for public trust, political ethos, and social progress achieved in society. Social media, sentiment, and political discourse are interesting and important topics to study. The use of machine learning algorithms such as Naïve Bayes on Twitter data can provide insight into public opinion about legislators who are likely to engage in online gambling, contributing to conversations about political integrity and political trust [9][10]. The Naïve Bayes algorithm has emerged as one of the most powerful algorithms in sentiment analysis, as it is simple yet computationally efficient with larger data sets. This study uses the Naïve Bayes algorithm to examine sentiment trends and quantitatively assess public perceptions of legislators involved in internet gambling. The primary data source is Twitter, which provides a wealth of public opinion relevant to this controversial topic. This study, from the analysis of this data, seeks to make a positive contribution to understanding public attitudes and providing macro policy resolutions for officials involved in online gambling as well as acting officials [11][12].

This study aims to analyze Twitter data, specifically mentions of legislators regarding online gambling, to track public sentiment towards legislative actions and individual legislators. Much emphasis is placed on encoding sentiment patterns based on properties such as keywords, context, and emotions. This paper adds to the existing academic literature with its enthusiasm in developing and applying political sentiment analysis techniques, while providing valuable suggestions to policymakers to improve regulations and satisfy public concerns about gambling [13][14]. In recent years, sentiment analysis based on social media data has received significant attention. Although contemporary methods, including neural networks and models based on Transformer architecture, have pushed the domain forward by facilitating deeper contextual analysis, traditional techniques such as Naïve Bayes still show their efficacy in handling enhanced data [15][16]. Recent literature proposes to combine classical algorithms and modern methods to gain further performance improvements in sentiment analysis tasks [17]. The use of the Naïve Bayes algorithm in this study highlights the importance of this algorithm in gaining important insights from social media discourse, particularly as it relates to public perceptions of online gambling and what this means for accountability among those who legislate on online gambling [18]. Utilizing sentiment analysis in conjunction with social media data analysis can provide valuable insights into public perceptions of legislators involved in online gambling. Therefore, the findings from this study will enable policymakers to better understand the public mood regarding political sentiment and concerns, which can help in developing regulatory frameworks and further increase trust in the legislative field [19][20]. However, there is a paucity of literature related to specific topics such as legislator participation in online gambling. Common approaches often overlook the nuanced perspectives needed for specific issues.

The approach of this study is presented through several steps. Data crawling is the first step, as tweets related to the issue need to be extracted from Twitter. The extracted data is then categorized into certain sentiment polarities as positive or negative. The next step is to clean the data, removing noise and irrelevant data. The Naïve Bayes algorithm is then applied to the pre-processed data to find out the sentiment patterns related to the topic. This study makes both theoretical and practical contributions. Theoretically, this study advances the existing knowledge on social media-based sentiment analysis by addressing a specific and under-explored problem. Practically, this study does so by offering insights that policymakers can apply to develop

better communication and policy strategies that promote accountability from public officials. The agencies can use the results to improve their assessment of public perceptions and better respond to social concerns.

2. Research Method

2.1 Research Stages

This research begins with a literature study stage to gather insights and relevant references related to the topic being studied. At this stage, the research includes reading scientific journals, related articles, and information obtained from trusted sources, including academic publications and official websites. The purpose of this literature study is to understand the context of the problem to be studied, as well as to identify gaps or deficiencies in existing literature. After gaining a deep understanding of the background of the research, the main problems that are the focus of the research can be clearly identified. This step is important to ensure that the research has a specific, focused, and relevant direction to the issue to be studied, and supports the formation of appropriate hypotheses.

2.2 Data Collection Method

The data used in this study were obtained through data crawling techniques from Twitter, utilizing publicly available datasets. This process includes taking tweets that are relevant to the issue being studied, namely the involvement of legislators in online gambling practices. The dataset collected includes various tweets that are expected to provide a comprehensive picture of public opinion on the topic. By using Twitter as the main data source, this study can access various perspectives from social media users that reflect public sentiment regarding the issue being discussed.

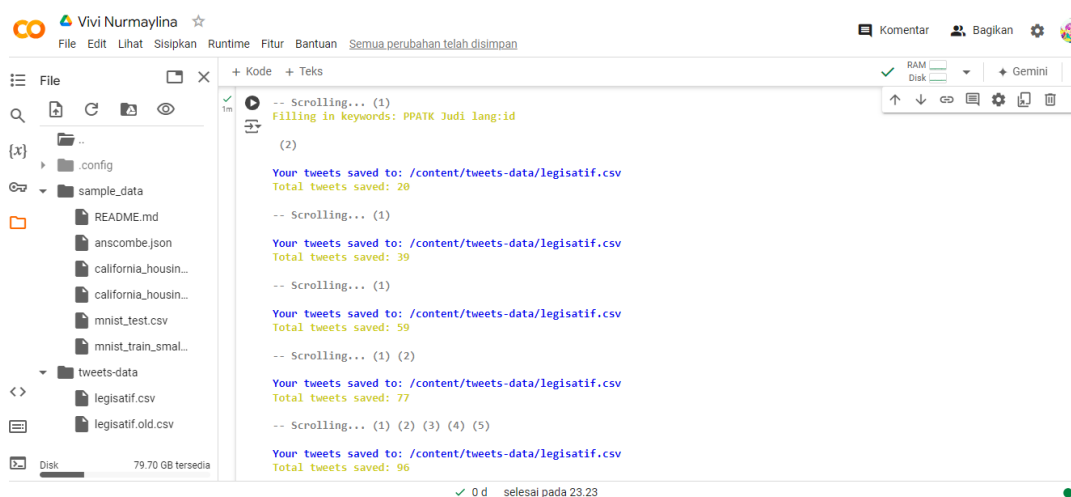


Figure 1. Data Collection Process

2.3 Implementation of Methodology

The methodology used in this study focuses on sentiment classification using the Naïve Bayes algorithm. This algorithm was chosen because of its simplicity and ability to handle large amounts of data efficiently. Naïve Bayes is used to classify the sentiment contained in the collected tweets, whether they are positive, negative, or neutral. The analysis process is carried out by utilizing RapidMiner Studio software, which provides convenience in processing and classifying data systematically and structured. By using this software, sentiment analysis can be carried out efficiently, producing accurate and reliable results, and facilitating the process of interpreting data in the context of public sentiment towards the involvement of legislators in online gambling.

3. Result and Discussion

3.1 Results

The study utilizes the Naïve Bayes algorithm to analyze sentiment based on public opinion posted on Twitter by the general public about legislators associated with online gambling. The main focus follows the sequence of behavior for one, layoff social backlash, so as to set the point of views acceptable by open opinion

and positive words for some legislators do gambling on networking. Data This sentiment analysis was performed on the data obtained through a data crawling process when the 'common issues' was searched through a list of tweets identified and collected tweets on the topic in question. Naïve Bayes method was applied for sentiment classification, which is a simple and efficient algorithm for text data processing. Naïve Bayes uses the occurrence of words in documents to calculate the probability of text classifications, and then uses that percentage to classify whether the given sentiment in the tweet was positive, negative, or neutral. Naive bayes — it is a very simple model but can prove very effective in shortlisting meaningful information from social media data, which is generally non-structured and noisy. This sentiment analysis results an accuracy of 73.10%. Analysis of the 376 tweets had shown that 286 tweets depicted negative sentiment, and only 90 tweets with positive sentiment. Table below summarize the distribution of sentiment:

Tabel 1. Sentiment Distribution of Public Opinion on Twitter
Regarding Legislators Involved in Online Gambling

Sentiment	Number of Tweets	Percentage (%)
Negative	286	75.8
Positive	90	23.9
Neutral	0	0.0
Total	376	100

The overwhelming negative sentiment (75.8%) supports the view that the public is opposed to legislators partaking in online gambling. It is expected that public figures, particularly legislators, should be held to a higher standard of right and wrong, and this result supports that idea. Such involvement is viewed negatively as eroding public confidence in the legislative process and as incompatible with maintaining the character of public officials. Such a prominent proportion of negative sentiment is indicative of the social significance of the political class being bound to a moral and legal code, and in this sense gambling is an activity perceived as both socially and `legally below the standard expected of one of their representatives. With the negativity bias of the study, the authors did identify 90 tweets that expressed positive sentiment (23.9 percent of the total). These tweets might be from people who either care less or believe that personal vices such as gambling shouldn't have an effect on the job performance of lawmakers. Some of the tweets in this category may indicate a more lenient or accepting attitude toward public officials' personal lives, while others may just express an indifference toward the issue. Positive sentiment can also come from those who argue these kinds of issues should not influence the professional duties or political decisions of legislators. Although neutral tweets are absent from the analysis, indicating that most Twitter users convey their position strongly on this matter. Additionally, this neutrality toward legislators does follow the expected pattern, meaning that it indicates we are dealing with a very polarized topic as the public is expressing a very different tone over legislators, depending if they favor or oppose online gambling activities.

There are several possible explanations, including the moral drama that frames politics and the expectations we hold of politicians in their public life. Gambling may not be compatible with the responsibilities of an elected official. Moreover, Twitter by its very nature is a medium that magnifies extreme opinions and criticism, particularly around contentious subjects. Twitter's nature as an instant, realtime conversation platform can lead users to express frustration and dissatisfaction more strongly, which may also play a role in the overall negative sentiment observed. Additionally, although 376 tweets were classified, other nuances present in the tweet, such as mixed emotions, or aspects of its complexity were not being captured by the Naïve Bayes algorithm. However, because the Naïve Bayes model is simplistic, it can occasionally lose out on nuanced sentiment, such as sarcastic or ambivalent opinions. This could have caused a some complexity to get lost during the classification.

The distribution of general sentiment has clearly shown whether people support or not the involvement of legislators in online gambling. This negative reaction may indicate a growing concern in society about the integrity of our political figures. And keep in mind that there is a bias in this analysis; it all depends on the feelings of people who have used Twitter and some parts of the internet that have a low tolerance for different opinions, thus creating a more subjective image. A healthy positive sentiment, although on a smaller scale, also provides some insight. It shows a portion of the population that does not see gambling as a big problem or has other standards for the private lives of lawmakers. This positive slice may reflect a larger debate about the balance between personal freedom and public responsibility. From the sentiment analysis carried out in this study by the Naïve Bayes algorithm, we see that there is a strong disapproval of legislators participating in online gambling according to what we see in percentages, where 75.9% of the tweets analyzed are negative. That is a strong public motivation in response to the actual or perceived ethical behavior of public officials.

Half the distance between freedom of speech and dealing with hate speech. 23.9% of positive tweets indicate some degree of tolerance or leniency here, albeit in the minority. The above-mentioned results highlight the value of analyzing public opinion and its social media discourse and how it can influence the political landscape.

3.2 Discussion

The data found that the vast majority of bills negatively impacted online gambling; approximately 75.8% of comments were negative about legislators engaging in online gambling. This implies that the majority of the public believes that legislators engaging in online gambling constitutes an ethical breach of their duties as public officials. In this case, the negative sentiment is not only related to disappointment with the individuals involved but also frustration with the legislature as an entity, which is supposed to be held to high standards of integrity and morality. Legislators accused of illegal online gambling activities are generally viewed as violating professional ethics and being irresponsible. As a rule, public officials—especially elected representatives—are expected to be held to higher personal and legal standards than ordinary citizens. Thus, participation in gambling—which is generally associated with undesirable forms of behavior and negative impacts on public reputation—is a hotly debated issue. The large number of tweets categorized as negative sentiment suggests that public disapproval of this form of behavior is at an all-time high—it is clearly a power play and behavior that is considered inappropriate.

However, even with the overwhelming negative sentiment, the analysis still found 90 tweets (23.9%) that expressed positive sentiment toward the issue. As with negative sentiment, this proportion is quite small, but the presence of positive sentiment is still informative. Positive sentiment may come from people who condone the personal follies of civil servants or think that personal activities such as gambling should not harm their job performance. Some tweets in this category may express a more tolerant or forgiving attitude about politicians' private lives, while others may not consider the issue to be material to legislators' performance in office at all. Positive sentiment may be partly explained by the more permissive view that some people take toward the private lives of public officials. Some may say that as long as it does not interfere with the official duties of lawmakers or their political roots, it is not worth criticizing. And it is also possible that political loyalties or personal beliefs about individual freedoms may help explain these more favorable perceptions. This subset of public opinion suggests a broader cross-section of voters with varying perspectives on whether their leaders' personal behavior is less important than their professional achievements.

Notably, there were no tweets rated as neutral in the analysis, indicating that Twitter users generally seem to have strong feelings when it comes to legislators and online gambling. This lack of neutrality may reflect the polarized debate around the issue. Twitter and other social media platforms have a filtering mechanism — strong opinions are amplified and users are often motivated to take a position, either for or against a controversial issue. The quick communication style of the platform itself promotes a level of in-your-face expressions where users adjust for a more extreme version of their thoughts to get noticed, delivering a wider spread of polarized opinions. While the Naïve Bayes is useful for discriminating the clear sentiments, it has its shortcomings and trained on data until Oct 2023. Specifically, Naive Bayes has difficulty identifying more sophisticated or nuanced sentiments, such as when a tweet contains both criticism and justification at the same time. Although the results reported in this study reflect the sentiment of most tweets, subsequent studies applying more sophisticated sentiment analysis approaches like deep learning approaches could give us a more detailed perspective of the public opinion about this issue.

The results suggest the public expects a high level of ethical behavior from legislators, which has important implications for policies and regulations governing ethical standards. Public officials in online gambling may constitute a direct threat towards legislative institutions and public trust. Consequently, there may need to be more stringent ethical guidelines and regulations for public officials, allowing for personal behavior to remain separate from professional impressions. This research also underscores the importance of state rules regarding the personal conduct of lawmakers — and the need for greater transparency and completeness surrounding issues that could erode public trust. A small chunk of the public is more forgiving on the issue, but the bulk of those surveyed appear to be seeking higher ethical standards from elected leaders. That mirrors wider public concern about the integrity of public servants and how officials behave, in office and out, received careful scrutiny.

4. Related Work

Social media and sentiment analysis and political discourse is a large area of research that has been gaining attention in recent years as Twitter is one of the most important ways for political engagement and

expression of public opinion. How these companies have influenced political perceptions and behavior has been the subject of intensive scrutiny by researchers, who have had the benefit of studying real-time public reactions to politicians and events. Adding to this is the immediacy of social media, which enables analysis of public responses to political events, providing visibility into the emotional tenor of discussion around political issues, from elections to trust in leaders [11][21].

Given the important role Twitter and other social media can play in shaping public perception about the political issues, sentiment analysis has become a powerful way of assessing public sentiment. Sentiment analysis can help quantify the emotional tone of public discussions about political events, speeches, or figures by classifying tweets as having positive, negative, or neutral sentiments. This technique has been used to analyze many political subjects, and it shows how sentiments rise and fall in response to political deeds and occurrences [11][22]. For instance, studies have shown that sentiment analysis can effectively gauge public reactions to political figures and their decisions, providing valuable insights into the public mood and perceptions of political integrity [23].

The issue of political accountability is an evergreen topic of interest for political scientists, and the emergence of social media has changed the substance and perception of this accountability. All public figures are now beneath a microscope, and Twitter in particular has made it possible for the crowd to give feedback in real time to political deeds. Such a dynamic breeds a culture of direct engagement between policymakers and their constituents, as politicians realize that their actions receive almost immediate querying from constituents who will take to social media to air grievances that they used to reserve for voting and polling [24][25]. The rapid dissemination of opinions on social media can lead to immediate consequences for political leaders, affecting their careers and relationships with the public [26][11].

This brings the issue of online gambling to the forefront, especially when it comes to public figures engaging in the activity. With online gambling becoming a lot more accessible, how do we feel about politicians when we see them do this? Social media act as medium in such cases, enabling fast public response to the gambling habits of political figures that often triggers public pressure and trust loss [27][28]. While much of the existing literature addresses broader public health concerns related to gambling addiction, the specific intersection of online gambling and political accountability remains underexplored, highlighting the need for further research in this area [29][30].

While the research on sentiment analysis on elections and public figures tracks extensive progress, the link between personal behaviors of politicians that would shape societal perspectives of their characters i.e., online gambling remains underexplored. Most previous work is focused on general political sentiment rather than how how we interact informally affects trust in public institutions and political legitimacy [29][11]. This study aims to address this gap by analyzing public sentiment in response to legislators' involvement in online gambling, thereby illuminating how such behaviors can influence perceptions of political integrity [28].

The Naïve Bayes algorithm is widely recognized for its effectiveness in sentiment analysis due to its simplicity and efficiency. This probabilistic approach classifies text into sentiment categories, making it particularly suitable for handling large datasets typical of social media platforms [31][23]. Although newer methods, such as deep learning, have gained traction for their ability to capture complex patterns, Naïve Bayes remains a reliable choice for straightforward sentiment classification tasks, especially in the context of political analysis [22][21]. Its effectiveness in quickly classifying public sentiment allows researchers to gain insights into political events and public figures efficiently [23][32]. Research on social media, sentiment analysis, and political moderation is rich, and a sociopolitical topography is emerging that emphasizes public perceptions of political integrity and accountability. The literature, nonetheless, demonstrates that additional research is required centred on the impacts of personal behaviors, with politicians' participation in online gambling being just one example, as well as on the efficiency of sentiment analysis strategies, such as the Naïve Bayes model.

5. Conclusion and Recommendations

Based on the results of the study, it can be concluded that public response to the issue was largely negative, regardless of whether the public referred to the symbolic representation of the issue or not, as 75.8% of the tweets analyzed were categorized as negative. "Such behavior erodes public trust that those in power (especially legislators) should hold themselves to high ethical standards and not engage in activities that would undermine their credibility and the public's trust in the legislature." The negative criticism reflects a strong public sentiment that views any involvement by legislators in online gambling as a violation of the integrity that is so important to those in power. While many responses were negative, 23.9% of the tweets were more positive or accepting, suggesting that a small portion of the public did not consider the issue serious

enough to change their views of the politicians involved. Such differences in views are symptomatic of a broader societal discussion about personal freedom versus professional obligation, and about the different standards we apply to public figures.

The study successfully utilized the Naïve Bayes algorithm for sentiment classification, which offers a valuable window into the public's emotional response to legislators' participation in online gambling. While the algorithm proved valid, future research using more sophisticated techniques such as deep learning models could yield richer insights into public sentiment, particularly with more nuanced or ambiguous opinion statements. A novel aspect of this work lies in the implications that online opinion may have for the ethical behavior of public figures. The results reinforce the need for ethical behavior while in the office and demonstrate how politicians' personal behavior, such as corporate involvement in online poker, can undermine their public credibility. The study also reaffirms the importance of transparency and ethical accountability for policymakers and political institutions, particularly regarding the personal behavior of elected representatives. Further research could build on this study by investigating how public sentiment changes over time because of political events or policy changes or by investigating how different demographic groups view legislators' involvement in activities such as online gambling. Furthermore, on this issue, the static nature of the current language model limits insights into the nuances of public sentiment on this issue.

References

- [1] Budiana, H. R., Koswara, A., Prastowo, F. A. A., & Ratnasari, E. (2024). Public Opinion Dynamics on Twitter: A Preliminary Analysis of Conversations Related to the 2024 General Election in Indonesia. *Journal of Law and Sustainable Development*, 12(1), e2132-e2132. <https://doi.org/10.55908/sdgs.v12i1.2132>
- [2] Passi, K., & Motisariya, J. (2022). Twitter sentiment analysis of the 2019 indian election. In *IOT with Smart Systems: Proceedings of ICTIS 2021, Volume 2* (pp. 805-814). Singapore: Springer Nature Singapore. https://doi.org/10.1007/978-981-16-3945-6_79
- [3] Pota, M., Esposito, M., Palomino, M. A., & Masala, G. L. (2018, May). A subword-based deep learning approach for sentiment analysis of political tweets. In *2018 32nd International Conference on Advanced Information Networking and Applications Workshops (WAINA)* (pp. 651-656). IEEE. <https://doi.org/10.1109/waina.2018.00162>
- [4] Jennings, F. J., Bramlett, J. C., McKinney, M. S., & Hardy, M. M. (2020). Tweeting along partisan lines: Identity-motivated elaboration and presidential debates. *Social Media+ Society*, 6(4), 2056305120965518. <https://doi.org/10.1177/2056305120965518>
- [5] Matuszewski, P., & Szabó, G. (2019). Are echo chambers based on partisanship? Twitter and political polarity in Poland and Hungary. *Social media+ society*, 5(2), 2056305119837671. <https://doi.org/10.1177/2056305119837671>
- [6] Karami, A., & Elkouri, A. (2019). Political popularity analysis in social media. In *Information in Contemporary Society: 14th International Conference, iConference 2019, Washington, DC, USA, March 31–April 3, 2019, Proceedings 14* (pp. 456-465). Springer International Publishing. https://doi.org/10.1007/978-3-030-15742-5_44
- [7] Peres-Neto, L. (2022). Journalist-twitterers as political influencers in Brazil: Narratives and disputes towards a new intermediary model. *Media and Communication*, 10(3), 28-38. <https://doi.org/10.17645/mac.v10i3.5363>
- [8] Bruns, A., & Nuernbergk, C. (2019). Political journalists and their social media audiences: New power relations. *Media and communication*, 7(1), 198-212. <https://doi.org/10.17645/mac.v7i1.1759>
- [9] Siddha, A., & Wulandari, W. (2023). DECONSTRUCTION OF ANIES BASWEDAN'S POLITICAL IMAGE ON TWITTER THROUGH THE HASHTAG# ANIESGABENERPEMBOHONG. *Jurnal Wacana Politik*, 8(1). <https://doi.org/10.24198/jwp.v8i1.45019>

- [10] Schumacher, N. F., Maurer, P., & Nuernbergk, C. (2023). Towards new standards? Interaction patterns of German political journalists in the Twittersphere. *The International Journal of Press/Politics*, 28(1), 257-277. <https://doi.org/10.1177/19401612211025502>
- [11] Fino, E., Hanna-Khalil, B., & Griffiths, M. D. (2021). Exploring the public's perception of gambling addiction on Twitter during the COVID-19 pandemic: Topic modelling and sentiment analysis. *Journal of addictive diseases*, 39(4), 489-503. <https://doi.org/10.1080/10550887.2021.1897064>
- [12] Hing, N., Russell, A. M., Gainsbury, S. M., & Nuske, E. (2016). The public stigma of problem gambling: Its nature and relative intensity compared to other health conditions. *Journal of Gambling Studies*, 32, 847-864. <https://doi.org/10.1007/s10899-015-9580-8>
- [13] Shaw, C. A., Hodgins, D. C., Williams, R. J., Belanger, Y. D., Christensen, D. R., El-Guebaly, N., ... & Stevens, R. M. (2022). Gambling in Canada during the COVID lockdown: Prospective national survey. *Journal of Gambling Studies*, 38(2), 371-396. <https://doi.org/10.1007/s10899-021-10073-8>
- [14] Thomas, S. L., Randle, M., Bestman, A., Pitt, H., Bowe, S. J., Cowlshaw, S., & Daube, M. (2017). Public attitudes towards gambling product harm and harm reduction strategies: an online study of 16–88 year olds in Victoria, Australia. *Harm Reduction Journal*, 14, 1-11. <https://doi.org/10.1186/s12954-017-0173-y>
- [15] Auer, M., & Griffiths, M. D. (2022). Gambling before and during the COVID-19 pandemic among online casino gamblers: An empirical study using behavioral tracking data. *International Journal of Mental Health and Addiction*, 20(3), 1722-1732. <https://doi.org/10.1007/s11469-020-00462-2>
- [16] Parrado-González, A., Fernández-Calderón, F., & León-Jariego, J. C. (2023). Perceived gambling availability and adolescent gambling behavior: The moderating role of self-efficacy. *International Journal of Mental Health and Addiction*, 21(4), 2737-2750. <https://doi.org/10.1007/s11469-021-00749-y>
- [17] González Bueso, V., Santamaría, J. J., Fernández Martínez, D., & Montero Alvarado, E. (2021). Preferences on online gambling activities among adolescents: A Review. *Journal of Psychiatry and Mental Disorders*, 6(1), 1-10. <https://doi.org/10.26420/jpsychiatrymentaldisord.2021.1033>
- [18] Håkansson, A., Mårdhed, E., & Zaar, M. (2017). Who seeks treatment when medicine opens the door to pathological gambling patients—psychiatric comorbidity and heavy predominance of online gambling. *Frontiers in psychiatry*, 8, 255. <https://doi.org/10.3389/fpsy.2017.00255>
- [19] Hodgins, D. C., & Stevens, R. M. (2021). The impact of COVID-19 on gambling and gambling disorder: emerging data. *Current Opinion in Psychiatry*, 34(4), 332-343. <https://doi.org/10.1097/ycp.0000000000000709>
- [20] Marko, S., Thomas, S., Pitt, H., & Daube, M. (2022). "Aussies love a bet": Gamblers discuss the social acceptance and cultural accommodation of gambling in Australia. *Australian and New Zealand Journal of Public Health*, 46(6), 829-834. <https://doi.org/10.1111/1753-6405.13298>
- [21] Zucco, C., Calabrese, B., Agapito, G., Guzzi, P. H., & Cannataro, M. (2020). Sentiment analysis for mining texts and social networks data: Methods and tools. *Wiley Interdisciplinary Reviews: Data Mining and Knowledge Discovery*, 10(1), e1333. <https://doi.org/10.1002/widm.1333>
- [22] Arias, F., Nunez, M. Z., Guerra-Adames, A., Tejedor-Flores, N., & Vargas-Lombardo, M. (2022). Sentiment analysis of public social media as a tool for health-related topics. *IEEE Access*, 10, 74850-74872. <https://doi.org/10.1109/access.2022.3187406>
- [23] Kustiyahningsih, Y., Islam, I., Khotimah, B. K., & Purnama, J. (2023). Sentiment Analysis for Indonesian Salt Policy uses Naïve Bayes and Information Gain Methods. *Technium Romanian Journal of Applied Sciences and Technology*, 17, 440-445. <https://doi.org/10.47577/technium.v17i.10121>

- [24] Macey, J. R., Abarbanel, B. L., Castrén, S., Hamari, J. J., & Salonen, A. H. (2023). Public opinions and attitudes toward a state monopoly: a study of the finnish gambling system. *BMC Public Health*, 23(1), 2012. <https://doi.org/10.1186/s12889-023-16917-9>
- [25] Syvertsen, A., Erevik, E. K., Fodstad, E. C., Girard, L. C., Kaur, P., Kristensen, J. H., ... & Pallesen, S. (2023). An empirical study on attitudes toward gambling when sportswashing is involved. *Frontiers in Psychology*, 14, 1147332. <https://doi.org/10.3389/fpsyg.2023.1147332>
- [26] Lindner, P., Forsström, D., Jonsson, J., Berman, A. H., & Carlbring, P. (2020). Transitioning between online gambling modalities and decrease in total gambling activity, but no indication of increase in problematic online gambling intensity during the first phase of the COVID-19 outbreak in Sweden: A time series forecast study. *Frontiers in public health*, 8, 554542. <https://doi.org/10.3389/fpubh.2020.554542>
- [27] Marionneau, V., Ruohio, H., & Karlsson, N. (2023). Gambling harm prevention and harm reduction in online environments: a call for action. *Harm reduction journal*, 20(1), 92. <https://doi.org/10.1186/s12954-023-00828-4>
- [28] Törrönen, J., Samuelsson, E., & Gunnarsson, M. (2020). Online gambling venues as relational actors in addiction: Applying the actor-network approach to life stories of online gamblers. *International Journal of Drug Policy*, 85, 102928. <https://doi.org/10.1016/j.drugpo.2020.102928>
- [29] Brodeur, M., Audette-Chapdelaine, S., Savard, A. C., & Kairouz, S. (2021). Gambling and the COVID-19 pandemic: A scoping review. *Progress in Neuro-Psychopharmacology and Biological Psychiatry*, 111, 110389. <https://doi.org/10.1016/j.pnpbp.2021.110389>
- [30] Selin, J., & Nyrhinen, R. (2022). Gambling policy positions of Finnish newspapers between 2004 and 2020: An automated content analysis. *Nordic Studies on Alcohol and Drugs*, 39(6), 605-622. <https://doi.org/10.1177/14550725221083438>
- [31] Ridho, F. M., Wibawa, A. P., Kurniawan, F., Badrudin, B., & Ghosh, A. (2022). Performance analysis of naive bayes in text classification of islamophobia issues. *Science in Information Technology Letters*, 3(1), 22-30. <https://doi.org/10.31763/sitech.v3i1.1211>
- [32] Darwish, K., Magdy, W., Rahimi, A., Baldwin, T., & Abokhodair, N. (2018). Predicting online islamophobic behavior after# ParisAttacks. *The Journal of Web Science*, 4(3), 34-52. <https://doi.org/10.1561/106.00000013>