

The Islamic State's Strategic Communication: An Informetric Topic Analysis

Frauke Kling

Heinrich-Heine-Universität Düsseldorf, Germany.
frauke.kling@uni-duesseldorf.de

Aylin Ilhan

Heinrich-Heine-Universität Düsseldorf, Germany.
aylin.ilhan@uni-duesseldorf.de

Wolfgang G. Stock

Heinrich-Heine-Universität Düsseldorf, Germany.
stock@phil.hhu.de

Maria Henkel

Heinrich-Heine-Universität Düsseldorf, Germany.
maria.henkel@uni-duesseldorf.de

ABSTRACT

In this paper we describe an informetric approach to analyzing three recurrent facets of the Islamic State's strategic communication. These are (1) the call for emigration to IS-controlled territory (*hijrah*), (2) the encouragement of lone-actor attacks in the West, and (3) the call for engagement in *jihad*. Content analysis of IS' English-language magazines *Dabiq* and *Rumiyah* was used to determine trends in the coverage of these themes. The text-word method, a knowledge representation method specifically suited for application on these non-scientific texts, was used to uncover further thematic insights within the magazines. This mixed-methods approach could serve as the basis for data collection on IS strategic communication and its themes, providing insight into longitudinal developments in IS writings. The presented use of informetrics and knowledge representation tools allows for a content-based analysis of terrorist group's communication. In the future, this approach may aid in the understanding of the development of jihadist ideology and radicalization efforts carried out by terrorist groups, presenting the field of Information Science with a unique opportunity to provide an answer to a growing need for data on extremism and communication.

KEYWORDS

informetrics, topic analysis, Islamic State, text-word method, content analysis

INTRODUCTION

Background

2017 has marked the end of the Islamic State's (IS) stranglehold on large parts of territory in Iraq and Syria. However, the group and its ideology have shown remarkable resistance against military defeat. While a holistic military and sociological strategy against groups like the IS is needed, research has so far been forced to analyze what the group chooses to present us with. This is due to classified information on key figures and regular sympathizers of IS, which makes it nearly impossible to conduct empiric studies on the impact of their strategic communication. The strategic communication propagated by IS includes tweets (Klausen, 2015), other social media and messaging services, as well as video material (Gates & Podder, 2015). With little known about their impact, and an unclear understanding of the creation of IS strategic narratives (Pisoui & Ahmed, 2016), research must focus on the manifest content of these persuasion tools. Knowledge extraction and representation of these materials can be used to further our understanding of what was published between the declaration of the Caliphate in 2014 and its military downfall towards the end of 2017. IS has published a considerable amount of text, audio, and visual material online since 2014, with an average number of 38 communication pieces produced per day in 2015 (Winter, 2015). Two of their most recognized publications have been the English-language magazines *Dabiq* and *Rumiyah*. Analysts have assessed these magazines from various points of view, using content analysis as the basis for their research. Ingram (2016a, 2016b) deems *Dabiq* a crucial factor in IS' strategic communication plan and connects it to the sweeping success in recruitment of foreign fighters, while *Rumiyah*, due to it being the centralized English language magazine of IS since 2016, is an even more streamlined attempt at spreading the group's message. According to Kiefer, Messing, Musial, and Weiß (2016), IS first thematically connected *jihad* (a holy war waged on behalf of Islam, with the goal to build an IS-controlled Muslim Caliphate) to *hijrah*, the religiously motivated emigration to IS-controlled territory. A shift from connecting *jihad* to promoting the use of terror in the home countries of recruits can be observed later in the magazines. They also note that changes in the group's situation in Syria seem to influence their strategic communication (Kiefer, Messing, Musial, & Weiß, 2016). Comparing both magazines, Wignell, Tan, O'Halloran, and Lange (2017) also come to the conclusion that the themes in the groups' publication output are adapted according to real-world strategic developments, while the underlying ideology seems stable. Earlier research has been done on the group's evolving language: Vergani and Bliuc (2015) point out that IS has increased the use of emotive language when

promoting affiliation with the group, called for female readers to engage in behaviors desired by the group, and increasingly uses jargon that appeals to a Western audience.

Previous research points towards three themes that seem to be of great importance in texts published from 2014 to 2017. First, the call to *hijrah*, which was answered by many individuals from around the world in hopes to support the Caliphate IS declared in 2014 (Gerges, 2014). Second, the call for lone-actor attacks in the recruit's home countries and the use of political violence in general, effectively provoking military intervention in hopes of further radicalizing followers and sympathizers. This strategy has also been attributed to the group al-Qaeda (Sedgwick, 2004), the ideological basis from which IS originated (Gerges, 2014). Lastly, there is the call for engagement in *jihad*. This is crucial to the IS *salafi*-jihadist world view, as it provides the ideological basis for building a united Islamic nation or state. Atwan (2015, p. 12) affirms that "all Islamic State propaganda focuses on these three stages", however, as Winter (2015) points out, analysis of these publications is always reactive in nature.

Furthering their global agenda IS uses their English-language publications in an adept, and calculated manner. But how can we sufficiently portray the manner in which IS develops the aforementioned three themes in its strategic communication? An overview of the general development of these themes is needed, focusing on what the group presents us with. In order to provide answers about the nature of manifest content IS publishes, we propose the use of a knowledge representation method particularly suited for their contents. The goal of our research is to gain insight into the longitudinal development of the aforementioned themes, and to provide knowledge about IS strategic communication in a manner that focuses on the manifest content provided by the group itself.

Research Questions

We provide a mixed-methods informetric approach to determine the development of the topics of *hijrah*, terror, and *jihad* in *Dabiq* and *Rumiyah*, by first conducting a content analysis on 149 articles. This serves as the basis of our research, providing us with data that shows how often these themes were mentioned, and when there were periods of unconventionally high or low coverage. We then apply the text-word method to those articles that contain coded statements. The text-word method is a knowledge representation method first developed by Henrichs (1970) for use on indexing documents without a standardized language. Since the magazines and their contents are far from scientific in nature, classic knowledge representation methods are hard to apply to their content. The text-word method handles this issue by staying with the text meticulously, without straying from the topic it discusses (Stock & Stock, 2013). It achieves this by indexing only those terms used in a document. This paper argues that the text-word method is a useful addition to the field, both in a mixed-methods approach with content analysis, and as a stand-alone method for knowledge representation of jihadist group's strategic communication. We will answer which topics were of importance in *Dabiq* and *Rumiyah* by indexing. The indexing of mentioned names provides an insight into IS' use of scholarly material, presenting information about the influences found in their articles. Since the method uses syntactical indexing, the semantic networks between core topics are calculated and represented using cluster analysis and graph visualization. We propose two research questions to be answered by this methodological framework:

RQ 1: How did the themes of *hijrah*, terror and *jihad* develop during the publication period of *Dabiq* and *Rumiyah*?

RQ 2: What specific topics and what (scholarly) sources were of importance in *Dabiq* and *Rumiyah* in regard to these themes?

METHODS

Content Analysis

Content analysis of fifteen volumes of *Dabiq*, and twelve volumes of *Rumiyah* was conducted to examine changes in IS reporting on the themes of *hijrah* (emigration to IS-controlled territory), incitement to lone-actor attacks, and encouragement to engage in *jihad* as defined and propagated by IS' *salafi*-jihadist ideology. The material was obtained from the website *jihadology.net*, a self-described "clearinghouse for Sunni jihadi primary source material" run by Aaron Y. Zelin (2016, 2017). This study encompasses all volumes of *Dabiq* and *Rumiyah*, except for the 13th issue of *Rumiyah*, which was released after the study had been conducted. The material spans a publication period of 37 months, from July 2014 to August 2017, with a median publication interval of 45.5 days for *Dabiq*, and 30 days for *Rumiyah*. The coding categories of incitement, condemnation and rewards were developed as emergent variables from the source material. Codes were structured in such a way that each theme had one or multiple specific incitement-codes, as well as a reward-code. Inciting statements were defined as those that emphasized on the urgency to actively engage in traveling to IS, using political violence, or partaking in *jihad* as defined in their strategic communication. Rewarding statements were defined as describing (or promising) rewards for engaging in the aforementioned behavior. A condemnation-code was added for both *hijrah* and *jihad*. Condemning statements were defined as ridiculing, insulting or threatening those that chose not to engage in either *hijrah* or *jihad*, or hesitated to do so. Guiding statements as well as tips and tricks for weapon-specific attacks were not included in the coding instruction for the terror theme and would have led to an inflation of these numbers in singular magazine volumes. All themes included a general incitement code. Table 1 shows a sample codebook entry, including the definition of incitement for the theme of *hijrah* and the corresponding code.

Incitement: hijrah	Code	Example
statements that convey a sense of urgency to the reader to take action towards emigrating to the Islamic State's territory, or act as advice, or express that hijrah is a religious duty	103 hijrah: incitement (general)	„My advice is for them to do hijrah to the lands of the <i>Khilāfah</i> “.

Table 1. Codebook sample entry

Sampling units consisted of a total of 27 magazine volumes that were randomly presented to the coders. The contents of a total of 149 articles were considered for coding in this study. During the coding process, coders were instructed to search for statements, which were defined as a grammatically correct sentence found within an article. Phrases used within the graphic design of the article were to be disregarded. Coders were instructed to read all articles of a magazine volume given to them carefully and code statements that covered one or more of the three domains as described in the codebook. Contextual units were defined in the codebook as the article the statement was found in. As recommended by Rössler (2017), the contextual unit of a statement was consulted if it was otherwise impossible to identify a target country for emigration to IS-controlled territory, or a specific weapon advertised for use in lone-actor attacks. Randomization was used to ensure that coders did not project their underlying presumptions of code distributions over time onto the material (Neuendorf, 2002) in order to avoid bias through news reportings of IS territory loss towards the end of 2016 and throughout 2017. Coding was conducted by two coders, the primary researcher included. The other coder had been recruited through the department of Information Science of the Heinrich Heine University of Düsseldorf. A pretest was conducted with 3 randomly chosen volumes of the magazines to check for reliability. Coders disagreed on two statements within these pretest materials, and as a result the definition of incitement was amended to include statements that act as advice, as can be seen in the definition in Table 1. After the coding of all volumes had finished, the results were checked for statements that one of the two coders had not coded due to oversights. These statements were reviewed and consensus through discussion was achieved. This consensus-finding approach, and the fact that coders agreed on all statements that did not fall into the former category of oversights, ensured 100% agreement on all 873 coded statements and their respective codes that were included in the final set, resulting in a Krippendorff coefficient of $\alpha=1$. To answer the proposed research questions, a paired Student's t-test was used to check whether the themes in the magazines had undergone statistically significant changes in coverage of certain themes. A p-value of <0.05 was deemed statistically significant.

Text-word Method

The text-word method was applied to all articles that included coded statements. Indexing was focused only on the topics at hand, using strictly those terms that could be found within the text (Stock, 2000). Articles were indexed manually through terms that were found frequently in the text or in key passages of the article, such as the title, subheadings, and summaries (Stock & Stock, 2013, p. 737). The texts were then searched for names, which were added to the database entry if they were deemed relevant to the topics that were discussed, or if they were discussed as a topic themselves. Following the original method, terms were indexed in their original language, i.e. a mix of both Arabic and English terms. The database was extended by a translation field (Stock, 1989) so that terms were both represented in their original language, and an English translation of the Arabic term if needed. An indexing depth of 0.5 to 2 terms per page was used, as recommended by Stock and Stock (2013). Syntactical indexing was used during the indexing process. Terms were written into the database with their chain numbers, each number corresponding to the page of the article in which the term could be found. The M-weight (Stock, 1984), denoting the importance of a term within the magazines, was calculated for all terms and compared between *Dabiq* and *Rumiyah*. The M-weight of a term is calculated by first determining the weight of a term within a document, using Henrichs' algorithm (Henrichs, 1974) and then calculating the mean of the weights within a document group (Stock, 1984). In this study, this would be the respective document groups of *Dabiq* and *Rumiyah*. The total of indexed articles was 149, which were all articles containing previously coded statements. Thematic connection Ψ of all themes was calculated using the Jaccard-Sneath index (Stock, 1984). The Jaccard-Sneath index denotes the coincidence between terms in their chains. We chose the terms 'hijrah' and 'jihad' for visual representation, and used the data generated by calculating the M-weight of all terms to find those terms relevant to the theme of terror. The term 'terror' was not used for visual representation itself. The text-word method operates strictly on the terms used in the text, and because 'terror' was not indexed frequently enough (less than 10 times), it was irrelevant for cluster analysis. It also did not fit IS' language use, which can be seen in the ranking of terms by their M-weight. Terms represented in the clusters had to have been indexed at least twice, and a Ψ -threshold between terms was determined for each network. Semantic networks were visualized using Gephi version 0.9.2.

RESULTS

Content Analysis

Overall, a total of 873 statements in 27 magazine volumes were coded. Statements were coded more than once if they covered one or more themes, resulting in a total of 962 codes. Over half of all articles in both magazines contained statements that were

thematically relevant to the study. The results show a thematic shift during the publication period of the magazines, indicating that the coded themes in general became more relevant, i.e. more written about, over time. The magazine volumes also became increasingly longer, including at least 10 articles since February 2015 (*Dabiq* Vol. 7). Volumes contained an average article count of 10.67, and the average number of articles including coded statements was 5.47. *Rumiyah* launched with 9 articles in September 2016 and did not show the same difference in length during its publication period, resulting in an average count of 9.67 articles per magazine volume. The average number of articles that contained coded statements was 5.58. This indicates that the themes were often covered in *Rumiyah*. The distribution of codes in the respective magazines further revealed a thematic shift, which is shown in Figure 1. Figure 2 shows the distribution of code-occurrence for all statements coded into the category of *hijrah*. The data shows a decline in publication of inciting statements after the first *Rumiyah* volume. Three outliers can be observed for this category, in December 2014 (*Dabiq* Vol. 6), October 2016, and March 2017 (*Rumiyah* Vol. 2 and 7). Condemnation for those who chose not to perform *hijrah*, or those who hesitated, as well as promised rewards for *hijrah* were also published less often after the switch to *Rumiyah*. A paired Student's t-test confirmed the change in publication frequency to be statistically significant at $p = 0.0428$. This means that statements calling for emigration to IS-controlled territory have decreased in frequency in *Rumiyah* when compared to *Dabiq*. Statements calling for emigration to IS-controlled territory outside Syria and Iraq were too infrequent to be statistically relevant on their own and thus counted into the general measure of incitement-statements.

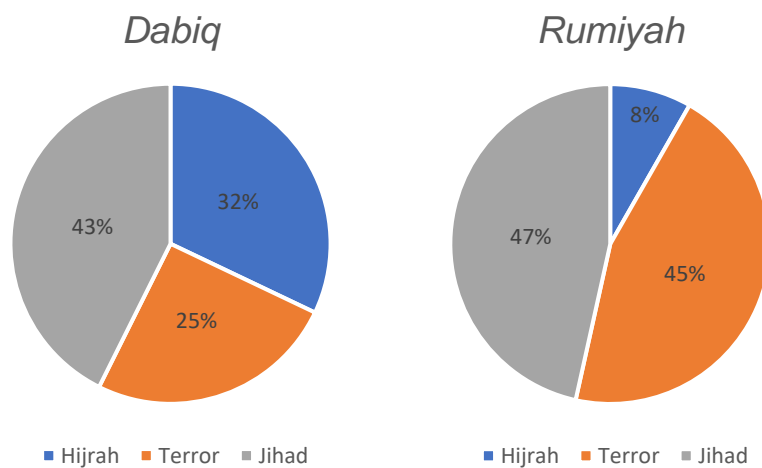


Figure 1. Distribution of the analyzed topics of hijrah, terror, and jihad in *Dabiq* and *Rumiyah*

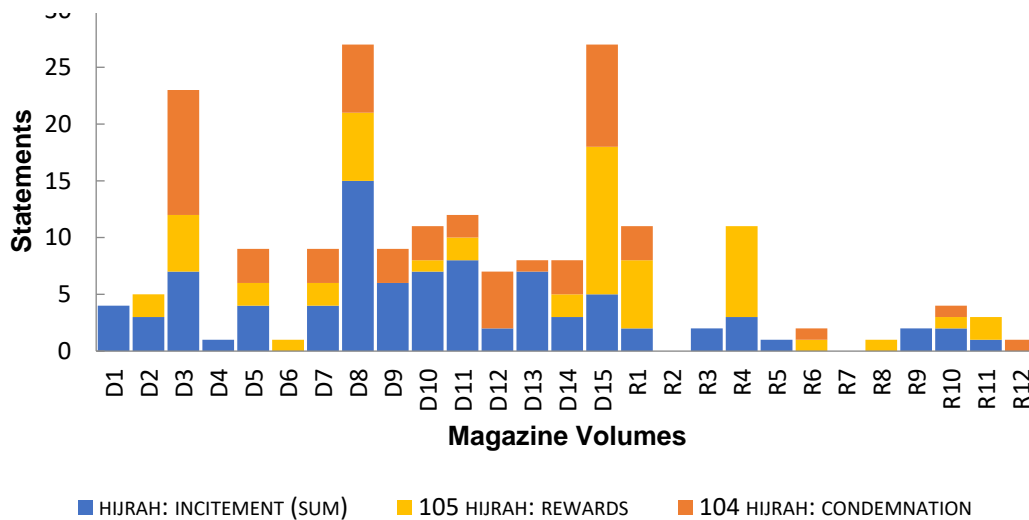


Figure 2. Distribution of code-occurrence for hijrah in *Dabiq* and *Rumiyah*

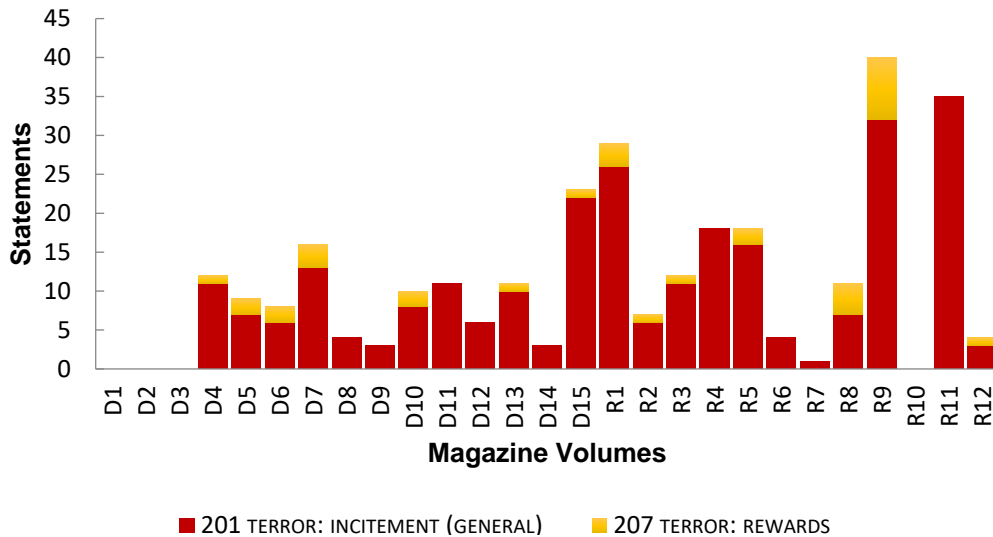


Figure 3. Distribution of code-occurrence for terror in Dabiq and Rumiyah

Promised rewards for lone-actor attacks or use of political violence in general were much less frequently published than the inciting statements themselves, which is shown in figure 3. We also see a steady publication of inciting statements throughout *Dabiq* volumes 4-15 and *Rumiyah* volumes 1-9. The first two volumes of *Dabiq* and *Rumiyah* Volume 10, however, show no statements coded into this category. The average amount of statements per volume for the theme of terror increased from 8.47 in *Dabiq* to 17.33 in *Rumiyah*. A paired Student's t-test, however, deemed the change not statistically significant at $p = 0.0819$. This is likely due to our conscious decision to not include all statements found in the 'Just Terror' series in *Rumiyah* and the relatively small sample size.

Finally, the distribution of codes for the theme of *jihad* shows a steady publication of statements calling for engagement in *jihad* during *Dabiq* volumes 6-15 and *Rumiyah* volumes 1-12. Outliers can once again be found in the first two volumes of *Dabiq* and the 6th volume of *Rumiyah*. The July 2017 volume of *Rumiyah* (Vol. 11) shows an unconventional amount of both inciting and reward-statements. Condemnation for those who chose not to engage in *jihad* or hesitated to do so, was published relatively consistently in *Dabiq*, but seemed to slowly decline in *Rumiyah*.

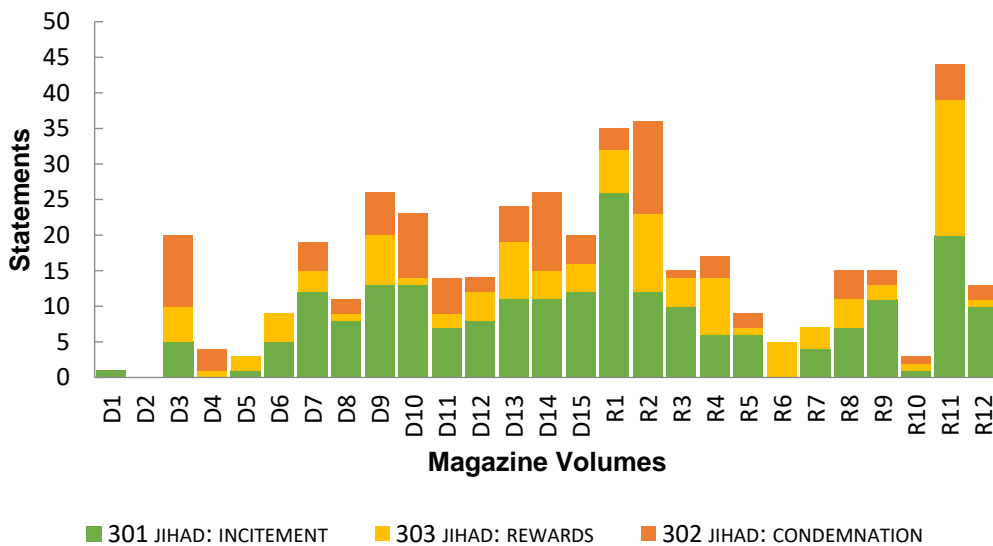


Figure 4. Distribution of code-occurrence for jihad in Dabiq and Rumiyah

A paired Student's t-test deemed the overall change in coverage of *jihad* between the two magazines not statistically significant at $p = 0.3045$. This confirms that the theme had not undergone dramatic changes in terms of publication from late 2014 to late 2017 and was relatively stable throughout the years. In regard to RQ 1, we can observe a measurable shift in the coverage of *hijrah*, terror and *jihad* over time, with *hijrah* losing in relevance, the theme of terror increasing in prevalence and *jihad* being a stable theme in IS strategic communication.

Text-word Method

Concerning RQ 2, analysis of the topics and scholarly sources that were of importance in *Dabiq* and *Rumiyah* was made possible by the data generated from the text-word method. Tables 2 and 3 show the results of calculating the M-weight of all indexed terms in *Dabiq* and *Rumiyah*. They show the importance of terms in relation to our article selection, and also provide insight into IS' method of relying on scholarly opinion, which was not examined by the previous content analysis. Articles were scattered with quotes, stories, or wisdom that were used to substantiate their claims. Many of these sources are based in the *Qur'an* or *ahadith*, and IS seems to employ these sources to tailor their extremist world-view to scholarly authenticity. Table 2 shows the 20 most important terms of *Dabiq*. In *Dabiq*, 'jihad' and 'hijrah' were at rank 3 and 5 respectively. The volumes included addresses to the group's followers from their leader, Abu Bakr al-Baghdadi, or spokesman of the Caliphate, Abu Muhammad al-Adnani. Both names ranked in the top 20 topics for *Dabiq*, with IS leader Abu Bakr al-Baghdadi as the second most important name in the magazine, and the Caliphate's spokesman on rank 13. Abu Mu'sab az-Zarqawi, a high-ranking member of al-Qaeda, was often referenced in *Dabiq* as well. Ranks 6 and 7 show IS' use of narrations from or about the Prophet Muhammad. On rank 10 the Islamic scholar Ibn Taymiyyah can be found, indicating that his narrations were highly relevant to the three themes and often used by IS authors. In *Dabiq*, the Caliphate itself was represented in this ranking twice, either referenced to as 'Islamic State,' or 'Khilafah,' the Arabic word for Caliphate. Both ranked at rank 2 and 8 respectively. Pledges of allegiance to the Caliphate ('bay'ah' and 'bay'at') from other extremist groups or individuals were thematically relevant in *Dabiq* and can be found in this ranking at rank 11 and 15. Enemies such as the 'Rafidah' (rejectionists), a derogatory word used by IS for Shiite Muslims, and the more general 'factions' were also of importance in *Dabiq's* indexed articles. Lastly, we can determine that IS addressed women in this context too, with 'sisters' being at rank 15 of the 20 most important themes in relation to *hijrah*, terror and *jihad*.

Rank	Term	M-weight
01	Allah	87.35
02	Islamic State	29.79
03	Jihad	21.11
04	Abu Bakr al-Baghdadi	18.51
05	Hijrah	18.41
06	The Prophet	18.05
07	The Messenger	14.30
08	Khilafah	8.46
09	Rafidah	5.42
10	Shaykhul-Islam Ibn Taymiyyah	5.24
11	Bay'at	5.00
12	Abu Mus'ab az-Zarqawi	4.90
13	Abu Muhammad al-Adnani	4.70
14	Bay'ah	4.60
15	Sisters	4.35
16	Factions	4.26
17	Advice	4.07
18	Shari'ah	3.88
19	Libya	3.80
20	Ummah	3.57

Table 2. Ranking of terms in *Dabiq* using M-weight

When comparing the most important topics of *Dabiq* to *Rumiyah's* (Table 3), a notable change is the absence of Abu Bakr al-Baghdadi and Abu Muhammad al-Adnani from the list. The topic of 'jihad' has slightly gained in importance and is on rank 2 in *Rumiyah*, while 'hijrah' appears considerably less often, and can be found at rank 12. Ibn Taymiyyah's narrations are more often associated with the themes in *Rumiyah*. Other scholar's narrations, those of Ibn Kathir and al-Bukhari, have gained in importance as well. The Caliphate and its state seem less relevant in *Rumiyah*, with both 'Islamic State' and 'Khilafah' declining in significance. However, we see a shift in topics about IS enemies, with 'Crusaders' being a prominent term meaning those nations associated with The Global Coalition Against Daesh (IS). 'Mushrikin' and 'Murtaddin,' derogatory terms for polytheists and Muslims deemed un-Islamic by IS, are other prominently discussed enemies in *Rumiyah*. We also observe a new phenomenon: 'patience,' 'victory,' and 'promise' are terms with significant importance in *Rumiyah*. Keeping in mind that these weights were calculated on articles previously filtered by the themes of *hijrah*, terror and *jihad*, we see a more emotional approach to these themes represented in *Rumiyah*. Using the data gathered from indexing through the text-word method we were able to show significant shifts in IS publication patterns. We have identified four new aspects in relation to the themes that were covered in the articles: The names of those most influential within the magazines, the enemies that were discussed, the emotional approach to the themes in question and the significance of its state-building goal over time.

Rank	Term	M-weight
01	Allah	97.93
02	Jihad	34.37
03	The Prophet	31.26
04	Crusaders	14.46
05	Shaykhul-Islam Ibn Taymiyyah	10.01
06	Islamic State	8.32
07	The Messenger	7.63
08	Victory	7.34
09	Mushrikin	7.05
10	Islam	6.90
11	Soldiers	6.90
12	Hijrah	6.13
13	Ibn Kathir	5.86
14	Khilafah	5.60
15	Murtaddin	5.57
16	Promise	4.82
17	Al-Bukhari	4.71
18	Wealth	4.64
19	Battle	4.34
20	Patience	4.17

Table 3. Ranking of terms in Rumiya using M-weight

After having determined the most important topics covered in both magazines, we analyzed a third aspect of IS strategic communication: The encouragement of lone-actor attacks. How do we analyze a more complex topic like terror using the text-word method? By simply looking at the content of both magazines, we see a shift to guidelines for terror attacks in *Rumiya*. This article-series is called ‘Just Terror’ and gives the reader detailed instructions on what weapons to use (knives, vehicles, Molotov-cocktails), what targets to choose from, and how to increase the kill-count of such an attack. However, we felt that while these articles and the statements found within them fall under the normalization of violence, they did not fall into the definition of incitement used in our codebook. What they also fail to uncover is the relationship of the theme (terror) to other related themes and names that are relevant to the construct of terror and political violence in IS strategic communication. We agree with Reed and Ingram’s assessment of the series in that “we need to be careful that we do not place too much weight on these guides in themselves” and that they need to be interpreted “in the wider context of jihadist propaganda” (Reed & Ingram, 2017, p. 15). By uncovering the aspects that are thematically connected to the theme of terror, we are presented with multiple facets to analyze. We analyzed the term ‘Crusaders’ for *Dabiq*, to see how this IS enemy vision was thematically embedded in the magazine. In *Rumiya*, we looked at another aspect of terror: the soldiers of the Caliphate. Figures 5 and 6 show the semantic network for ‘Crusaders’ in *Dabiq* and ‘soldiers’ in *Rumiya*. Nodes represent the indexed terms and edges display their Jaccard-Sneath index Ψ . The size of the node is determined by its degree, and the higher the Ψ -value between two terms, the bigger and darker the edge. Edges were included in the graph if they reached a Ψ -threshold as indicated beneath the graph.

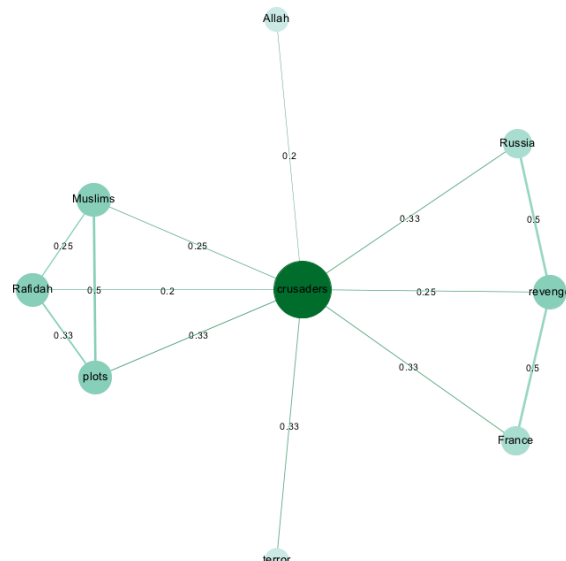


Figure 5. Semantic network for ‘Crusaders’ in *Dabiq*, $\Psi > 0.19$, n (articles) = 82

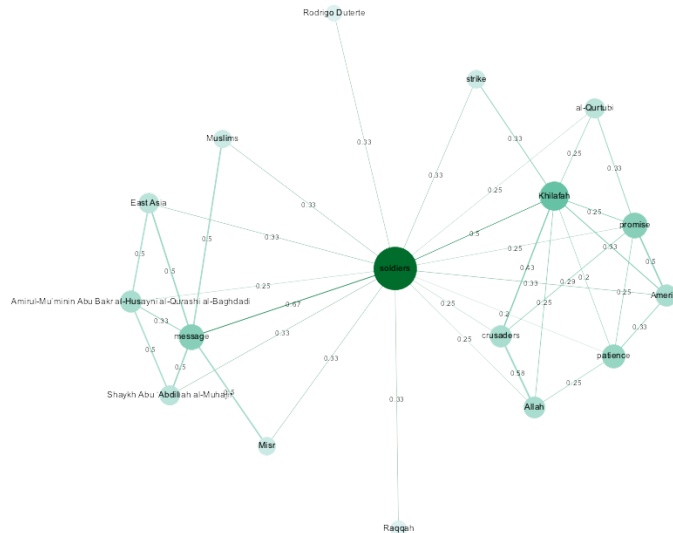


Figure 6. Semantic network for 'soldiers' in Rumiya, $\Psi > 0.19$, n (articles) = 67

The terms 'Russia' and 'France' were connected to 'Crusaders,' as well as the term 'revenge' in *Dabiq*. This connection stems from articles discussing the attack on Metrojet Flight 9268 in October 2015 and the Paris attacks in November 2015. Another cluster of nodes connects 'Crusaders' to a second enemy frequently discussed in *Dabiq*, the *Rafidah*. In *Rumiya* we observe two main clusters, one connected to both IS leader Abu Bakr al-Baghdadi and Abu Abdullah al-Muhajir, a respected IS authority. Their names are associated with advice to IS soldiers, as well as 'East Asia' and 'Misr,' the Arabic term for Egypt. The other cluster is connected to the Caliphate itself. It includes prominent enemies such as 'Crusaders' and 'America,' as well as terms like 'patience,' 'promise' and 'strike.' We discern two clusters of enemies: Those that either already were targets of terror attacks and the motivation behind these attacks, and those that were discussed as a worthy target for political violence.

CONCLUSION

We have analyzed how the constructs of *hijrah*, terror and *jihad* in IS strategic communication have developed during *Dabiq*'s and *Rumiya*'s publication period. We also presented new emerging facets of IS strategic communication. These results were gathered by using a methodological framework relying on the manifest content found within the magazines, in hopes to reduce erroneous categorizations and to provide a baseline for further research. Three general trends can be discerned from the results of our content analysis. IS has indeed stopped calling for their target audience to travel to IS-controlled territory and support the Caliphate with boots on the ground. There is also a trend towards promoting violence in these recruits' home countries, and a wider spectrum of political or ideological enemies that are portrayed in IS strategic communication. All themes also show considerable outliers and a fluctuation in representation. The cause of these outliers is multi-faceted, and at this point in time, with the limited data available to us, much of an analysis of the causes would be speculative. It is, however, important to document these changes as accurately as possible in order to accelerate future research. Through our investigation, we have made the aforementioned changes in publication strategy observable. Similarly, their impact cannot be measured simply by comparing real-world events to the publication dates of the magazine volumes. The limited data we have on IS' sympathizers, recruiters, and strategic communication authors in general, makes it even more relevant to source data on the measurable impact, if any, these magazines have on their readers. As of 2018, research has suggested that the engagement rate with IS strategic communication has significantly decreased over time (Winter, 2018). Previous studies discussed in the introductory section of this work found similar trends as those we described, and as such, the results of our content analysis cannot be considered entirely unique. By substantiating our results with the text-word method, we showed the shifting importance of concepts such as state-building, authoritative figures, scholarly input and emotional approach in each magazine, and observed their thematic connections. The insights of thematic analysis through indexing could prove valuable for the construction of counter-narratives and could not have been achieved through the proposed content analysis framework alone. Previous research has shown that IS' use of excommunication (referred to as *takfirism*) of mainstream Islamic scholars and their schools of thought is a source of uncertainty amongst vulnerable, young sympathizers, which can be exploited by the group to counteract the moderating effect these scholars have, making them more accessible to radicalization (Müller, Suleymanova, & Eser Davolio, 2017). According to Maher (2016), scholarly sources such as Ibn Kathir and Ibn Taymiyyah are used to justify participation in violence in the Salafi-jihadist world view, and the collected data reflects this and makes it measurable. In order to provide a basis for developing counter-active efforts, there is a need for structuring the data found within IS strategic communication. This could in part be resolved by the use of a database constructed on the indexing of the partial, or complete available strategic communication material provided by the group. We have shown that the text-word method can be applied to a small thematic snippet of *Dabiq* and *Rumiya*, and the principle can be applied to every written piece of strategic communication

published by IS. The method handles different original languages of the communication gracefully and can be used for a broad approach of identifying all thematic connections within its database, or analyzing smaller samples of it, as was the case in this study. The results of these efforts could serve as a baseline-assessment of IS communication, focusing strictly on what is presented, and provide a substantiating role for further research.

As one of few studies in current research on this topic we aim to provide insight into a reliability measure for our findings. However, opinions on studies that use the primary researcher as one of the coders vary from support of this practice, if reliability of all coders is measured against the primary researcher (Rössler, 2017; Krippendorff, 2009) to the recommendation that the primary researcher not be included in the coding process (Krippendorff, 2009). Consensus-finding via discussion in order to ensure high agreement is also not commonly encouraged in literature (Neuendorf, 2002; Krippendorff, 2009). We chose to employ this method in order to provide a data set with high accuracy in the framework provided by the coding scheme. In regards to our use of the text-word method it must be said that the method still relies on manual indexing, and as such cannot be “non-interpretative in the hermeneutical sense, “it is „at best low-interpretative“ (Stock & Stock, 2013, p. 737). Much is still unclear in this relatively young field of research. IS traces its root back to the 1990s, but its extreme efforts in producing and publishing strategic communication only became noticeable around the 2010s, after the damage had been done: large parts of Syria and Iraq were de-stabilized, and the Caliphate was declared. In the future, the output of extremist groups such as IS needs to be recognized and analyzed as early as possible, in order to produce a full knowledge representation of the information found within these strategic communication materials. Calls for support, such as joining the group on the ground, or promoting terror attacks, should be recognized and measured regularly during the publication cycle of a communication piece.

In the future, using the approach demonstrated here may further our understanding of jihadist ideology disseminated by terrorist groups. It may also be of use for the prevention of their radicalization efforts. The field of Information Science is absolutely suited for providing research methods and insights aiding this cause, and more studies on counter-terrorism should be incorporated into research efforts in the field.

REFERENCES

- Atwan, A. B. (2015). *Islamic State: The Digital Caliphate*. Berkeley: University of California Press.
- Gates, S., & Podder, S. (2015). Social Media, Recruitment, Allegiance and the Islamic State. *Perspectives on Terrorism*, 9(4), 107–116.
- Gerges, F. A. (2014). ISIS and the Third Wave of Jihadism. *Current History*, 113(767), 339–343.
- Henrichs, N. (1970). Philosophische Dokumentation: Literatur-Dokumentation ohne strukturierten Thesaurus. *Nachrichten für Dokumentation*, 21, 20–25.
- Henrichs, N. (1974). Dokumentenspezifische Kennzeichnung von Deskriptorbeziehungen. Funktion und Bedeutung. In *Deutscher Dokumentartag 1974* (pp. 343–353). Munich, Germany: Verlag Dokumentation.
- Ingram, H. J. (2016a). An analysis of Islamic State’s Dabiq magazine. *Australian Journal of Political Science*, 51(3), 458–477.
- Ingram, H. J. (2016b). ISIS: Assessing Rumiyah. Retrieved January 21, 2018, from <http://www.internationalaffairs.org.au/australia-noutlook/isis-assessing-the-rumiyah-magazine/>.
- Kiefer, M., Messing, K., Musial, J., & Weiß, T. (2016). Westliche Jugendliche im Bann des Islamischen Staates – Radikalisierende Inhalte der IS-Propaganda am Beispiel der Onlinemagazine Dabiq und Rumiyah. *Journal for Deradicalization*, 9(19), 126–184.
- Klausen, J. (2015). Tweeting the Jihad: Social Media Networks of Western Foreign Fighters in Syria and Iraq. *Studies in Conflict & Terrorism*, 38(1), 1–22.
- Krippendorff, K. (2009). *Content Analysis: An Introduction to Its Methodology* (2nd Ed.). Thousand Oaks, CA: SAGE Publications.
- Maher, S. (2016). *Salafi-Jihadism - The History of an Idea*. London: Hurst Publishers.
- Müller, D., Suleymanova, D., & Eser Davolio, M. (2017). Dschihadismus online. Narrative Strategien, Herausforderungen für muslimische Organisationen und Stoßrichtungen für Präventionsprojekte. In *Digitale Medien und politisch-weltanschaulicher Extremismus im Jugendalter: Erkenntnisse aus Wissenschaft und Praxis* (pp. 60–83). Munich, Germany: Deutsches Jugendinstitut.
- Neuendorf, K. A. (2002). *The Content Analysis Guidebook*. Thousand Oaks, CA: SAGE Publications.
- Pisoui, D., & Ahmed, R. (2016). *Radicalisation Research – Gap Analysis*, 1–25. Europe: RAN Centre of Excellence.
- Reed, A., & Ingram, H. J. (2017). Exploring the Role of Instructional Material in AQAP’s Inspire and ISIS’ Rumiyah. The Hague. Retrieved from <https://www.europol.europa.eu/publications-documents/exploring-role-of-instructional-material-in-aqaps-inspire-and-isis-rumiyah>.
- Rössler, P. (2017). *Inhaltsanalyse* (3rd Ed.). Konstanz, Germany: UVK.
- Sedgwick, M. (2004). Al-Qaeda and the Nature of Religious Terrorism. *Terrorism and Political Violence*, 16(4), 795–814.

- Stock, M. (1989). Textwortmethode und Übersetzungsrelation. Eine Methode zum Aufbau von kombinierten Literaturnachweis- und Terminologiedatenbanken. *ABI-Technik*, 9(4), 309–313.
- Stock, W. G. (1984). Informatrische Untersuchungsmethoden auf der Grundlage der Textwortmethode. *International Classification*, 11, 151–157.
- Stock, W. G. (2000). Textwortmethode. *Password*, (7/8), 26–35.
- Stock, W.G., & Stock, M. (2013). *Handbook of Information Science*. Berlin, Germany, Boston, MA: De Gruyter Saur.
- Wignell, P., Tan, S., O'Halloran, K. L., & Lange, R. (2017). A Mixed Methods Empirical Examination of Changes in Emphasis and Style in the Extremist Magazines Dabiq and Rumiya. *Perspectives on Terrorism*, 11(2), (20 pp.).
- Winter, C. (2015). Documenting the 'Virtual Caliphate'. Retrieved from <http://www.quilliaminternational.com/wp-content/uploads/2015/10/FINAL-documenting-the-virtual-caliphate.pdf>.
- Winter, C. (2018). Apocalypse, Later: A Longitudinal Study of the Islamic State Brand. *Critical Studies in Media Communication*, 35(1), 103–121.
- Zelin, A. Y. (2016). New issue of the Islamic State's magazine: "Dābiq #15". Retrieved from <http://jihadology.net/2016/07/31/new-issue-of-the-islamic-states-magazine-dabiq-15/>.
- Zelin, A. Y. (2017). New release of The Islamic State's magazine: "Rome #12". Retrieved from <http://jihadology.net/2017/08/06/new-release-of-the-islamic-states-magazine-rome-12/>.