



Semantic Analysis of Cultural Heritage News Propagation in Social Media: Assessing the Role of Media and Journalists in the Era of Big Data

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Article

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Abstract: In the era of big data, within the intense environment of social media, the effective communication of cultural heritage initiatives is considered of equal or—in some cases—even greater importance than heritage data themselves. Media and journalists play a critical and in some cases conflicting role in audience engagement and the sustainable promotion of cultural heritage narratives within the social media environment. The aim of this study was to assess the role of media and journalists in propagating cultural heritage news through social media platforms, and the narratives they tend to create in the digital public sphere. A qualitative approach is employed as a means of examining in-depth specific narratives, their meaning(s) and connotation(s), using semantic analysis.

Keywords: cultural heritage; social media; news; journalism; semantic analysis

1. Introduction

In the era of big data, multimodal content production and distribution processes have been revolutionized, propelling the emergence of novel mediated communication services [1]. In recent years, technologies and techniques have been developed that harvest, organize and analyze data, providing knowledge and insights into the structure and behavior of online activity. Among other functions, such techniques include conceptual network analysis, which can provide insights into the structure and dynamics of concepts (words, ideas, phrases, symbols, web pages, etc.) [2]. Through this type of analysis, the content produced and disseminated on social media platforms can be interpreted as an indicator of people's attitudes towards a product/service/event [3]. Information released on social media can thus affect people's perceptions of it and the framework within which it is presented.

In recent years, cultural heritage seems to be among the sectors whose popularity on social media platforms is rapidly rising, as cultural organizations acknowledge that the proper communication of cultural heritage initiatives is considered of equal or—in some cases—even greater importance than heritage data themselves [4]. Media and journalists themselves are neither distant from nor ignorant of such practices. As the intermediate aggregators of this public information, they can play a critical role in audience engagement and the sustainable promotion of cultural heritage narratives in social media. Especially in the era of big data, the significance of this role is expected to increase, because big data, among other reasons, generated within the global social media environment, can often produce ambivalent and/or contradictory narratives to the initial posts.

The era of the Semantic Web brought forward a series of new challenges. The Semantic Web is not a separate Web but an extension of the current one, in which information is given well defined meaning, better enabling computers and people to work in cooperation and is generally understood to be an evolution of conventional Web technology towards an incorporation of semantics, facilitating the automated processing of and reasoning of Web content [5]. Since its inception, the term has come to encompass a spectrum of technologies



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Copyright: © 2021 by the author. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (https://creativecommons.org/licenses/by/4.0/). and standards for formally describing, structuring, querying and processing semantically enriched information. With regard to social media platforms, it was identified as early as 2004 that a formal, web-based representation of social networks is both a necessity in terms of infrastructure as well as a prominent application for the Semantic Web [6]. As the years passed and the communication technologies were rapidly evolving, it soon became evident that due to the distinct nature of social media platforms, a new 'Social Semantic Web' or Web 2.5 had emerged, providing a formal representation of knowledge based on the meaning of data. When social data meets semantics, social intelligence can be formed in the context of a semantic environment in which the user and community profiles and interactions are semantically represented [7]. This study uses a semantic approach to analyze the social media data retrieved.

The aim of this study was to assess the role of media and journalists in propagating cultural heritage information through social media platforms, and the way(s) they can affect the digital public sphere. The Amphipolis tomb excavations in Greece during 2014 were selected as a case-study for studying cultural heritage information through social media platforms. A qualitative content analysis approach was employed as a means of applying semantic analysis and examining in-depth specific narratives, their meaning(s) and connotation(s). The study builds on the findings of Fouseki and Dragouni (2017) [8], who conducted an analysis of newspaper content about the Amphipolis excavations to identify the ways in which cultural heritage was used in traditional media narratives. This work attempts to identify the relevant narratives that emerge from media and journalists' posts on social media using semantic analysis.

2. Cultural Heritage Information and Social Media Platforms

Cultural heritage (CH) was initially understood in a range of different ways until the 1972 World Heritage Convention, which codified a detailed definition: "The following will be considered as CH: monuments (architectural works, works of monumental sculpture and painting, elements or structures of an archaeological nature, inscriptions, cave dwellings and combinations of features, which are of outstanding universal value from the point of view of history, art or science); groups of buildings (groups of separate or connected buildings which, because of their architecture, their homogeneity or their place in the landscape, are of outstanding universal value from the point of view of history, art or science); sites (works of man or the combined works of nature and man, and areas including archaeological sites which are of outstanding universal value from the historical, aesthetic, ethnological or anthropological point of view)" [9]. At national and regional levels, the scope of the term was broadened after 1972 to include gardens, landscapes and environments, and later reinterpreted and defined quite differently in Europe, Australia, New Zealand, Canada and China. Although the scope of heritage, in general, is agreed internationally to include 'tangible' and 'intangible' as well as 'environments', the finer terminology of 'heritage' has not been streamlined or standardized, and thus no uniformity exists between countries [10].

More recently, Barrère (2016) [11] offered a wider definition, by arguing that heritages do not only include 'official' and 'institutional' forms of heritage such as museums, libraries, archaeological and historic sites, and archives, but also all heritages resulting from the accumulation and sedimentation of creativity, i.e., by the history that develops and passes culture through to society. This includes a whole range of elements—from the heritage of know-how found in a *maison de couture* to the recipes typical of a culinary culture, or a common language used within a territory. Individuals, families, companies, industries, territories, societies, and humanity all inherit these resources from the past. Parallel to this extension process, the selection criteria for assessing CH have also changed; while initially historic and artistic values were the only parameters, additional ones now include cultural values, the value of identity and the capacity of the object/monument to interact with memory [12].

A technology-driven alternative to promoting CH has emerged through the advent of Web 2.0, as multimedia platforms have the potential to move the state of the art of promotion beyond static displays, capturing in interactive forms the social, cultural and human aspects of CH and the societies who inherit it. The term 'new heritage' was adopted after the introduction of new media in the mid-2000s, in an effort to broaden the field and address the complexity of both tangible and intangible CH and the related social, political and economic issues surrounding aspects of CH [13].

Whereas the problem 20 years ago was the scarceness of information (precious original documents only accessible in major libraries), the Semantic Web era's problem is that of information overload: many online databases are available, each with their own search forms and attributes [14]. With more and more digital content being added to the enormous collection of online news, social media, archives, etc. every day, making sense of this mass of information is becoming increasingly important and challenging. Not only is new content being generated continuously, but existing legacy information in analogue formats is being converted into the digital realm for the purposes of preservation and sustainability [15].

The rapid rise of social media platforms brought forward new challenges in promoting CH information, as these platforms function with completely different norms than traditional media, since users take the lead in content publication and dissemination. On the one hand, huge amounts of user-generated content have become a valuable source of news for the mainstream media [16]. On the other hand, mainstream media and journalists themselves increasingly embrace semantic tools to improve the ways in which news materials are gathered from a variety of sources (social media being among them), to provide a machine-readable data structure and facilitate information integration and presentation [17].

3. The Role of Media and Journalists in Disseminating CH News within the Social Media Environment

In recent years, as information regarding CH and the related topics have gained increasing importance in social media investigations, several relevant studies have emerged. Most of these focus on CH as a participatory culture [18], the connection between place and heritage, and the possible threats and opportunities that social media offer [19], and wider issues with regard to the relation between CH and the social media environment. However, to date the specific area of CH news propagation in social media and the role of media and journalists in this process remains largely understudied.

A new, 'semantic' form of journalism that emerged in the Semantic Web era [17,20] seems to be gradually altering not only the way(s) in which news is disseminated on the Web, but also the practices for finding, compiling, aggregating and validating newsworthy material posted on social media platforms. This aims to engage audience members individually, validating their involvement and positively reinforcing personal participation in the narration of news/events/information [21]. These semantic units of journalistic and media information can be viewed as existing on a continuum ranging from the simple annotation of articles and annotated textemes to fully structured statements and single posts. They are constrained by the symbols that represent them, and especially, by the availability of a shared semantic grounding system within which those symbols can reference actual things, concepts or events in the world [22]. Furthermore, for any given CH news topic, relevant information scattered across various social media platforms seems to be heterogeneous (in regard to the collaboration between human subjects having different cultural and technical biases and backgrounds, ranging from humanistic domains to multiple scientific and analytic areas), highly unstructured and—in some cases—incomplete [3].

More importantly, CH news propagation within social media by media and journalists themselves may lead to the formation of various and—even—conflicting narratives and connotations for the users. After all, the Social Web is an ecosystem of participation, where value is created by the aggregation of many individual user contributions [23]. In the case of media and journalists, aggregation seems to be a key issue in the era of big data, along with practices of information filtering and categorization. Anderson (2013) [24] argues that the line between aggregation and original reporting is not entirely clear, despite rhetorical attempts at category purification and boundary-drawing. The real conflict

between aggregation and journalism lies in the type of objects from which they build their stories and that they take as their criteria of evidence (p. 1021).

Journalists compile facts, quotations, documents, and links together in order to create narrative-driven news stories. In the social media environment, the narratives that tend to emerge are not always based on media and journalists' posts, but in several cases, these may be generated by comments and reactions to these posts. From this perspective, whereas in some cases the created narratives may be in line with the content of media and journalists' posts, in other cases they may be conflicting and contradictory.

As the specific topic of CH news content in social media appears to be a rather understudied area, this study uses as a starting point the findings of Fouseki and Dragouni (2017) [8], who conducted an analysis of newspaper content about the Amphipolis excavations to identify the ways in which cultural heritage was used in traditional media narratives as a means to negotiate national identities. Their study identified six main narrative categories: (a) Amphipolis as a reality show of agony and thrills; (b) the political use of Amphipolis to distract the public from dystopia (politics of distraction); (c) an orchestrated attempt to further feed the myth of Alexander the Great; (d) the use of Amphipolis to foster national pride and a sense of national euphoria; (e) an emphasis on the uniqueness of the discovery and the sacredness of the objects; and (f) the use of Amphipolis as an inspiration to discuss everyday social and political issues.

Following a combined deductive and inductive approach and in relation to the existing literature review as presented and analyzed here, this study sought to answer the following research questions:

RQ1. How can journalists' posts affect constructed narratives in the process of cultural heritage news propagation within the social media environment?

RQ2. How can media posts affect constructed narratives in the process of cultural heritage news propagation within the social media environment?

RQ3. How does the role of news propagator differ among media and journalists on social media platforms?

4. The Case Study of the Amphipolis Tomb in Crisis-Ridden Greece

The media frenzy of Amphipolis started on 11 August 2014 when the Greek media announced that a group of state archaeologists had reached the entrance of a tomb, surrounded by a 497-metre tumulus at Kasta Hill and guarded by two marble sphinxes that framed its entry arch [8]. Official announcements generated hopes that this could be the tomb of Alexander the Great and if so, archaeologists were on the verge of one of the greatest discoveries of the century. Immediately, journalists from Greek media as well as foreign correspondents arrived on site to start the coverage of the excavations and their subsequent daily news feeds on the excavations transformed the archaeological research into a media spectacle.

Meanwhile, following the Great Recession of 2007, Greece was faced with a prolonged sovereign debt crisis that became evident in late 2009, connected to protracted and deepening social and political crises. As such, everyday modes of living were decisively altered and all societal aspects were deeply affected [25]. Media narratives were centered on the day-to-day aspects of the crisis, as successive governments enforced several rounds of tax increases, spending cuts (including pensions and public sector employees' salaries) and structural reforms, often triggering social protests and riots around the country [26]. All these resulted in the formation of a turbulent political scene with successive electoral procedures that resulted in an unstable social and political environment.

In this context, the archaeological discovery was the first piece of positive news Greeks had received in a long time. The coalition government of Nea Dimokratia and PASOK, and the Prime Minister Antonis Samaras rushed to grasp the opportunity and alter the dominant narrative in the national public sphere: in the space of one day, indebted Greece changed from the 'outcast' of Europe to—once again—the cradle of global culture, the land of the great and proud Greeks. As Fouseki and Dragouni (2017) [8] argue, the media

coverage of the archaeological excavations in Amphipolis cultivated a fertile ground for the political maneuvering the focus away from depressing economic developments.

5. Method and Research Sample

This study was based on a qualitative analysis of the findings from a conceptual network analysis of the Facebook posts of journalists who covered the Amphipolis tomb excavations and the posts of the media outlets these journalists were working for. The sample examined includes various posts (articles, news beats, pictures, personal posts) and their comments. The core of this study is based on these comments and the narratives they create within the social media environment, since social network analysis relates to understanding connections between humans as they interact [27]. A social network is a constellation of nodes and their respective links. A node (also known as an actor or a vertex) is the fundamental unit of any network, social or otherwise [28]. The node, in this study, is the individual Facebook user (journalist or media outlet).

While the posts were created/produced by the media entities and journalists themselves, the comments on these posts derive from Facebook users in general. As such, media entities and journalists in this work were seen as content aggregators within the social media environment, who can initiate a 'digital discussion' within the network of their links (friends/followers) which, in turn, results in the creation of various and sometimes even contradictory narratives. These narratives emerge from the analysis and categorization of the data examined (in this case, comments as reactions to the posts). The research aimed to assess the role of media and journalists in propagating CH news on social media platforms using semantic analysis, being the process of drawing meaning from text, allowing the understanding and interpreting of sentences, paragraphs, or whole documents. This study sought to discover semantic similarity or dissimilarity among the data retrieved, in this case namely posts and comments [29].

In order to find the journalists on site who provided daily coverage of the Amphipolis excavations, initial research was conducted of the news stories presented in the country's mainstream media. The period selected was based on the timeline of the archaeological discoveries in Amphipolis (see analytical Table A1 in Appendix A). Although the data presented here do not cover the excavation's entire trajectory, the sample corresponds with the major outbreak events related to the archaeological discovery, as presented through Google Trends (see Figure 1), covering the period from 11 August to 31 December 2014.

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Jan 5, 2014 Apr 27, 2014		Aug 17, 2014 Dec 7, 2014

Figure 1. Google Trends regarding the Amphipolis excavations.

Initial research on the media content of the Amphipolis excavation for this period indicated a total of 18 journalists working for 11 different media entities (eight were

working for more than one different media outlet, e.g., for a Greek newspaper and an international news agency).

Within the framework of conceptual network analysis, the collection of posts employed a data mining technique based on the Quintly platform and the "exportcomments" software. Quintly is a platform designed for social media analysis that provides data from several social media platforms as long as these data (posts, in this case) are published in public accounts (i.e., Facebook public pages). In order to retrieve the posts for each media outlet, three specific keywords were used (custom metrics): "Amphipolis", "Amfipolis" and "Aµ φ *i*π $o\lambda\eta$ " (the word "Amphipolis" spelled in two different ways in English and its respective Greek spelling). "Exportcomments" is an open source analysis software primarily used for network analysis, discovery and the exploration of particular social media spaces that allows for the extraction and import of Facebook data from specific dates and Facebook public pages onto Excel sheets. Regarding the collection of content posted by journalists themselves on their personal accounts (personal posts), the Facebook search tool was used for each account separately for the time period selected for the study.

The unit of analysis was the individual post and its comments. The criteria for a given post's selection was the content relation to the Amphipolis excavations and discoveries. The initial sample from August to December 2014, for all journalists and media outlets included in the research, consisted of 2368 posts and 16,400 comments. As this was too large a dataset for qualitative analysis, the final sample was narrowed down to the 10 journalists with the highest number of followers/friends and the respective media outlets they were working for. The direct links for all retrieved posts and comments were pasted into an Excel file and 30 posts (with their respective comments) from each Facebook account were randomly selected, to avoid sample bias, and were all included in the qualitative content analysis. Then, based on the date of the posts and the custom metrics, the respective posts of the media outlets were collected. This process allowed a comparative analysis to be conducted, revealing different types/categories of comments for posts of relevant content but different accounts (media accounts and journalists' accounts). The final dataset comprised 660 posts and 3684 comments in total, deriving from the Facebook accounts of 10 journalists as wella s the Facebook public pages of 10 media outlets and can be considered representative of the initial sample of 2368 posts and 16,400 comments. Table 1 shows the final sample for the research and Figure 2 depicts the sample of retrieved posts and comments for all media outlets examined.

NPostsCommentsMedia outlets10360478Journalists103003206Total sample206603684

Table 1. Research sample.

It should be noted that the initial sample from which the final sample emerged meets the four basic 'V' criteria [30] that usually describe big data: *Volume*, in the number of data points in relation to CH that were traced within the social media environment; *Variety*, in the range of media and journalists' post types (e.g., posts, videos, photographs) found in relation to CH; *Velocity*, for the speed at which these data were generated on social media platforms; and *Veracity*, regarding the differences in data quality that may lead to differentiated narratives and meanings. That is not to say that the sample used here constitutes a typical example of big data; however, it does display the basic characteristics that usually describe samples deriving from social media networks in the era of big data.



Figure 2. Posts and comments retrieved for all media outlets examined (Source: Quintly).

All posts and comments were analyzed via thematic qualitative content analysis [31,32], which is a method used to help researchers reduce data, focus on selected content aspects of the data, and systematically describe it in terms of these aspects [33]. This method, according to McLamore and Uluğ (2020) [34], typically follows these steps: selection of the material (i.e., journalists' posts and respective comments for every post), building a coding frame, dividing the material into units of coding (i.e., categories of posts and comments), evaluating and modifying the coding frame, and then proceeding to analysis and interpretation (categories of narratives).

The analysis focused on identifying the specific narratives created by posts and comments on these posts. The narratives were identified through repeated readings and thematic analysis. These narratives adhere to the core signs within users' discourses that are crucial for indicating meanings and connotations. The ultimate goal of the analysis is the exploration of the new meanings and connotations these narratives can produce within the specific socio-cultural context in which they occur [32,35].

6. Findings and Analysis

The six categories of narratives identified in the study of Fouseki and Dragouni (2017) [8] were initially used in this study for the general categorization of the journalists' and media Facebook posts. However, in the course of the study, the retrieved data showed that not all narrative categories detected in traditional media content could be identified in the content posted on Facebook, whereas new narratives emerged that did not exist in the traditional media analysis of Fouseki and Dragouni, and—as such—the analysis here is both deductive and inductive. This finding indicates that media content posted on social media platforms tends to generate different narratives than content presented through traditional media. However, this finding needs further analysis of the data retrieved to be fully validated.

Four specific categories of narratives were identified in the content of all posts examined (as presented in Table 2), which, in turn, generated a series of various and, in some cases, contradictory comments. In several cases, the comments were not directly related to the theme of the posts but tended to refer to different/alternative narratives, meanings and connotations.

Narratives	% in the Sample
Notions of national pride and national achievements	67%
Policies of distraction	46%
Political and scientific conflicts	45%
Policies of personal and professional self-promotion	75%

Table 2. Categories of narratives.

The first category identified is related to *notions of national pride and national achievements.* This included news connected CH (in this case, the archaeological excavations) to the nation's history and historical personalities. For example, as the excavations in Amphipolis were progressing, there was an escalating effort to connect the discovery with any aspects of the history of Alexander the Great. Whereas media posts were mainly based on the excavation outcomes (e.g., Ant1 News, 22/12/2014, "*New findings in Amphipolis*"), journalists' posts tended to be more personalized and emotional (22/12/2014, female journalist, "For all of us here in the excavation field, the new findings make us proud as Greeks"; 23/10/2014, male journalist, "*The new findings are important as they pinpoint the direction of 'our' Alexander the Great*"). In addition, whereas international media outlets were indirectly referring to the connection of the Amphipolis discovery to Alexander the Great, Greek media directly recognized this relationship. For example, on 12 November 2014, a BBC post was titled "*Amphipolis skeleton from Alexander's time found in Greece*"; the next day, the Greek television channel Ant1 posted that "*BBC directly relates the Amphipolis discovery to Alexander the Great*", as showed in Figure 3.



Figure 3. BBC and Ant1 news posts for Alexander the Great.

For several Facebook users, such posts were characterized as *indices of disinformation* and received negative comments:

"What was the journalist thinking? Can't he read?"

(Facebook user, male, 13 November 2014)

"They are disinforming the public in purpose ... this is a disgrace!"

(Facebook user, male, 13 November 2014)

In general, several posts in this category referring to national achievements seem to have generated negative comments regarding the economic crisis in Greece and members of the Greek government, which, in turn, were interpreted as disinformation. For example, while a post by kathimerini.gr was referring to the forthcoming new projects in Amphipolis (*"The next projects set to take place in the tomb"*), there were several negative comments attached to this post that related to national achievements:

"The media need us to feel proud of our country, while all Greeks are starving \dots "

(Facebook user, female, 3 December 2014)

"Let's see what they are going to discover next \dots all the media are mocking us, the government is mocking us \dots "

(Facebook user, male, 4 December 2014)

It seems that in this case, the nodes (media and journalists) not only failed to affect the created narratives, however, on the contrary, the created narratives emerged as reactions to the posts. Similar findings also characterize the second important category of narratives that were related to *policies of distraction*, following similar findings in the analysis by Fouseki and Dragouni (2017) [8]. However, posts in this category mainly came from media outlets with a political affiliation close to the government in office and state-owned media and less from the journalists. For example, the Greek ANA-MPA News Agency's main post on 6 September 2014 reflected the Greek Prime Minister's statement about Amphipolis ("*We are progressing with professionalism and responsibility in Amphipolis*"). One of the journalists, in his post regarding the PM's statement, noted: "*By looking back, we focus forward on our future*" (male journalist, 7/9/2014) while other media posts referred to Amphipolis as "*one of the top ten archaeological discoveries of the decade*". Posts in this category seem to have received the most negative comments, as several Facebook users characterized them as attempts to distract public opinion in a crucial socio-political and economical period for the country:

"Congratulations! Now, can you tell us about the new taxes they are planning to impose on us, again???"

(Facebook user, male, 7 September 2014)

"Do they really believe that all Greeks are idiots? We know that you are trying to distract us from the real problems."

(Facebook user, female, 8 September 2014)

Narratives referring to policies of distraction were mainly generated by comments on media posts rather than on journalists' own posts. In several cases, such comments tended to be ironic towards the government and members of the Greek Parliament, whereas most of them referred to the Amphipolis archaeological discoveries in relation to the economic crisis. Constructed narratives with negative connotations were based on feelings like anger, irony and distrust.

The third category identified in the analysis referred to *political and scientific conflicts* with regard to the Amphipolis discoveries. For example, a post by kathmerini.gr on 28 December 2014 ("*Disagreements regarding Amphipolis*") referring to political and scientific conflicts regarding the excavation, received the following comment:

"Amphipolis remains doubtful on so many levels!"

(Facebook user, male, 28 December 2014)

Political conflicts over the archaeological discoveries often occurred between the government and the opposition parties. Conflicts also occurred among archaeologists over the nature of the discovery. In several cases, these scientific conflicts became a matter of public dispute on social media platforms and users were negatively commenting on the conflict itself, placing greater emphasis on the infotainment aspect of the news than the informational one. In this case, the nodes (journalists and media) clearly affected the links (friends/followers) and consequently, the created narratives with their posts:

"Unfortunately, this is what Greek culture and history is about ... In this country we are never going to stop fighting each other!"

(Facebook user, female, 19 November 2014)

"As if political disputes were not enough in this country ... "

(Facebook user, female, 2 December 2014)

In some cases, the scientific conflict tended to attract users' attention more than the political one. In other cases, comments were quite intense both towards the political and scientific conflicts:

"Can't they agree on something? Why are they constantly fighting? This is a great moment for all Greeks . . . This is shameful . . . "

(Facebook user, male, 23 November 2014)

"And somewhere in these conflicts, development and progress are hidden!"

(Facebook user, male, 17 October 2014)

The final category of narratives identified in the analysis was mainly detected among journalists' own posts rather than those of the media outlets and referred to policies of *personal and professional self-promotion*. Policies of self-promotion have been the cornerstone of social media use since the rise of these platforms in the late 2000s. Facebook seems to be particularly focused on facilitating personal self-presentation, self-expression and self-promotion [36]. Several studies refer to the ways in which journalists use Facebook to promote their work and themselves as part of personal branding policies [37–39]. In the case of the Amphipolis discoveries, most of the journalists included in this study tended to post on a daily basis and their posts varied from personal comments, selfie photographs and links to their published/publicized news stories of the excavations. Most of these posts had an informal tone and referred to their day-to-day experiences in Amphipolis. Most of the positive comments on these posts came from fellow journalists and showed positive connotations with regard to the significance of their work in the field:

"You are doing a great job all this time, we are counting on you!" (Facebook user-journalist, female, 3 September 2014) "This is what on-the-spot reporting means! Great job, all of you!"

(Facebook user-journalist, male, 27 August 2014)

In several cases, the journalists' own posts regarding personal and professional selfpromotion tended to generate more informal comments with regard to the difficulties of reporting. In this way, a new public–private sphere seems to have been generated within the social media public sphere. Journalists were having private discussions with their colleagues but within a public space, adhering to the notion of personal salience, by encompassing digital, online activities for the establishment of personal agendas [40]. This narrative, in turn, is enhanced not only by personal posts and experiences but also by personal photographs and videos that frame the posts and serve as tokens of selfconstructed narratives of personal significance. In this case, the nodes (journalists), via their posts, seem to have affected their links within the network they tended to operate (friends and followers) by affecting the created narratives.

7. Conclusions

This study builds on earlier work, on the ways in which cultural heritage is used to generate traditional media narratives and aimed to identify the narratives through which CH is communicated through news content posted on social media platforms. The basic target was to assess the role of media and journalists in this context.

Whereas some of the narratives identified within the traditional media context were also identified within the context of social media, several others emerged, both from the news content posted online and the comments this content generated. Specifically, the analysis of retrieved posts led to the identification of four main categories of narratives: *notions of national pride and national achievements, policies of distraction, political and scientific* *conflicts* and *policies of personal and professional self-promotion*. However, the comments attached to these categories of posts were often contradictory to the initial posts and led to the construction of alternative narratives and meanings. These narratives, with both positive and negative connotations, were identified as *disinformation*, interpreted by the audience as media attempts to intentionally disinform; *political and scientific conflicts* that reflected more infotainment rather than informational aspects of the news; and *self-promotional policies* with regard to the journalistic work of covering the archaeological discoveries. In the case of the first two categories of narratives (namely, *notions of national pride and national achievements*, and *policies of distraction*) not only did media and journalists (the nodes) fail to manage to affect groups of users within the social media environment (links), however, on the contrary, the created narratives emerged as conflicting reactions (comments) on the initial posts; whereas in the case of the other two categories of narratives identified in the study (namely, *political and scientific conflicts* and *policies of personal and professional self-promotion*), the media and journalists affected individual users and the created narratives.

CH in social media seems to be used on multiple levels as a field for news propagation. The key issues identified in this study relate to the role of media and journalists within the sustainable digital environment, where big data play a significant role. The initial sample used for the needs of the study was in accordance with the four main 'Vs' that usually describe big data: *Volume* relates to the increased number of CH data on social media platforms; *Variety* is evident in the various media and journalists' post types (e.g., posts, videos, photographs) that can be traced within the social media environment in relation to CH; *Velocity* refers to the speed at which these data are generated within social media, which may often lead to misleading information for users; and *Veracity* relates to differences in data quality that may lead to disinformation and confusing content for users.

As far as the media are concerned, this study shows that generated narratives within the social media environment are directly and/or indirectly connected to their overall role and performance within society. As such, the audience tends to be more critical towards them, whereas negative connotations are often identified in the content posted online. As far as journalists are concerned, although fewer negative connotations tend to be generated by their role as news aggregators, at the same time they do not seem to be able to denounce contradictory and/or conflicting roles, both as media professionals (part of the overall media system) and individual practitioners of public information routines. Although this analysis showed that there are certain differences between media and journalists as regards their role within the Semantic Web, there are several common characteristics they share, most notably disinformation. A future extension of this work could focus on the ways in which journalists themselves can segregate their role within the Semantic Web, among media professionals and individual users, and the impact of these roles on professional norms and practices.

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Conflicts of Interest: The author declares no conflict of interest.

Appendix A

Table A1. Timeline of the Amphipolis discoveries.

Time Series	Event
10 August 2014	The new archaeological discovery in Amphipolis becomes the main headline in the Greek newspapers.
12 August 2014	The Greek Prime Minister, Antonis Samaras, makes an official visit to the Amphipolis excavation site and refers to the global significance of the new discovery.
13 August 2014	International media around the world refer to the significance of the new discovery in Amphipolis.
17 August 2014	Greek and international journalists arrive in Amphipolis for daily coverage of the excavations.
27 August 2014	International media (e.g., AP, NBC, <i>Daily Mail</i>) announce that the tomb may have been breached in previous years by gravediggers.
5 September 2014	The Greek MEP Manolis Glezos requests economic assistance from the EU for the excavations.
7 September 2014	Archaeologists recover two caryatids in Amphipolis, which verify that the tomb belongs to a significant person.
8 September 2014	Lina Mendoni, General Secretary of the Greek Ministry of Culture, announces that the tomb has not been breached.
12 September 2014	Archaeologists conduct the first field research in the tomb and reveal that further measures need to be taken for the excavations to continue safely.
14 September 2014	The Greek archaeologist in charge of the excavation team, Katerina Peristeri, responds for the first time to accusations regarding the team's communication policy and states that it is her duty to inform the world about the discoveries.
16 September 2014	Professor Olga Palagia (National and Kapodistrian University of Athens) announces that the tomb may date back to the Roman era, and thus may not be the tomb of Alexander the Great.
18 September 2014	Katerina Peristeri states that beyond any doubt the tomb dates from around the time Alexander the Great died and accuses Professor Palagia of misinforming the public.
22 September 2014	The Greek Minister of Culture, K. Tasoulas, states that the person buried in the tomb is definitely significant, but not necessarily Alexander the Great. Later the same day, he alters his statement to: "I stated that we do not know where Alexander might be buried; I never said he could not be buried in Amphipolis."
2 October 2014	New discoveries verify beyond any doubt that the tomb is estimated to have been built in the era of Alexander the Great.
13 November 2014	The first skeleton is found inside the tomb.
22 November 2014	The Greek Minister of Culture, K. Tasoulas gives a press conference on the Amphipolis excavations.
28 November 2014	The Greek Minster for Tourism, Olga Kefalogianni, announces that 2015 is expected to be a good year for the Greek tourist industry due to the Amphipolis discoveries.
29 November 2014	Katerina Peristeri and her team present the overall Amphipolis discoveries in Athens.
19 January 2015	Scientists announce that in total the remains of five skeletons were found in the tomb, one of which is thought to belong to a woman.
30 September 2015	The team of archaeologists officially announce that the tomb belongs to Ifestionas and was built by Dinokratis on the orders of Alexander the Great.

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