



RESEARCH ARTICLE



## Communicating and Disseminating Rock Art Research on Facebook: The ERC Artsoundscapes Project Goes Public

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### ABSTRACT

This article explores the potential of social media in disseminating and communicating archaeological knowledge and the ways in which their impact on the public can be enhanced through marketing plans. It examines the implementation of such a plan in the context of the Facebook page of the ERC Advanced Grant project “The sound of special places: exploring rock art soundscapes and the sacred” (acronym: Artsoundscapes). Using quantitative and qualitative data provided by the Facebook Insights altmetrics tool, the article evaluates the general performance of the Artsoundscapes page and measures the effectiveness of the marketing plan. It discusses the components of marketing plans with emphasis on a carefully designed content strategy that, in the case of the Artsoundscapes Facebook page, in only 19 months of existence has resulted in the organic development of an active online community of 757 fans and 787 followers from 45 countries. The marketing plan has contributed to raising awareness of the Artsoundscapes project and an emerging, highly specialized and little-known branch of archaeology – the archaeoacoustics of rock art sites. It rapidly and engagingly disseminates the project’s activities and outcomes among both specialist and non-specialist audiences, and informs the non-specialist public about relevant advances in the multiple fields – rock art studies, acoustics, music archaeology and ethnomusicology – that intersect in it. The article concludes that social media are effective means for archaeologists and archaeological organizations and projects to reach various audiences, and that marketing plans significantly augment this process.

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## Introduction

The internet has created new opportunities for dissemination and communication. Since the 1990s (e.g., Champion 1995; Dingwall 1999) and especially in the last ten years,

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various branches of archaeology – including rock art research – have used this technology for disseminating scientific research and cultural heritage among the general public. This includes, for example, the development of applications for mobile devices (e.g., Jeater 2012; Mazel and Galani 2013; Mazel et al. 2013; Turner et al. 2018) and for augmented and virtual reality experiences (e.g., Choudary et al. 2009; Pujol 2007, 2017, 2019; Economou and Pujol 2011), as well as the use of various Web 2.0 tools (e.g., Mazel and Aystaran 2010; Bonacchi 2012; Zanzini and Ripanti 2012; Rocks-Macqueen and Webster 2014; Walker 2014; Gruber 2017; Fernandes 2018; Richardson et al. 2018; Wakefield 2020). Among the latter, social media sites have the greatest potential in instantly and successfully reaching and engaging the public. Since their appearance in the mid-2000s, they have boosted the creation and rapid sharing of user-generated content (e.g., text posts, comments, photos, videos) and have given rise to online social networks and communities (Quesenberry 2019, 8).

As “an excellent space for «niche information»” (Scherzler 2012, 238), archaeologists have explored the potential of social media for sharing content about scientific topics and professional and personal experiences, as well as events and activities related to their research. Depending on the type and purpose of the produced content, archaeologists have used various platforms such as blogs (e.g., Thornton 2012; Richardson 2014b; Rocks-Macqueen and Webster 2014; Gruber 2017; Richardson et al. 2018), Facebook and Twitter (e.g., Hadley 2012; Gibaja et al. 2016, 204; Miró i Alaix 2016, 243–244, 247; Palau Nadal, Cau Ontiveros, and Díaz-Andreu 2016; Polo Romero and Blaya Haro 2016, 138; Richardson 2014a, 2014b; Gruber 2017; Fernandes 2018; Wakefield 2020), along with Instagram (e.g., Webster 2014; Palau Nadal, Cau Ontiveros, and Díaz-Andreu 2016), Google+ (e.g., Palau Nadal, Cau Ontiveros, and Díaz-Andreu 2016), and YouTube (Zanzini and Ripanti 2012; Gruber 2017; Fernandes 2018).

Despite the growing number of archaeological professionals, institutions, associations and projects engaging with social media for scientific dissemination, the impact of the use of Web 2.0 technologies on the discipline, its practitioners and the public is generally assumed, although insufficiently analyzed (for a discussion on this in the United Kingdom, see Bonacchi and Moshenska 2015). To the authors’ knowledge, there are few exceptions to this (e.g., Hadley 2012; Richardson 2014b; Palau Nadal, Cau Ontiveros, and Díaz-Andreu 2016; Fernandes 2018; Richardson et al. 2018; Wakefield 2020). Moreover, no analysis has been published in the field of archaeology on which this article focuses, rock art research. In this specific field, social media are only mentioned in relation to the CARE project, which focuses on the conservation of open-air rock art in the United Kingdom and Ireland. That project created the Rock Art CARE mobile app for crowdsourcing heritage conservation data for the safeguarding of rock art panels. In this context, social media was used to publicly announce the application (Turner et al. 2018, 13). The lack of publications about the use of Web 2.0 tools in rock art research does not mean that rock art researchers do not use Facebook. As will be explained below, there are some who indeed use it as a way of responding to society’s increasing interest in rock art studies (Mazel and Aystaran 2010, 148). However, despite the rock art researchers’ efforts, there is a lack of reflection on what is being done and this is impacting on the relative success of Facebook use, not only in rock art studies but probably in all fields of archaeology.

This article aims to analyze the potential of social media for the dissemination of archaeological knowledge and to reflect on how their impact can be enhanced

through marketing plans. It will contribute to the research and the literature on the role of social media sites in archaeology by focusing on Facebook, today's leading platform in this respect (Quesenberry 2019, 113). Facebook is general in its purpose and, as science and technology scholar Michael Nentwich and sociologist and internet researcher René König argue, it is "especially suitable for public relations, academic organizations such as research institutes, universities, scholarly associations, and networks, as well as for individual researchers" (Nentwich and König 2014, 112). Facebook pages are the perfect means for these bodies to disseminate their activities and effectively reach the public. This article will focus on a case study, the Facebook page of the ERC Advanced Grant project "The sound of special places: exploring rock art soundscapes and the sacred" (acronym: Artsoundscapes). It argues that the use of marketing plans is becoming increasingly important in scientific dissemination and communication. It will explain the implementation of such a plan for the project's Facebook page and will analyze its effectiveness by looking at its impact on the public. By doing so, it also hopes to offer best practice examples to other archaeology projects, institutions and organizations. As a methodology, it will make use of Facebook Insights, the altmetrics tool provided by Facebook. This tool offers qualitative and especially quantitative data that allow Facebook page managers to understand the overall performance of the page they administer, to measure the results of their actions, and to evaluate the interaction with fans. Other specific methods will be detailed throughout the article, which first describes the context in which the Artsoundscapes Facebook page was set up and provides general information about the design of a marketing plan. It then elaborates on the steps suggested by digital marketing expert John Haydon (2015) for creating and revising a marketing plan: identifying a value proposition; understanding the audience; defining the marketing goals; developing a content strategy; and monitoring and measuring the Facebook page activities. Finally, it shows how these steps have been adapted for the public dissemination of the ERC Artsoundscapes scientific project and implemented on its Facebook page.

The research carried out for this article complies with the General Data Protection Regulation (GDPR) (Regulation (EU) 2016/679)<sup>1</sup> of the European Commission. During the research process, no personal data – as defined in Art. 4(1) of the Regulation (EU) 2016/679 – that might lead to the identification of natural persons (i.e., Facebook users) was collected. The data gathered for the analysis in the section about value proposition (see below) consists of public information that is available to any Facebook user. The data specifically referring to the users of the Artsoundscapes Facebook page was retrieved from Facebook Insights which allows page administrators to view only anonymous statistical information about page fans and followers, available under the form of aggregate data.

## **The ERC Artsoundscapes Project's Facebook Page: Establishing and Building a Marketing Plan**

### ***The Creation of the ERC Artsoundscapes Facebook Page***

Before beginning the analysis, this section will briefly introduce the ERC project that is at the heart of this article's case study and will explain the reasons its members embarked on

social media dissemination and what methods they used. The project is titled “The sound of special places: exploring rock art soundscapes and the sacred”, although it is better known by its acronym, Artsoundscapes. It is a generously-supported project funded by the European Research Commission (ERC) aimed at understanding the role of sound and emotion in engaging with the sacred in the rock art landscapes of premodern Holocene societies. Although ERC projects are more concerned with excellence than with public dissemination, from the outset, in October 2018, the Artsoundscapes members acknowledged the importance of outreach as a moral obligation to society. Project member Laura Coltofean-Arizancu was selected as its social media manager<sup>2</sup>, as her museum background had provided her with wide experience of public dissemination that is very appropriate for this role in the project.

The Artsoundscapes social media manager’s first task was to establish the project’s online dissemination channels. Those selected were a website, a Facebook page, a blog, and a YouTube channel.<sup>3</sup> The diversification of platforms is in line with the so-called “multichannel social media strategy”, which, it is argued, is more likely to achieve the project’s different purposes and reach its target audiences (Quesenberry 2019, 54). Project members also discussed setting up accounts and profiles on Instagram and Twitter, although they finally decided against it. This was because the content intended for sharing would not have been as immediate and regular as required by those two networking services for the presence of the ERC Artsoundscapes project to be considered active and impacting. There was also the issue of attempting to balance the production of excellent science with the time invested in communicating with the public, as the management of each social media platform requires a considerable number of hours. Nevertheless, the ERC Artsoundscapes project is present with one monthly post on the Instagram profile<sup>4</sup> of the Faculty of Geography and History of the University of Barcelona (Spain), where most of the project members are based. In its bio (i.e., user description), the Faculty’s Instagram profile includes a link to the Artsoundscapes Facebook page, which redirects interested followers to more content about the project’s activities. Of the three social media channels (Facebook page, YouTube channel and blog), the Facebook page has become the project’s main platform in actively engaging the general public in the communication of the project’s activities and results. Non-Facebook users are given the opportunity to engage with the project’s material through the website – where all the research outputs are freely accessible, the blog, as well as offline scientific and outreach events and radio podcasts.

Pages should not be confused with personal profiles on Facebook, which are used by individuals (Quesenberry 2019, 114). Unlike profiles, pages do not acquire “friends”, but “fans” and “followers”, people who choose to “like” and/or “follow” a certain page, normally as they are interested in its content. The Artsoundscapes Facebook page was set up on 31 October 2018, and currently has 757 page likes and 787 followers (as of 4 August 2020). On the macroscopic level of the gigantic social media, these numbers would be considered small. However, when compared to the page’s youth (19 months) and the performance of other Facebook pages on rock art in terms of the number of likes and followers per year of existence (as will be seen in section “The value proposition of the Artsoundscapes Facebook page”), these numbers indicate a very good start. They also reveal that the ERC Artsoundscapes page has begun to have a certain level of online impact and has managed to raise the interest of individuals in a highly specialized and

relatively little known archaeological research area – the archaeoacoustics of rock art sites. All these individuals are now part of a continuously growing and flourishing online network that has formed around the Artsoundscapes project. Since the page was founded, only four fans have unliked the page and stopped following it. Their reasons for unlinking and unfollowing the page are unknown, as this information is not reported by Facebook Insights to page managers and no feedback or comments were received from those fans.

### ***Building a Marketing Plan for the Artsoundscapes Project Facebook Page***

Although a series of best practices for curating a Facebook page have been published for many academic disciplines, archaeology has been an exception so far. Marketing experts John Haydon (2015) and Keith A. Quesenberry (2019) emphasize the importance of designing and using marketing plans for social media channels. Haydon (2015, 29), for example, even sees planning as the main factor that influences accomplishment on Facebook. In archaeology, the importance of applying marketing strategies for disseminating archaeological knowledge on social media was emphasized by Palau Nadal and her colleagues in relation to their study of social media use in providing the public with information about the Pollentia archaeological site (Palau Nadal, Cau Ontiveros, and Díaz-Andreu 2016). Research in the field of museum studies (e.g., Lessard, Whiffin, and Wild 2017; Suzić, Karliček, and Stríteský 2016; Padilla-Meléndez and del Águila-Obra 2013) has also highlighted the advantages of such plans.

The importance of a marketing plan for the Artsoundscapes project to disseminate the activities and knowledge it produces to both specialist and non-specialist audiences on Facebook was recognized from the outset. In creating the marketing plan, special attention was paid to the recommendations from the fields of social media and digital marketing, such as those of Haydon (2015) and Quesenberry (2019). It is important to note that their guidelines address both for-profit and non-profit businesses. In the case of Artsoundscapes, these guidelines were adapted to the characteristics of a scientific project and then experimented with. As Quesenberry (2019, 116) puts it, “best practices are a great place to start, but each brand and target audience is unique so be sure to experiment and discover what strategies and content work best for different brands and audiences”. In the process of building the marketing plan, it was essential to think about the ERC Artsoundscapes project in terms of a company whose products are research outputs mainly consisting of publications, conference papers and seminars. This brought several challenges, as Artsoundscapes is not an organization that engages in business activities, nor does it generate financial revenue. Its products and marketing possibilities are more limited than those of a business. This means, for example, that more effort was invested in finding the best ways to “sell” the project’s products and to find alternative forms of appreciating the loyalty of fans. However, as this article will show, business thinking and marketing are crucial for scientific projects to successfully present and promote themselves on Facebook, as well as to disseminate and communicate their research products to the public.

The core of the Artsoundscapes Facebook page marketing plan was developed following the guidelines set out by John Haydon (2015). According to him, there are five main steps in creating a marketing plan: 1/ developing a value proposition; 2/ understanding

the audience; 3/ defining the marketing goals; 4/ developing a content strategy; and 5/ monitoring and measuring the Facebook page activities (Haydon 2015, 31). He also mentions a sixth optional step, i.e., integrating offline and online campaigns. However, as the ERC Artsoundscapes project does not run any, this was not considered an essential point for inclusion. In addition, experience in other fields, such as museum studies (e.g., Lessard, Whiffin, and Wild 2017; Suzić, Karliček, and Stříteský 2016; Spiliopoulou et al. 2014; Bonacini 2012), academic libraries (e.g., Margolis and Treptow 2017; Houk and Thornhill 2013; Aharony 2012) and medical sciences (e.g., Stukus, Patrick, and Nuss 2019), with Facebook pages have proved valuable in improving two particular aspects of the marketing plan: content strategy and performance evaluation. The remaining sections of this article will discuss the implementation of Haydon's model in designing the marketing plan of the Artsoundscapes Facebook page, as well as its results.

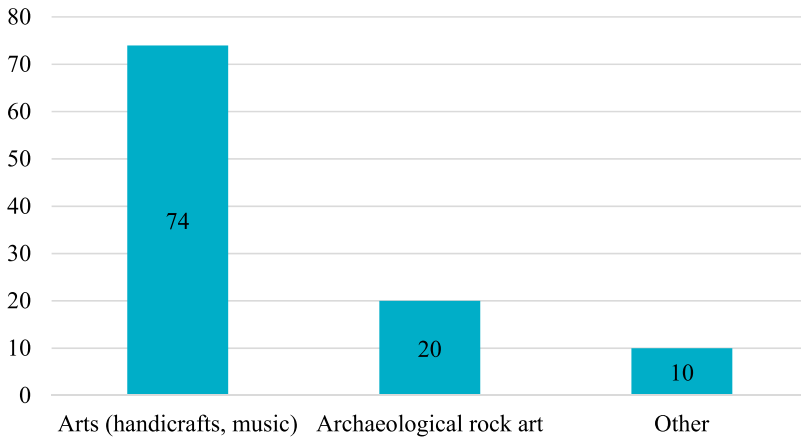
### **The Value Proposition of the Artsoundscapes Facebook Page**

The three main aspects defined by John Haydon (2015, 32) were taken into account when establishing the value proposition of the Artsoundscapes Facebook page: the product differential (i.e., the characteristics that make a brand, product or service distinctive from that of its competitors), the value it delivers to stakeholders, and its goals. The following paragraphs in this section will discuss each of these aspects.

#### ***The Artsoundscapes Facebook Page Product Differential***

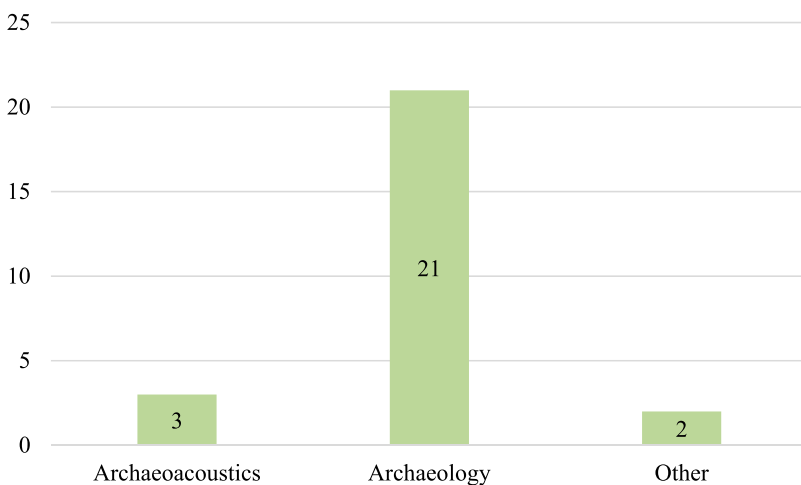
According to John Haydon, "knowing what makes your product or service different from and better than that of your competitors helps you create messaging that gets people's attention" (Haydon 2015, 32). Therefore, before creating the Artsoundscapes project's Facebook page, a cursory survey was carried out of similar pages available on the platform to have an idea of the context in which the page was going to appear. This exercise was repeated for the purpose of this article, starting with a simple search for "rock art" and "archaeoacoustics", two keywords that best describe the scientific profile of the Artsoundscapes project. This is not as straightforward as it sounds, as searches on Facebook are customized and the results obtained are specifically adapted to an individual's interests by incorporating information about them beyond the specific query. In order to reduce the personalization of searches and obtain more results, no filters were applied; "Anywhere" was selected as a location, "Verified" was left unchecked and "Any category" was clicked on. The inquiry resulted in 104 pages whose names generally included the words "rock art" and 26 pages that were both related and unrelated to "archaeoacoustics".

Looking more closely at the 104 results from the "rock art" keyword search on Facebook, however, brought some surprises. As Figure 1 shows, the great majority (74, i.e., 71,1%) of those pages were devoted to the arts, especially in the form of handicrafts (e.g., an incredibly high number of pages of more or less skilled handcrafters working with pebble painting and crafting) and music (e.g., rock music and its various subgenres). Some of these artistic pages also dealt with painting, photography, art education, and even graffiti. Conversely, the number of Facebook pages about rock art in its archaeological sense was small and only represented 19.2% (20) of the results. Other outcomes of the search included pages about memes, shops, breweries, pubs, and various businesses



**Figure 1.** The results of the search conducted on Facebook based on the keyword “rock art” (as of 4 August 2020).

(10, i.e., 9.6%). The results of the search for “archaeoacoustics” (Figure 2) were even more startling. Only three (11.5%) of the 26 pages were directly related to the field of archaeoacoustics and included that word in their names. Most of the resulting pages (21, i.e., 80.7%) were archaeologically-themed and devoted to journals, magazines, news, job announcements, projects, companies, NGOs, a tool shop, an institute and a museum. Nevertheless, none of these had any connection with archaeoacoustics. In addition, two other results (7.69%) included the pages of an archery and bowhunting store, as well as an animated comedy. A complete overview of the existing pages on rock art and archaeoacoustics on Facebook is not possible due to the default customized searches performed by the platform. Nevertheless, the 23 pages found were sufficient to identify the main characteristics of the Artsoundscapes Facebook page’s competitors. This will



**Figure 2.** The results of the search conducted on Facebook based on the keyword “archaeoacoustics” (as of 4 August 2020).

**Table 1.** Archaeological rock art pages resulting from the Facebook search and ordered according to their start year (number of likes and followers as of 4 August 2020).

No.	Facebook (FB) page name	Country	Page start year	Page likes	Page followers
1	The Welsh Rock Art Organisation (WRAO)	UK	2009	2210	2270
2	Australian Aboriginal Rock Art [-0-]	Australia	2010	299	317
3	Colorado Rock Art Association	USA	2010	1388	1429
4	Rock Art Research Institute	South Africa	2010	2667	2776
5	European Rock Art Trails	Spain	2011	3303	3558
6	Rock Art Foundation	USA	2011	2301	2373
7	Bradshaw Rock Art	Australia	2012	347	359
8	Bushman Rock Art: An Interpretative Guide	Australia	2012	1395	1435
9	Friends of Australian Rock Art	Australia	2012	2151	2206
10	Oregon Rock Art	USA	2012	179	187
11	American Rock Art Research Association ARARA	USA	2013	2000	2100
12	Rock Art Finland	Finland	2013	3102	3219
13	The Wicklow Rock Art Project	UK	2013	834	877
14	International Federation of Rock Art Organizations - IFRAO	Italy	2014	1308	1356
15	Portable Rock Art	USA	2014	288	288
16	Irish Rock Art	Ireland	2015	4528	4693
17	Rock Art Kerry	Ireland	2015	1915	2042
18	URARA Utah Rock Art Research Association	USA	2015	2061	2172
19	Scotland's Rock Art Project	UK	2017	2629	2788
20	Rock Art of the Sydney Basin	Australia	2019	707	750

be shown in the following part of this section by briefly analyzing their content strategy and performance in terms of page likes and follows.

Focusing on the twenty archaeological rock art Facebook pages (Table 1), it becomes clear that they were set up for different reasons, including disseminating information relating to rock art motifs and sites; communicating project research results and activities; and promoting guided tours. The three pages on archaeoacoustics (Table 2) generally promote this new archaeological branch and two of them are from the International Society for the Study of Archaeoacoustics. Most of these pages (both on rock art and archaeoacoustics) include scientifically-informed content, but there are also pages that are a mixture of both scientific and pseudoscientific information. The scientific quality of the content is probably influenced by the background of the page managers, although this is not always obvious or easy to find. There are cases when it is easy to tell whether a page is run by a specialist or a non-specialist, although in most situations this is difficult as the "About" sections generally provide little or no information.

The analysis revealed that the main competitors of the Artsoundscapes Facebook page, at least of those managed in English, are Scotland's Rock Art Project; the Welsh Rock Art Organisation; the Wicklow Rock Art Project; Irish Rock Art; and Rock Art Kerry (Table 1). They present organized content management and their posts are consistently published and written in an attractive and understandable style. In contrast to the

**Table 2.** Pages related to archaeoacoustics resulting from the Facebook search and ordered according to their start year (number of likes and followers as of 4 August 2020).

No.	Facebook (FB) page name	Country	Page start year	Page likes	Page followers
1	Archaeoacoustics	South Africa(?)	2012	466	478
2	Archaeoacoustics	USA	2013	1019	1018
3	ISSArchaeoacoustics	USA	2020	4	6



other pages, they have a much higher number of likes and follows, often over 2000. Nevertheless, this high number has to be analyzed in relation to the number of years the Facebook page has been in existence. When comparing their age to the amount of page likes and follows, one can easily realize that if the figures are divided by the numbers of years the Facebook page has been active (see [Table 1](#)), they become less exceptional. As all these pages continue publishing posts, it is necessary to conclude that they could benefit from a stronger content strategy in order to obtain a consistent number of page likes and follows, as well as engagement.

Compared to all the 23 pages on rock art and archaeoacoustics identified in the survey, including the best five highlighted in the previous paragraph, the Artsoundscapes Facebook page stands out ([Tables 1 and 2](#)). This indicates the success of the content strategy established by the social media manager at the start of the project, one that has provided, as shown in the “Developing a content strategy” section below, a coherent, consistent and attractive content. Therefore, the main product differential of the Artsoundscapes Facebook page lies in an innovative and carefully curated content.

### ***The Value and Goals of the Artsoundscapes Facebook Page***

Defining the value that a brand, product or service offers to its stakeholders is the second stage in formulating value proposition and it is essential in defining their “messaging and communications strategy” (Haydon 2015, 32). In business, stakeholders are “customers, shareholders, employees, partners, and anyone else who is affected by your company” (Haydon 2015, 32). In the case of a scientific project like Artsoundscapes, the stakeholders are both the specialist and non-specialist public, the researchers and collaborators involved in it, and its funding and financial management bodies (e.g., the European Research Council Executive Agency and the University of Barcelona). The analysis undertaken in the “The value proposition of the Artsoundscapes Facebook page” section helped determine that the value offered by the ERC Artsoundscapes project to its stakeholders on Facebook consists of quality, scientific reliability and accessibility. These are ensured by carefully curated and scientifically informed content that is backed up by rigorous quantitative and qualitative research and is accompanied by attractive and easily comprehensible texts and messages for the non-specialist public.

In addition to the product differential and value, Haydon (2015, 32) suggests that the last step in establishing value proposition is to establish the goals of the product, which in this case is the Artsoundscapes Facebook page. The first goal of the project’s page is to increase awareness of the Artsoundscapes project and the newly emerging field of archaeoacoustics among specialist and particularly non-specialist audiences. The second goal is to rapidly and engagingly communicate and disseminate the results of the Artsoundscapes project to both specialist and non-specialist audiences in an accessible format and style. The third purpose of the Facebook page is to educate the non-specialist public in the fields of rock art studies, acoustics, music archaeology and ethnomusicology, by providing them with reliable and scientifically informed content. These three goals will be essential in determining the objectives of the marketing plan for the project’s Facebook page, which will be discussed later in this article.

## Understanding the Artsoundscapes Facebook Page's Audience and Building its Loyalty

Facebook pages have fans and followers and both constitute the Artsoundscapes project's audience on this platform. Knowing the psychographic profile of fans and followers contributes to a better understanding of the audience and allows the communication strategy to be revised to better meet their needs (Haydon 2015, 33–34). To access information about the psychographic profile of fans and followers, Haydon suggests using the Facebook Insights data which includes insights into their “personality, values, attitudes, interests, or lifestyles” (Haydon 2015, 34). However, as these data are only accessible within Facebook's paid Ads Manager – something the Artsoundscapes project cannot pay for – aspects of its fans' psychographic profile will be ascertained through the corroboration of openly available demographic data (e.g., the estimate of the number of fans and followers, generally grouped by country of residence, age and gender) and the trends identified in their engagement with the Artsoundscapes Facebook page. The section will finish by explaining about the loyalty of a Facebook page audience and some of the ideas implemented in the Artsoundscapes project to ensure this.

### *The International Profile of the Artsoundscape Facebook Page Fans and Followers*

Facebook Insights reveals that the Artsoundscapes Facebook page fans and followers have an international profile and live in 45 different countries across five continents (Table 3). Despite this widespread geography, there is a clear concentration of fans in Europe (602), especially in Spain (258) and Italy (128). The large number of followers

**Table 3.** Artsoundscapes Facebook page fans grouped by country of residence and ranked by number (as of 4 August 2020).

No.	Fans' country of origin	Number of fans/country	No.	Fans' country of origin	Number of fans/country
1	Spain	258	24	Russia	3
2	Italy	128	25	Denmark	3
3	Portugal	48	26	Hungary	3
4	USA	36	27	Morocco	3
5	UK	35	28	Switzerland	3
6	Romania	27	29	Australia	3
7	Germany	21	30	Turkey	3
8	Chile	18	31	Serbia	2
9	Brazil	15	32	Finland	2
10	France	14	33	Bolivia	2
11	Mexico	14	34	Algeria	2
12	Peru	14	35	Slovenia	2
13	Colombia	11	36	Macedonia	2
14	Netherlands	11	37	Cyprus	2
15	Greece	8	38	Ecuador	1
16	Norway	7	39	China	1
17	Canada	7	40	Tunisia	1
18	Argentina	7	41	Kenya	1
19	India	6	42	Panama	1
20	Poland	6	43	Gabon	1
21	Belgium	5	44	Malta	1
22	Croatia	5	45	Austria	1
23	Sweden	5		<b>45 countries</b>	<b>Total of 749 fans</b>

\*These are only the fans who included information about their country of residence on their Facebook profiles.

from Spain is not surprising considering that this is the country where the Artsoundscapes team members reside and where many project activities take place when they are not on fieldwork. Italy's notable presence may well be the result of the efforts of the Italian project members and collaborators in sharing the information about the Artsoundscapes page in its early days in their own networks on Facebook, which include both professionals (e.g., archaeologists and rock art and heritage specialists) and non-specialists. The same dissemination efforts by team members from Romania, Germany, France, Brazil and Colombia explain the ranking of those countries among the top thirteen with Artsoundscapes fans, although their numbers are significantly lower than those of Spain and Italy.

Many of the countries in Table 3 are known to be especially rich in rock art sites. Their presence may not be mere coincidence and could confirm a psychographic variable in the profile of the Artsoundscapes fans – an interest in rock art. Table 3 also reveals that Artsoundscapes has not yet sufficiently reached areas outside Europe. At present, only 147 of its fans come from other parts of the world, notably from the United States and South America. However, in Australia and in several countries in Africa and Asia it has less than six fans. Given this information, one of the future goals of the Artsoundscapes project would be to increase awareness of the project and the number of fans and followers in these specific regions.

### Gender and Age Profile of the Fans and Followers

The information provided by Facebook Insights regarding the fans (Figure 3) and followers of the Artsoundscapes Facebook page is identical and will therefore be discussed together. Figure 3 shows that the Artsoundscapes page has slightly more male (52%) fans and followers than female (45%), with 3% of undeclared gender. In all cases, they are mainly aged between 25 and 54, with the 35–44 age group somewhat predominant (28%). The percentages of other age categories are as follows: 13–17 (0%); 18–24 (3%); 25–34 (24%); 45–54 (20%); 55–64 (14%); and 65 and older (9%). The 25–54 age interval includes the groups targeted on social media from the very beginning of the project and that can be addressed with a generally similar language.

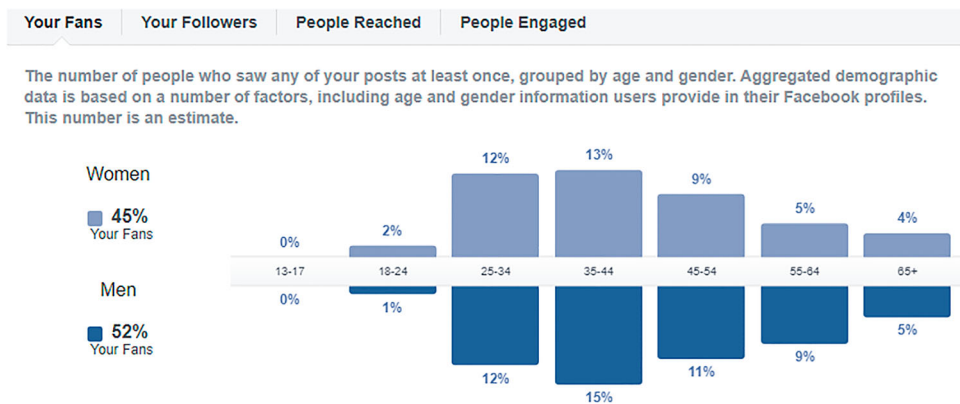


Figure 3. Fans of the Artsoundscapes Facebook page by gender and age (as of 4 August 2020).

The 18–24 age group, usually comprised of undergraduate students in the process of making future career choices, is extremely underrepresented among the Artsoundscapes Facebook page’s fans and followers (Figure 3). Moreover, young persons aged 13–17 are completely absent, although the project addresses them offline with events such as the *Festa de la Ciència* (Science Festival), a yearly event organized by the University of Barcelona in which the project has participated in the last two years,<sup>5</sup> and similar offline outreach activities undertaken by various project members in museums and at heritage biennials.<sup>6</sup> The lack of attraction of the Artsoundscapes Facebook page for the 13–24 group was a conscious decision, as targeting them would have required using a different language style and communication strategy, each considerably distinct from the one implemented on the page for targeting the 25–54 age group. Moreover, Facebook seems to have lost popularity among 13–24-year-olds. Although to the authors’ knowledge there has been no scientific research to date into this question, the subject has been discussed in the media. One explanation given for the “exodus” of teenagers is the “invasion” of Facebook by parents wishing to monitor the activity of the younger generations (De Liz 2018).

### Appreciation

In addition to distinguishing the target market in terms of fans and followers, so that the communication strategy can be revised if needed, it is also important to create a long-term relationship with them, i.e., to enhance the loyalty of the Facebook page audience. As a scientific project and not a business, Artsoundscapes does not offer discounts, promotions, etc. to reward its fans and make them feel valued, a key aspect for the success of a Facebook page according to Haydon (2015, 34). However, paying attention to the individuals who make up the Artsoundscapes audience, caring for their needs and appreciating them are essential for maintaining their interest in the project’s page. So far, more traditional forms of expressing the team’s “sincere appreciation” (Haydon 2015, 34) have been opted for by reacting actively and positively to the fans and followers’ comments and especially by taking into account their feedback and needs. One of the most recent examples of this is the project’s response to the several messages and comments received regarding the online availability of the Artsoundscapes seminars during the COVID-19 pandemic. As a reaction to them, it was decided to deliver the seminars online through the Blackboard Collaborate conferencing tool, making them accessible to people from all over the world. When possible, their start time was also scheduled at 6 pm CET, so that they could be relatively easy to attend from every time zone. This shift from offline to online seminars has resulted in 34 more likes (from 690 to 724) and 38 more follows (from 712 to 750) on the Artsoundscapes page during the pandemic (April to early June 2020). There has also been an increased level of engagement, especially with the posts announcing the seminars. In addition, the number of participants in the seminars has also increased, reaching as many as 50 people online.

All in all, Facebook Insights shows that, in terms of fans and followers, the Artsoundscapes Facebook page marketing plan has been successful in achieving its audience profile objectives, i.e., to reach various countries and age categories. The first is essential for a project that is international in scope and undertakes fieldwork in various parts of the globe. The next goal is to widen its audience to areas with rock art that have only

been marginally reached to date. In addition to raising awareness of the ERC Artsoundscapes project and the emerging field of archaeoacoustics, this could also potentially add more collaborators and doctoral and postdoctoral researchers, as well as fieldwork opportunities to test the project's hypotheses and equipment in different settings.

### The Artsoundscapes Facebook Page Marketing Goals

Having discussed John Haydon's first two guidelines for establishing a marketing plan, i.e., designing a value proposition and understanding the audience (see above), this section will explain how the ERC Artsoundscapes project has implemented his third proposal, the definition of the marketing goals (Haydon 2015, 31). According to Haydon, the four most frequently encountered business marketing goals are: 1/ building brand awareness; 2/ driving sales; 3/ forming a community of people who share the brand values; and 4/ listening to feedback about the brand (Haydon 2015, 35–36). As a funded scientific project, Artsoundscapes cannot generate sales as a business objective (Point 2); however, the other business objectives can easily be adapted to the project.

The ERC Artsoundscapes Facebook page goals were adapted for a scientific project from the business objectives highlighted by Haydon (2015, 31). These goals are as follows:

- (1) to build awareness of the project;
- (2) to increase awareness of the newly emerging field of archaeoacoustics among specialist and particularly non-specialist audiences on Facebook;
- (3) to form a community and network of people interested in the archaeoacoustics of rock art in general and this project in particular;
- (4) to share the results of the research carried out in the project;
- (5) to increase participation in the offline and online seminars and workshops hosted by the project;
- (6) to provide the public with reliable scientific information on the advancements in the fields of rock art studies, acoustics, music archaeology and ethnomusicology;
- (7) to establish links with other researchers, similar projects, and potential doctoral and postdoctoral researchers;
- (8) to listen to feedback about the project.

Apart from the last objective (No. 8), which is achieved by, as will be seen below, monitoring and measuring the performance of the Artsoundscapes Facebook page, most of these objectives (Nos. 1-7) are reached through the implementation of a carefully designed content strategy.

### Developing a Content Strategy

John Haydon's (2015) fourth guideline for the creation of a marketing plan refers to developing a content strategy. When talking about marketing strategies for Facebook, Keith Quesenberry (2019, 116) emphasizes that "what works best is quality content". The information published on a Facebook page should therefore be "interesting, entertaining, and shareable" (Quesenberry 2019, 114). Other studies (e.g., Lessard, Whiffin, and Wild 2017, 473; Fletcher and Lee 2012) also stress that the quality of posts is more important than

their quantity. This is an essential aspect to be considered, as the characteristics of the published content influence the public perception of a company (Safko and Brake 2009, 27) or, in this case, a project. Therefore, quality and attention to detail are key aspects of the content strategy implemented on the Artsoundscapes Facebook page. Apart from these, attention has also been paid to several other factors designed to increase the visibility and success of posts. In this section the following will be highlighted: the type of information included in the posts, the language and style used, the inclusion of multimedia content (e.g., photographs, videos and links), the use of emojis and hashtags, and the frequency and time of the posts.

### Post Types

Studies of the use of social media by museums (Lessard, Whiffin, and Wild 2017; Suzić, Karlíček, and Strítešský 2016) have shown that there are three categories of posts that generate the maximum engagement: promotional, educational, and entertainment. These categories often intersect, as one post may simultaneously belong to two types (Lessard, Whiffin, and Wild 2017, 471). The Artsoundscapes Facebook page posts can also be included in these categories (Table 4). The promotional posts consist of information about future events organized within or related to the project and research results. The former include seminars on specific topics given by guest scholars, reading workshops in which project members discuss their interdisciplinary readings and book launches, while examples of the latter are publications and conference participations. These are the most frequently shared types of posts on the Artsoundscapes Facebook page and are also the most successful in terms of reach, reactions and comments (see Table 4) (although this might well be a consequence of the predominance of these posts on the page). The educational and entertainment posts are strongly interconnected and it is difficult to make a clear distinction between them, as has also been seen in studies of social media use by museums. They comprise radio podcasts, blog posts, YouTube videos, and interesting information relating to advancements in one of the project's fields (e.g., rock art studies, archaeoacoustics, music archaeology, ethnomusicology, and anthropology). Although their numbers are lower compared to promotional posts, they are much appreciated by fans. Other posts on the Artsoundscapes Facebook page (although many fewer) include holiday cards and greetings, as well as announcements (e.g., event cancellations) that cannot be included in the previously mentioned categories.

Tables 5 and 6 show the segmentation of promotional and educational/entertainment posts on the Artsoundscapes Facebook page according to topic, reach, reactions, comments and shares. The data in the two tables (retrieved from Facebook Insights) reveal

**Table 4.** Categories of posts published on the Artsoundscapes Facebook page and ordered according to their reach (as of 4 August 2020).

No.	Post category	No. of posts	Reach	Reactions	Comments	Shares
1	Promotional	114	55697	3643	171	424
2	Educational / entertainment	35	16281	1184	25	179
3	Other	6	1943	160	2	9
	<b>Total</b>	155	73921	4987	198	612

**Table 5.** Segmentation of promotional posts published on the Artsoundscapes Facebook page and ordered according to their reach (as of 4 August 2020).

No.	Post topic	Promotional posts				
		No. of posts	Reach	Reactions	Comments	Shares
1	Seminar	23	16007	940	79	160
2	Conference participation	16	8635	504	25	47
3	Reading workshop	21	7722	405	8	47
4	Fieldwork	19	5773	707	25	34
5	Publication	6	5452	225	15	36
6	Other	4	3120	186	1	13
7	Invited talk	8	2843	197	0	19
8	Dissemination activity	6	1729	131	4	18
9	Call for papers	3	1470	87	3	13
10	Job announcement	3	1344	151	11	30
11	Research stay	3	802	65	0	1
12	Project meeting	2	800	45	0	6
<b>Total</b>		114	55697	3643	171	424

that the posts announcing seminars with guest speakers are the most successful and receive the most attention from fans. This, along with the high level of attendance at the seminars, clearly indicates the interest in these scientific events. However, the seminar video summaries, which are uploaded to YouTube and then shared on the Artsoundscapes Facebook page, have drawn little interest compared to other posts (see details in the discussion about photographs, links and videos below). Other much appreciated posts are the radio podcasts, as well as the blog entries shared from the Artsoundscapes website (Table 6). As a whole, the information in the two tables shows that Artsoundscapes Facebook page fans are interested in the published content and that its manager should continue using the same content strategy, with minor adjustments to improve the visibility of some posts (e.g., YouTube videos).

### *Cohere*nce

In scientific communication through social media it is important to publish content that is related to the identity and specific activities of the page creators (e.g., researchers, projects, institutions, associations). Academic librarians Margolis and Treptow (2017, 6) encourage sharing external content – i.e., posts from other pages – in which the community of a certain page could be interested, as this can bring further engagement. The authors of this article would argue that external content could disturb the consistency of the content of the page on which it is shared, and also affect its identity. In addition,

**Table 6.** Segmentation of educational/entertainment posts published on the Artsoundscapes Facebook page and ordered according to their reach (as of 4 August 2020).

No.	Post topic	Educational / entertainment posts				
		No. of posts	Reach	Reactions	Comments	Shares
1	Radio podcast	13	8318	416	4	59
2	Blog post	9	3976	504	16	68
3	YouTube video	7	2422	157	0	19
4	Other	6	1565	107	5	33
<b>Total</b>		35	16281	1184	25	179

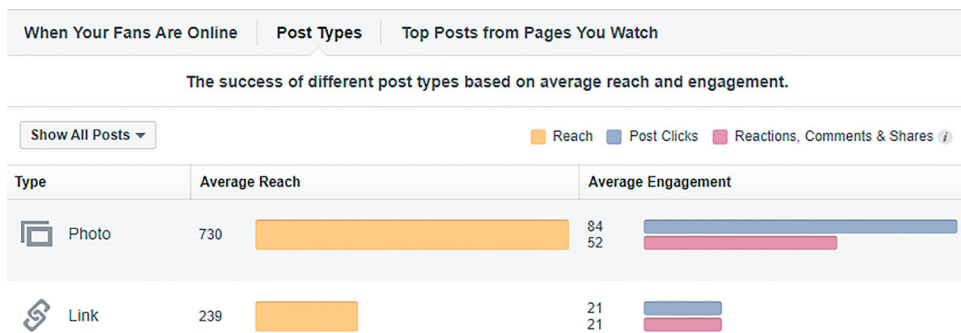
it would confuse fans and followers. In the case of Artsoundscapes, the subject of the Facebook posts is always linked to the project. Publishing content that deals with the project's host institution (e.g., events) or department colleagues who are not team members has been avoided. In addition, the posts do not mention news or views regarding political, economic or social matters. Page managers should keep in mind that people like and follow a page because they are particularly interested in information and news associated with the purpose of that specific page, and not in other types of content that they may find on different pages. Moreover, the engagement generated by external posts would be rather unreal, as it is not produced by the page's own content.

### Language and Style

Attention should also be paid to the language and style used in writing content on Facebook pages. According to John Haydon (2015, 108), "being concise, relevant, and interesting are key success factors in getting the attention of customers and prospects on Facebook". Compared to the short, specific tweets allowed by Twitter, Facebook allows the posting of more elaborate and colloquial texts (Lessard, Whiffin, and Wild 2017, 472). Taking all this into account, the posts on the Artsoundscapes Facebook page are "translated" from the often dry, impersonal and difficult scientific style into one that is warm, personal, conversational, appealing and accessible. This approach addresses the public directly and attempts to involve them in the project's life. Therefore, posts are "humanized" as much as possible and formulated in such a way that they place less emphasis on the achievements within the project and more on the public benefits they bring. Moreover, the post texts often include the words "now" and "new", which also seems to boost engagement (Quesenberry 2019, 114–115). Besides these, words with a similar impact, such as "last" and "latest", are also used.

### Photographs, Links and Videos

The inclusion of multimedia content – photographs, videos and links – in posts can also contribute to engaging the public (Lessard, Whiffin, and Wild 2017, 471). In order to provide more (visual) information on a certain topic and/or to make it more visually appealing, the Artsoundscapes Facebook page posts always include an image and/or a



**Figure 4.** The success of posts including images and links on the Artsoundscapes Facebook page (as of 4 August 2020).



link leading to further online external content (e.g., blog posts or job opportunities on the Artsoundscapes website; videos on the project's YouTube channel; scientific articles on team members' Academia.edu profiles). As [Figure 4](#) shows, the Artsoundscapes posts containing photos are generally more successful than those with links, with an average reach of 730 versus 239 people (as of 4 August 2020). Regarding the average engagement of fans with the posts, according to Facebook Insights they tend to click more on the posts with photographs than on those with links (84 versus 21; as of 4 August 2020). They also more frequently react to, comment on and share content that includes images (52 versus 21; as of 4 August 2020). These data confirm the results of studies outside archaeology which reveal that posts with images benefit from more engagement, reach and views (e.g., Margolis and Treptow [2017](#), 8; Redsicker [2014](#); Quesenberry [2019](#), 114). This is because "images are easier to consume than text" (Redsicker [2014](#)). Nevertheless, the pictures should be of the best quality, as this can also influence the success of a post (Papworth et al. [2015](#), 831; Redsicker [2014](#)), and, most importantly, they should interest the target audience (Redsicker [2014](#)). Along with photos, videos are also reported to generate a high level of engagement (Quesenberry [2019](#), 114). However, in the case of the Artsoundscapes Facebook page, videos have been much less successful than images.<sup>7</sup> The videos that are generally shared on the Artsoundscapes Facebook page are maximum 10-minute summaries of the seminars given by guest speakers. Their low success rate could be explained by the fact that their brief content does not satisfy the needs of the public which, given the comments received so far, would prefer to see the entire talks online.

### **Hashtags**

In addition to photographs and/or links, all the posts on the Artsoundscapes Facebook page include hashtags. These are essential elements of communication on Twitter and Instagram (Quesenberry [2019](#), 116) that can lead to more engagement (Lessard, Whiffin, and Wild [2017](#), 473), although they can also be used on Facebook for the same purpose (Quesenberry [2019](#), 116). Hashtags are keywords that act as links, gather posts by topic and track discussions on those particular topics by clicking on them (Lessard, Whiffin, and Wild [2017](#), 473). Therefore, a person who undertakes a Facebook search using the #rockart hashtag (or clicking on it in a post) will see a list of posts containing the same hashtag used by various people across the globe. Hashtags should be carefully chosen, as those that are either too specific and less frequently used or too popular and often used can lead to the posts remaining unobserved. Hashtags should therefore be chosen in accordance with the topic of a post (Lessard, Whiffin, and Wild [2017](#), 472). The hashtags chosen for the posts on the Artsoundscapes Facebook page are the words that best describe the project's profile and area of research, and are as follows: #artsoundscapes, #rockart, #archaeoacoustics, #acoustics, #archaeology, and #ercproject. The two most important, #artsoundscapes and #ercproject, are also included in the posts related to the ERC Artsoundscapes project on the Instagram profile of the Faculty of Geography and History of the University of Barcelona. Whether on Facebook or Instagram, all the results of searches made using these hashtags will include the posts produced by or related to the project, thus increasing its visibility.

## **Emojis and Reactions**

Social media platforms are places where various types of emotion can be expressed (Scherzler 2012, 238), both by page managers and the public. Emotions can be displayed, for example, through the so-called emojis, also known as emoticons or smiley faces, “single character images” that are an essential part of today’s electronic communications all over the world. Since their appearance in the 1990s, emoticons have developed from “conveying stylized facial expressions” to also depict “objects, animals, flags/signs, weather patterns, and activities” (O’Reilly-Shah, Lynde, and Jabaley 2018, 1). All the posts published on the Artsoundscapes Facebook page include emojis which, apart from adding emotion and more expression (Bourzac 2016), are also useful for brightening up content and visually highlighting specific sections in texts (e.g., dates, event names, certain actions). While the collection of emojis on Facebook includes several science icons, none of them is archaeologically-themed. Therefore, the number of emojis that can be used in Artsoundscapes posts is quite limited and most are adapted from the existing range. Perhaps in the future it would be useful for archaeologists to participate in Emojicons in order to create and later submit archaeology-related emoji proposals to the Unicode Consortium, as other disciplines (e.g., chemistry through the American Chemical Society) have started doing (Bourzac 2016). Following the idea that “seeing an emoji of something has a normalizing effect” and that “seeing a science emoji would keep the subject at the forefront of people’s thoughts” (Bourzac 2016), archaeology-related emojis would certainly contribute to bringing archaeology closer to the public.

Apart from emojis, the most important forms of manifesting emotion on Facebook are the so-called “reactions” that, along with shares and comments, are essential elements of engagement on Facebook (Wakefield 2020) and influence the reach of each post. In the case of the Artsoundscapes Facebook page, fans and followers predominantly appreciate posts through likes, followed by reactions such as “love” and “wow”, as well as “ha-ha” and “sad” (the last two have only been registered once). The most successful post to date was about the Neolithic flutes (7000-6000 BC) of Jiahu in the upper valley of the Huang He river in China, which are considered to be the oldest still-playable multi-tonal musical instruments. The flutes were presented in a radio show by one of the ERC Artsoundscapes project members, the music archaeologist Raquel Jiménez, and the resulting podcast was then shared on the Facebook page as part of an appealingly written story. The post registered a total of 190 reactions, comments and shares that were accumulated on the Artsoundscapes page and especially on other pages where it circulated. As a result of these actions, the post reached 2917 people, an impressive number for a page that is still in its infancy and in the process of building its audience.

## **Frequency of Posts**

A minimum of one post per week is essential for keeping a Facebook page alive and maintaining the interest of its fans and followers. Museums are advised to post between one and three times a week (Lessard, Whiffin, and Wild 2017, 473) on Facebook, while academic libraries recommend publishing twice (Margolis and Treptow 2017, 8). It is also advisable to only publish one post per day, as two or more generally tend to overlap

each other and, as a result, none achieves the maximum number of reactions it would have done by standing alone. Moreover, several posts a day might also overload the news feeds of fans who could easily feel overburdened (Lessard, Whiffin, and Wild 2017, 473) and consequently decide to unlike and/or unfollow a certain page. Therefore, the quality of posts is again seen as more important than their quantity (Lessard, Whiffin, and Wild 2017, 473). The number of posts published on the Artsoundscapes Facebook page during a week depends on the quantity of “material” (e.g., various events such as seminars and reading workshops, conference participations, podcasts, publications, job opportunities, book launches) available in the project. There are very active months when up to three posts can be shared in a week, but also less productive periods with one or two posts per week. Therefore, the frequency of posts generally reflects the project’s dynamics. Nevertheless, with a few exceptions, at least one post per week is shared on the Artsoundscapes Facebook page. In addition, in order to have “material” to publish, the page manager is constantly updated with the project members’ activities, as experience shows that continuous communication with them is essential in creating quality and relevant content.

### ***Time of Day for Publishing Posts***

The time of the day a post is published on a Facebook page (as well as on other social media platforms) should also be taken into account as this can maximize or minimize the number of people it reaches and consequently the number of reactions it receives (Lessard, Whiffin, and Wild 2017, 473). Fortunately, Facebook Insights supports page managers by weekly monitoring the times of the day when most fans are online. At the end of December 2018, the most popular time for the Artsoundscapes page fans to be online was between 6 and 10 pm CET, with a peak at 8 pm. Thus, in the following months, content was published during those specific times and the public’s reaction and engagement was indeed greater than for posts published at earlier times. Nevertheless, this does not mean that posts cannot be published earlier in the day or that such posts would not be appreciated by followers. It is, however, useful to follow the statistics provided by Facebook Insights and to generally adapt the posts accordingly, in order to ensure their visibility and, in the long term, the success of the page. Thus, it is advisable to monitor the times fans are online as frequently as possible to detect any changes that might occur in their behaviour. For example, while the first draft of this article was written in April 2020, during the first months of the COVID-19 pandemic, the Artsoundscapes Facebook page fans’ schedule changed and they were mostly online between 5 and 8 pm, with a peak at 5 pm. This led to the decision to publish content on the project’s page within that time frame during the lockdown period, instead of that used before the outbreak of the pandemic. After the lockdown, the time fans were active online broadened from 4 pm to 11 pm, with two peaks at 5 and 9 pm. This interval integrates the previous two and therefore did not bring significant changes in the project’s posting schedule.

### ***The Time Invested in Page Management and Post Programming***

Managing a social media page, monitoring its performance and creating quality content for publishing requires a considerable amount of time (Margolis and Treptow 2017, 5;

Lessard, Whiffin, and Wild 2017, 478). This could be somewhat reduced by programming posts in advance with Facebook's post scheduling option (Lessard, Whiffin, and Wild 2017, 473), which was also used in the project. In the case of the Artsoundscapes Facebook page, the average time for preparing and publishing a post is approximately one hour. This involves writing the text for the post, checking its spelling, searching suitable image(s) and/or link(s), shortening URLs (if needed), editing photographs, adding hashtags and emojis, tagging people in photos, checking-in places (if needed) and then actually publishing the material. Nonetheless, this time does not include the documentation which is carried out for each post. This is a process which often begins a couple of days before sharing a post, and mainly consists of gathering the necessary information and visual materials (e.g., images, videos), as well as in communicating with various project members who are involved in the posts (e.g., as subjects). In addition, time should be also allocated to reading and timely answering of the fans and followers' comments (Margolis and Treptow 2017, 5–6; Haydon 2015, 30). All the work related to the Artsoundscapes Facebook page is being done by only one project member who acts as its overall social media manager. In case she was absent, the posts were either scheduled in advance or shared by other project members with "Editor" roles.

### **Monitoring and Measuring the Performance of the Artsoundscapes Facebook Page**

John Haydon's (2015) fifth and final guideline for drawing up a marketing plan is related to monitoring and measuring the Facebook page. Evaluating the effectiveness of an implemented content strategy is an essential part of any marketing plan. This can lead to a better understanding of the interests and needs of a Facebook page audience (Haydon 2015, 43) and, when taken into consideration, to an improvement in the marketing plan, the content strategy (Haydon 2015, 45; Lessard, Whiffin, and Wild 2017, 475) and the overall success of a page. Therefore, this section explains the methods by which the performance of the Artsoundscapes Facebook page is monitored and measured, from the number of organic Facebook page likes, follows and reach, to Facebook Insights and listening to the feedback from the audience.

#### ***Number of Organic Page Likes, Follows and Reach***

The number of page likes and follows are the first and most obvious indicators of the performance of a Facebook page. These are the only indicators that are also shown on the main page ("Home") of a Facebook page and can be seen by both fan and non-fan visitors. The Artsoundscapes Facebook page has 724 page likes and 750 follows (as of 10 June 2020) which, as explained in the first section, is a good start for a young page devoted to a scientific project dealing with a niche branch and research topic in archaeology. The likes, follows and reach of the Artsoundscapes page are organic, which means that the project does not invest financially in promoting its page in order to receive paid likes and artificially increase their number in a shorter period.

According to Keith Quesenberry (2019, 114), "organic reach is expressed in terms of a percentage of fans or followers who see a person's or organization's published content" in their newsfeed, which is where engagement predominantly takes place. In fact, it seems that less

than 5% of the fans of a Facebook page actually visit it (Haydon 2015, 106). That is why it is so crucial for businesses to reach the newsfeeds of Facebook users. In this context, it is important to mention that, in the case of Artsoundscapes, the majority of page likes are received directly on the project's page, followed by news feeds and people's recommendations of the page. As users' newsfeeds gradually became oversaturated with content, Facebook modified its algorithm and limited the number of posts that organically reached people's newsfeeds. According to Quesenberry (2019, 114), "the percentage of updates that are seen varies but average organic reach has declined to between 2 and 3 percent, although some pages are still able to achieve average organic reach up to 11 percent." Therefore, once a post is made, this does not necessarily mean that the entire community of a page will see it (Quesenberry 2019, 114). That is how paid social media came about: "simply paying for distribution or views in social media channels. This can take the form of promoted, sponsored, or boosted posts and other types of ads that appear in people's news feeds or other places in social media channels" (Quesenberry 2019, 99). As the ERC Artsoundscapes project does not have an exclusive budget for dissemination, there has been no investment in paid promotion. Instead, it was decided to experiment with achieving organic reach and engagement by means of a carefully outlined content strategy.

### ***The Platform's Own Altmetrics Tool – Facebook Insights***

The easiest and currently most efficient way of evaluating the performance of a Facebook page is to use the platform's own altmetrics tool – Facebook Insights (Haydon 2015, 42–43; Lessard, Whiffin, and Wild 2017, 474). This provides a series of performance indicators for page managers to consider, depending on their marketing goals (Haydon 2015, 46). Moreover, Facebook Insights is free and therefore easily accessible and affordable (Lessard, Whiffin, and Wild 2017, 474; 478). The information provided by this tool for the Artsoundscapes Facebook page is closely monitored and taken into account, revealing that the implemented content strategy is successful. Those relevant to this article were discussed in the previous sections – e.g., the demographic data relating to the audience, the types of posts and multimedia content that are the most successful, the ways and levels in which the community engages with content, the times when fans are online – and therefore will not be repeated here. However, it is worth mentioning that, according to Facebook Insights, the posts with increased engagement usually reach more non-fans than fans on the project's page. This occurs because reactions, comments and especially the shares of Artsoundscapes fans and followers appear in the newsfeeds of their own friends who can therefore also see them. This observation (i.e., reach surpasses the number of fans and followers) aligns with the findings of other studies which reveal that the number of fans and followers of a social media site, including Facebook, do not indicate the true number of total reaches (Lessard, Whiffin, and Wild 2017, 477; Suzić, Karliček, and Strítěský 2016). Therefore, the actual reach of a post is difficult to estimate and currently no methodology exists for accurately measuring it (Lessard, Whiffin, and Wild 2017, 477–478).

### ***Paying Attention to Fans***

Another important metric consists of "listening to your fans" by keeping track of their "comments, discussions and communications" (Haydon 2015, 46). As discussed above,

the Artsoundscapes fans and followers' feedback is an essential component of the project's marketing plan. So far, their needs have been responded to by organizing the Artsoundscapes seminars online, a decision that has been greatly appreciated by the community and rewarded with an increased number of participants in those events and more engagement. Page reviews and recommendations from fans and followers should also be added to the metrics enumerated by John Haydon. As regards the Artsoundscapes Facebook page up to the present, seven of them have recommended the page and rated it with five stars out of five. Six of them have also written reviews, all of which were very positive. A few examples include the following: "Amazing idea, great team, should be expanded to more and more sites around the world. Thank you, you are inspiring ..."; "As well as being blindly insensitive to our environment, to our surroundings, we are doubtlessly (tone/stone) deaf to what lies around us. This is fascinating research!"; "Very interesting project! (...); "Los paisajes sonoros son como la piel del ser humano" [Soundscapes are like the skin of a human being].

## Conclusions

Social media are widely used today by archaeologists and archaeological organizations and projects for disseminating and communicating their research and activities to various audiences around the world. Despite this, the modes in which this process takes place and their impact on the discipline, its practitioners and the public have been insufficiently explored in the existing literature. This article has taken the ERC Artsoundscapes project Facebook page as a case study for exploring the possibilities offered by social media in disseminating rock art research and the ways in which their impact can be increased. It has highlighted the importance of designing and implementing a marketing plan for successfully communicating on Facebook, following best practice examples from social media and digital marketing and the experience of other disciplines (e.g., museum studies, academic libraries, medical sciences) with social media sites. The main components of a marketing plan – defining value proposition, understanding the audience, outlining marketing goals, establishing content strategy, and evaluating results – have also been discussed in the context of the Artsoundscapes Facebook page. This discussion includes valuable insights that can serve as best practice examples for other archaeology projects, institutions and organizations. Finally, this article has revealed the usefulness of Facebook Insights – Facebook's own altmetrics tool – in assessing the effectiveness of the devised marketing plan and its impact on fans and the project itself.

The Artsoundscapes Facebook page provides coherent, consistent, appealing and accessible content on the interdisciplinary research and activities carried out in the project in the fields of rock art studies, acoustics, music archaeology and ethnomusicology. Although the page is devoted to a project that deals with a highly specialized and lesser known archaeological branch – the archaeoacoustics of rock art sites – that is also in its infancy, the content strategy implemented for communication on Facebook has proved to be effective. It has resulted in an organic (i.e., unpaid) network of 757 fans and 787 followers from 45 countries in its 19 months of existence. This online community actively engages with the published content through reactions, comments and shares. Their engagements also appear in the newsfeeds of some of their friends on

Facebook and this has been particularly useful in increasing awareness of the ERC Artsoundscapes project and the field of archaeoacoustics beyond this fan base.

The article explains why and how the performance of the Artsoundscapes Facebook page is closely evaluated using Facebook Insights, as well as by listening to the feedback (e.g., comments, reviews) of its fans and followers. This has allowed their interests, needs and habits to be better understood and the content strategy and format of the project activities to be improved and adapted to those requirements. For example, posts are generally published at the times of day when Artsoundscapes fans are especially active online. However, the most significant example is that of the Artsoundscapes seminars. These were traditionally organized offline but, during the lockdown imposed during the COVID-19 pandemic, they were held online at the request of fans. This decision not only augmented online participation in the seminars, but also significantly increased the number of page likes and follows.

The Artsoundscapes Facebook page marketing plan has successfully achieved its objectives to date. Therefore, awareness of the project and the newly emerging field of archaeoacoustics has increased both among specialist and non-specialist audiences. The project's results and activities have also been more rapidly and engagingly disseminated and communicated than by traditional methods (e.g., posters in the case of events). Last but not least, the education of the non-specialist public about the fields of rock art studies, acoustics, music archaeology and ethnomusicology has also been effectively undertaken. Judging from the current performance of the Artsoundscapes Facebook page, it is estimated that if the implementation of the same content strategy continues, the chances of reaching at least 1500–2000 page likes and follows by the project's end in 2023 are very high.

Rock art specialists are all aware of the interest aroused by their study subject (Mazel and Avestaran 2010, 148; Mazel and Galani 2013, 29) and social media is an opportunity to reach the public that should not be missed (Scherzler 2012, 238). Researchers have the moral obligation to actively engage with a public that, thanks to social media, is now just a click away. If strategically used, social media could become the public's main source of information about archaeology in the future, surpassing the key role that traditional mass media (e.g., TV, newspapers) had in this regard (see Holtorf 2009, 29–50). By cherishing online communities and networks, archaeologists not only share the knowledge they produce with society, but also increase the visibility of the discipline and the public's support for it (Scherzler 2012, 238). In the longer term, they contribute to ensuring the preservation of rock art in particular and archaeological heritage in general.

## Notes

1. <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A02016R0679-20160504&qid=1532348683434>.
2. Laura Coltofean-Arizancu was the social media manager of the ERC Artsoundscapes project until 23 December 2020.
3. Web page ([www.ub.edu/artscoundscapes](http://www.ub.edu/artscoundscapes)); Facebook page ([www.facebook.com/artscoundscapes](http://www.facebook.com/artscoundscapes)); blog ([www.ub.edu/artscoundscapes/blog](http://www.ub.edu/artscoundscapes/blog)); and YouTube channel ([www.youtube.com/c/ArtsoundscapesERCProject](http://www.youtube.com/c/ArtsoundscapesERCProject)).
4. <https://www.instagram.com/geohistub/>.

5. See <http://www.ub.edu/laubdivulga/festacienciaub/festacienciaV/activitats.html> for 2018 and <http://www.ub.edu/laubdivulga/festacienciaub/festacienciaVI/prehistoria.html> for 2019.
6. See <https://www.ub.edu/artsoundscapes/outreach-activities/>.
7. In the data provided by Facebook Insights for the Artsoundscapes page, the posts that include videos are categorised as posts with links (Figure 4). This is because videos are shared on the Artsoundscapes page from the project's YouTube account and Facebook recognizes them as links.

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