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Social media for cultural communication: A critical investigation of museums' Instagram practices

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Abstract
***Purpose**: The purpose of the study is to investigate the use of Instagram by museums in the Greek cultural scene. Specifically, the study focuses on examining the use of Instagram by museum communication professionals and aims at carrying out a twofold investigation: Firstly, if and how the Instagram is used to reach out to their visitors and secondly, the public response to this type of communication.*
***Methods**: A list of all archaeological museums in Greece was obtained and related Instagram accounts were retrieved. The dataset structure was enhanced by eleven variables, which were measured and visualized by a descriptive statistics analysis. Inter-variable correlations, normality and equality tests were also performed. Moreover, a linear predictive model for the number of museum tags was investigated.*
***Results**: Only one museum in Greece maintains an Instagram account. Visitors usually tag museum exhibits or people and exhibits on the photographs they upload on their personal accounts. T-tests and Mann-Whitney U tests revealed equal distributions for all variables between central and peripheral museums.*
***Implications**:Museum officials have not seized the opportunity offered by social media and especially Instagram today. Their importance seems to be underestimated. With respect to the linear model derived, results suggest that more features should be surveyed; this could be the subject of future research studies.*

Keywords: *social media, communication, digital marketing, Instagram, multiple regression*

JEL Classification: *N7, L82, D83*

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1 INTRODUCTION

Social media platforms seem to be popular with consumers and businesses as they provide new opportunities for interactivity and connectivity for both. Social media are described as "content that has been created by its audience" (Comm, 2009) and they are characterized by user-generated content (DeNardis, 2014). Social media are defined as "a group of internet-based applications that build on the ideological and technical foundations of Web 2.0 that allow the creation and exchange of user generated content" (Kaplan and Haenlein, 2010:61). They are used for the development of social connections, using highly available and scalable publishing methods (Sajid, 2016) changing the ways society consumes and contributes to the creation of information (Hays, Pages and Buhalis, 2013).

Interactivity, connectivity and sharing are the most important features offered by social media. "Interactivity is defined in terms of the immediacy of the responsiveness and the degree to which the communication resembles human discourse" (Liu and Shrum, 2002:54). Social media interactivity can take place via desktop computer, laptop, mobile phone or a personal digital assistant of the iPod (Grover and Stewart, 2010).

Connectivity is also one of the characteristics of social media. "Social media have increased individuals' connectivity and enabled users' direct participation" (Chou, Hunt, Beckjord, Moser and Hessee, 2009:2). Organizations can maintain "an ongoing dialogue with customers by exploiting the

connectivity, content creation and sharing functionalities of social media" (Cabiddu, Carlo and Piccoli, 2014:187). This application gives the opportunity to users to be online and to be always connected. That means that they can share each other's content.

Sharing is another application that helps companies and organisations to gain publicity (Kietzman, Hermkens, McCarthy and Silvestre, 2011). It is common for users to share posts on their wall. As Kirtis and Karahan (2011) claim, the social media user can create and comment on blogs, share contents or communicate with friends via social networking sites like Facebook or the earlier MySpace. On the other hand, other media like YouTube give users the opportunity to make and share different videos with different sets of friends (Lange, 2007).

More than two billion users all over the world use social media. In Table 1 (redrawn from https://www.statista.com/statistics/272014/) there is a list showing the number of registered users for each platform.

Table 1. Registered users for social media platforms (in millions, May 2020)

Facebook – 2,498	WeChat – 1,165	QZone – 517	SnapChat – 398
YouTube – 2,000	Instagram – 1,000	Sina Weibo – 516	Twitter – 386
WhatsApp – 2,000	TikTok – 800	Reddit – 430	Pinterest – 366
FB Messenger – 1,300	QQ – 731	Kuaishou – 400	

Social media has become a key factor in the way that cultural organizations communicate with their public, as they are able to support the marketing of performing arts organizations. It continues to gain prominence in communication campaigns due to the high levels of public usage and public involvement with organizations on social media sites (Waters and Jones, 2011). Many museums have started using different forms of social media, such as social networking, podcasting, and blogging (Russo and Peacock, 2009), as they allow museums to move their activities into the digital space while also reinforcing their reputation in terms of cultural authority and authenticity (Dearolph, 2014).

As Russo, Watkins and Smith (2009:153) argue, "social media offer young people agency previously unavailable in informal learning environments in order to explore complex responses to and participation with cultural content". Museums mostly use social media to promote event listings, reminders and to reach larger or newer audiences (Fletcher and Lee, 2012) and for engaging their audiences (Zafiropoulos et al 2015). With social media, museums are facilitated in distributing information to their visitors and creating opportunities for them to learn about and interact with each other (Chung, Marcketti and Fiore 2014). Stuedahl and Smørdal (2011) believe that social media have been adopted by museums to help visitors interact with museum exhibits themselves. For museums, this could mean that they have to cater for the needs of an informed, potentially demanding and more difficult to satisfy public.

The goal of this research is to describe how museums utilize social media and especially Instagram as a platform, so as to identify the most effective tools for public engagement. As there is limited research about the use of Instagram in the Greek cultural environment, this research attempts to fill the gap regarding the use of social media as a communication and marketing tool by cultural organizations such as the Greek archaeological museums.

2 LITERATURE REVIEW

Photos are a means of communication and as Miranda (2013) claims, most of the museums have removed the barriers to taking photographs in their buildings. Most cultural organizations take photographs of collections, as professionals believe it is important to engage visitors with photographs (Edwards and Sigrid Lien, 2014). Photographs posted by museum visitors with positive attitudes to the museum help raise the museum's popularity and accessibility to its future visitors (Stylianou-Lambert, 2017). Brooklyn Museum, realising the importance of enhancing visitor experience through photos, uses photos, blogs and videos in order to be connected with its online visitors (Black, 2012). In their study about the use of Flickr in cultural institutions, Beaudoin and Bosshard (2012) showed that most of the images were posted by individual users and by cultural organisations. The images posted included recent events of the institutions or images of the exhibits of the museum.

Facebook and Instagram now dominate the social media use landscape. Instagram is one of the fastest growing social networks globally among young people. In terms of what users can do with the use of Instagram in museums is to communicate their experiences through both choice of photo subjects and ways they choose to modify and present them (Weilenmann, Hillman and Jungselius, 2013).

As Instagram is a relatively new form of communication (Hu, Manikonda and Kambhampati, 2014) it gives users the opportunity to communicate their experiences through photos (Weilenmann, Hillman and Jungselius, 2013). Instagram is an online photo-album that was launched in 2010 (Hochman and Manovich, 2013); it enables users to take photos and videos with their mobile devices, perform some basic processing by applying digital filters and share them on a variety of social media platforms. As every moment counts, or at least so it seems through the eyes of social media users (Hochman and Schwartz, 2012). Instagram is 'an application that combines and makes use of smartphones with cameras, offers the possibility of constant access to social media, thus enabling easy sharing of images of people's lives' (Araújo, Corrêa, da Silva, Prates and Meira, 2014:20).

As a social network, Instagram allows users to create a personal profile and build relationships by following other users, thus creating asymmetrical relationships (Zappavigna, 2016). The larger the number of followers an individual has, the greater their perceived social influence (Jin and Phua, 2014). A key idea behind the application is to share photographs and videos by using a hashtag (#) so that other users can find the photographs (Sheldon and Bryant, 2016). Users can also choose to tag an image or video during the publishing process, either independently as they wish to describe it or by following a predetermined dictionary of tags (Schwartz and Halegoua, 2014). They can also use the @ symbol, when adding captions thereby mentioning other users. This effectively links their posts to the referenced user's account, before posting them (Hu, Manikonda and Kambhampati, 2014).

Instagram expands the array of aspects of everyday life that become organized in relation to flows of images. Navigation seems to be natural. Users interact with the screen of a smartphone and can see the photographs uploaded (Carah and Shaul, 2016). The online photography facility, such as uploading photos, as provided by Instagram, is a symbol of the reality that the user experiences as a mobile digital citizen. In some social media, photographs have become a central element to the post that is uploaded but in Facebook and Instagram, photographs are used as a point of reference as users can also make comments, likes and sometimes sharing (Budge and Barnes, 2017).

A key Instagram function, launched in 2016, is Instagram Stories. With Instagram Stories, users have the ability to create a digital photo story with all their daily highlights. This shared image and video experience can also be enhanced by e.g. using drawing tools and embedding stickers and emoticons in order to make it more appealing (Veissi, 2017). Instagram Stories last 24 hours before they disappear from a users' profile. In terms of Instagram use in the museums, Instagram is used as a medium for the visitors in order to communicate their experiences in museums. (Weilenmann, Hillman and Jungselius, 2013).

As Instagram is quite a new medium in the context of cultural organizations there is not much published work about the use of the medium in the museums. A few studies appear in Flickr too. Weilenmann, Hillman and Jungselius (2013) focused on Gothenburg natural history museum and its visitors' experience. They extracted 222 Instagram posts and performed 14 interviews with the visiting Instgrammers, highlighting the reasons contributing to their postings. Lazaridou, Vrana and Paschaloudis, in their work in 2017 about the use of Instagram in museums and galleries, suggest the use of the application by museums so that they can enhance their internet presence and reach further to more potential visitors (Lazaridou, Vrana and Paschaloudis, 2017). In 2017, Budge and Burness analyzed visual and textual posts by Instagrammers, related to their experience. They argue that museum visitors post on Instagram guided by their experience and draw attention to exhibition objects (Budge and Burness 2017). The following year, Budge and Burness (2018) expanded their research in the Museum of Contemporary Art in Sydney, Australia. Their study aimed at investigating the visitor's Instagram posts using the museum geotag. The results showed that visitors were keenly engaged with the objects while they were communicating them through their photos.

Suess (2018) referred to the use of Instagram by visitors to the Gerhard Richter exhibition at the Queensland Gallery of Modern Art. The results of his work showed that Instagram lets visitors to surpass the physical space and enhance their aesthetic experience. Villarspesa and Wowokowych (2020:11) "examined people's behaviours using Snapchat and Instagram stories. Social ephemeral photography is often motivated by capturing a feeling, an aesthetically pleasing museum object, sharing an experience, and building self-identity".

3 METHODOLOGY OF THE STUDY

The dataset was constructed by initially visiting the Hellenic Ministry of Culture webpage and extracting the names of all archaeological museums in Greece, yielding a list of 125 museums. The next step involved searching Instagram for the museum accounts and their web presence, either on their own websites, if any, (owned) or hosted under The Ministry of Culture, the respective Archaeological Ephorate or Municipality (hosted). The process revealed that only the Acropolis Museum in Athens maintains an active Instagram account. At this point however, each museum's type of website (owned or hosted) was recorded as well as the number of different social media platforms they are engaged in, creating two dataset variables. Website variable values were coded as 0 for no presence, 1 for a hosted website and 2 for a dedicated, owned website. For the social media presence variable, we encountered cases with 0-3 different platforms. Three additional dataset variables were introduced for the geographical region the museums belong to (coded with numbers 1 to 13 in ascending order of population), the actual region population (in thousands) and a binary variable that characterizes a museum as being central (Athens or Thessaloniki, coded as 1) or peripheral (rest of Greece, coded as 0). This research methodology was developed for the purpose of this study and it can be justified as it is expected that generating and measuring variables related to web presence and other social media engagement, as well as region related variables will provide a basis for quantifying each museum's impact to the public and resulting user interaction.

As stated above, the Acropolis Museum is the only archaeological museum maintaining an Instagram account. This does not mean however that the museums do not appear at all on Instagram-mediated dialogue. In fact, for quite a few of them the name-search on Instagram returned location and hashtag results. There were 72 museums with location results and 53 with no location results, which were discarded from the dataset and the rest of the analysis. For the 72 museums, a note of the occurrences where the museum is tagged was taken, distinguishing between five different categories with respect to the image content: exhibits, people, people and exhibits, outdoor scenes and other. Overall, the dataset consists of 72 observations and 11 variables, tagged and the related five content categories, website and social media and the three region related variables.

4 FINDINGS AND DISCUSSION

A statistical analysis of the constructed dataset was performed leveraging Python (Anaconda distribution) in an interactive Jupyter notebook. The .csv file was read into a Pandas dataframe object (first five rows are shown on Table 2), enabling rapid calculation of descriptive statistics measures and execution of more advanced statistical tests. It is noticed at this point, that there are museums that returned location results with no tagging occurrences though.

Table 2. First five rows of the dataset

tagged	exhibits	people exhibits	people	outdoor	other	website	social media	region	population	central
9	0	6	2	1	0	1	1	9	621	0
0	0	0	0	0	0	2	0	3	282	0
9	4	1	1	3	0	1	0	10	680	0
0	0	0	0	0	0	2	2	10	680	0
122	0	0	0	0	0	2	2	13	3812	1

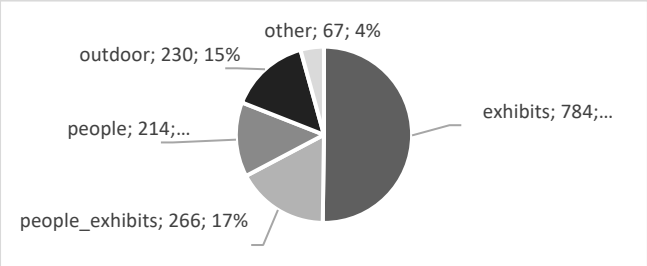
Understanding the dataset and gaining insight on its structure is crucial and has to be established (aided by descriptive statistics and various visualizations) before proceeding with hypothesis testing and more advanced methods. As an example, Table 3 depicts the pairwise Pearson correlation table, where it is noticed that all correlations are positive. This is of course partially due to the specific coding scheme chosen, e.g. for region.

Table 3. Pairwise Pearson correlation table

	tagged	exhibits	people exhibits	people	outdoor	other	website	social media	region	popular-tion	central
tagged	1	0.922	0.905	0.825	0.808	0.783	0.218	0.201	0.316	0.293	0.481
exhibits	0.922	1	0.828	0.742	0.721	0.682	0.114	0.201	0.261	0.217	0.397
people exhibits	0.905	0.828	1	0.841	0.82	0.868	0.196	0.156	0.205	0.148	0.371
people	0.825	0.742	0.841	1	0.79	0.744	0.215	0.221	0.266	0.184	0.283
outdoor	0.808	0.721	0.82	0.79	1	0.68	0.133	0.208	0.288	0.3	0.286
other	0.783	0.682	0.868	0.744	0.68	1	0.236	0.131	0.208	0.133	0.3
website	0.218	0.114	0.196	0.215	0.133	0.236	1	0.105	0.079	0.017	0.047
social media	0.201	0.201	0.156	0.221	0.208	0.131	0.105	1	0.239	0.119	0.117
region	0.316	0.261	0.205	0.266	0.288	0.208	0.079	0.239	1	0.796	0.498
population	0.293	0.217	0.148	0.184	0.3	0.133	0.017	0.119	0.796	1	0.696
central	0.481	0.397	0.371	0.283	0.286	0.3	0.047	0.117	0.498	0.696	1

According to Cohen's standard, inter-variable correlations can be interpreted as weak [0.1–0.29], intermediate [0.3–0.49] and strong [0.5–1]. Following this scheme, different levels of positive correlations between the variables can be identified, e.g. tagged is in strong positive relation with all content categories (exhibits 0.922, people_exhibits 0.905, people 0.825, outdoor 0.808, other 0.703) which is somewhat expected as tagged is the sum of the five content categories. This ordering of the coefficients is however, indicative of people's tagging behavior and preferences, i.e. exhibits rather than outdoor scenes. Figure 1 displays the tagged categories as a percentage of the total number of tags that the museums have received. Out of the 1561 total tags, 50% of them are exhibits, while the other four categories account for the 17%, 15%, 14% and 4% of the total tags respectively.

Figure 1. Tagged content categories



Variable tagged is also in weak (to moderate) positive relation with website, social media and population. The correlations in Table 3 were calculated with the pandas "corr" function passing "pearson" as the method to use. Some further experimentation with the non-parametric (more details on normality given later) tests Spearman and Kendall revealed that the variables tagged and population are uncorrelated (retain H0) at 0.95 significance level (Spearman coefficient 0.222, p=0.061, Kendall coefficient 0.164, p=0.063). The mean, standard deviation and Tukey 5-number summary for all variables are shown on Table 4 below. The museum of Thessaloniki is the one mostly tagged (350), followed by the museum of Piraeus (196), the museum of Heraklion (139) and the Acropolis museum in Athens (122). These are all large Greek cities and one might expect some degree of correlation with the region population. This however has not been verified as seen previously, at least to a significantly large extent.

Table 4. Mean, standard deviation and 5-number summary for dataset variables

	tagged	exhibits	people exhibits	people	outdoor	other	website	social media	region	population	central
count	72	72	72	72	72	72	72	72	72	72	72
mean	23.375	10.889	3.694	2.972	3.194	0.931	1.222	1.986	7.639	1041.597	0.097
std	51.735	27.692	10.819	5.862	6.553	3.854	0.451	1.25	3.465	1184.355	0.298
min	0	0	0	0	0	0	0	0	1	198	0
25%	0	0	0	0	0	0	1	1	4	309	0
50%	9	2.5	1	0.5	1	0	1	3	7	582	0
75%	17.25	7.25	3.25	4	4	0	1	3	11	731	0
max	350	155	87	38	40	30	2	3	13	3812	1

The skew of the variable distributions has also been calculated. All of the variables have positive skewed distributions (ranging from 6.713 for people_exhibits variable to 0.174 for region variable) apart from the social_media variable (-0.685). This has also been verified by also looking at the histogram and density plots (not shown here). The presence of outliers is apparent especially with the box-whisker plots (again not shown here). This fact, combined with the small sample size, may have some undesired effects in the statistical analysis further on but for the scope of this contribution, no outlier elimination process was employed.

At this point, normality tests were conducted for the variable distributions, employing the Shapiro-Wilk Test and the D'Agostino K2 Test. In some cases, a power transform like Box-Cox was utilized. Results showed that tagged, exhibits, social_media, region and population follow a Gaussian-like distribution, whereas the rest of the variables are non-Gaussian distributed. Following these normality tests, independent T-tests were employed for the Gaussian variables and Mann-Whitney U tests for the non-Gaussian ones to argue about the similarity or the difference between central and peripheral museums. All tests have revealed similar distributions. Results at the 0.95 level are summarized on Table 5.

Table 5. Central and peripheral museum differences

variable	*test type*	*distributions*	*Statistic*	*p-value*
tagged	T-test ind.	Same (retain H0)	1.644	0.151
exhibits	T-test ind.	Same (retain H0)	1.373	0.218
social media	T-test ind.	Same (retain H0)	1.074	0.315
people exhibits	Mann-Whitney U	Same (retain H0)	224.500	0.480
people	Mann-Whitney U	Same (retain H0)	198.000	0.277
outdoor	Mann-Whitney U	Same (retain H0)	198.000	0.280
other	Mann-Whitney U	Same (retain H0)	196.000	0.182
website	Mann-Whitney U	Same (retain H0)	212.500	0.357

A popular effect size measure for quantifying the difference between groups is the Cohen's d measure. In this case, the central and peripheral groups have been shown to be similar. As an example, the Cohen's d measure was calculated for the case of tagged variable and found a score of 1.827, which can be interpreted as very large (according to initial interpretations by Cohen, subsequently expanded by

Sawilowsky, 2009). Thus, it can be argued that with a very large effect size measure, the T-test result holds firm.

The final objective under investigation is to model the number of tags each museum receives, based on region population, social media presence and website status as predictors. Multiple linear regression was carried out in RStudio (within Anaconda environment as well). After loading the .csv formatted dataset the linear model was built and its coefficients displayed (Table 6).

Table 6. Three-predictor model

```
> myData <- read.csv('ig_museums_nozeros_r.csv')
> head(myData,5)
  tagged exhibits people_exhibits people outdoor other website social_media region population central
1      9        0               6      2       1     0       1            1      9        621       0
2      0        0               0      0       0     0       2            0      3        282       0
3      9        4               1      1       3     0       1            0     10        680       0
4      0        0               0      0       0     0       2            2     10        680       0
5    122        0               0      0       0     0       2            2     13       3812       1
> model <- lm(tagged ~ website + social_media + population, data = myData)
> summary(model)

Call:
lm(formula = tagged ~ website + social_media + population, data = myData)

Residuals:
    Min      1Q  Median      3Q     Max
-57.508 -21.606  -4.306   2.883 292.871

Coefficients:
             Estimate Std. Error t value Pr(>|t|)
(Intercept) -28.887178  18.721888  -1.543   0.1275
website      22.659369  12.874590   1.760   0.0829 .
social_media  6.131904   4.677305   1.311   0.1943
population    0.011894   0.004911   2.422   0.0181 *
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 48.66 on 68 degrees of freedom
Multiple R-squared:  0.1528,
F-statistic: 4.088 on 3 and 68 DF,  p-value: 0.009948
```

It can be seen that p-value of the F-statistic is 0.009948, meaning that; at least, one of the predictor variables is significantly related to the outcome variable. To see which predictor variables are significant, the coefficients table can be examined, which shows the estimate of regression beta coefficients and the associated t-statistic and p-values. For a given predictor, the t-statistic evaluates whether or not there is significant association between the predictor and the outcome variable, i.e. whether the beta coefficient of the predictor is significantly different from zero. In this case, it is observed that population is significant at the 0.05 level and website at 0.1 level, while social media as a feature is not significant and could be removed from our model as redundant. The website predictor could be removed as well but it was chosen to be retained. Doing so, it can be demonstrated that for the new two-predictor model (Table 7) its significance has increased, remaining however above the 0.05 threshold.

Table 7. Two-predictor model

```
> model <- lm(tagged ~ website + population, data = myData)
> summary(model)

Call:
lm(formula = tagged ~ website + population, data = myData)

Residuals:
    Min      1Q  Median      3Q     Max
-53.007 -20.604  -8.380   4.231 297.088

Coefficients:
             Estimate Std. Error t value Pr(>|t|)
(Intercept) -19.649126  17.435250  -1.127    0.264
website      24.417210  12.871090   1.897    0.062 .
population    0.012654   0.004902   2.582    0.012 *
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 48.91 on 69 degrees of freedom
Multiple R-squared:  0.1314,
F-statistic: 5.218 on 2 and 69 DF,  p-value: 0.007756
```

Thus, the model equation can be written as:
*tagged = -19.649 + 24.417*website + 0.013*population*

The model confidence intervals could have been calculated with the R function confint(model) but are not shown here as the website predictor is retained as well. In multiple linear regression, R2 represents the correlation coefficient between the observed values of the outcome variable (y) and the fitted (i.e., predicted) values of y. A problem with the R2 is that, when more variables are introduced to the model, R2 always increases. This happens even in cases when these predictors have a weak association with the response (Gareth, Witten, Hastie and Tibshirani, 2014:79-80). A solution is to adjust the R2 (Adjusted R Square) by taking into account the number of predictor variables. Here, the adjusted R2 value suggests that only 11% of the variance in the measure of tagged can be predicted by website status and region population. Therefore, as a conclusion, the model is rather unsatisfactory and other features should be surveyed.

The findings of the study are in accordance with the relative literature which shows that visitors are primarily engaged with the objects as most of the visitors of our sample gave emphasis to photographs of exhibits. The paper tried to explore the role of subjectification in the choice of the visitors and examine how visual choices could affect the visitor's impression of the museum. The study seeks to alert museums to the importance of using social media as a means of promoting museums and their exhibits. It is evident that Instagram, largely based around image, constitutes a very important visual information provision channel.

Certain limitations were detected when the data was collected. One of the limitations of the study was that it focused on the image content without associating it with the user comments. It would be interesting to extract text (together with other metadata) of all posts in an automated manner and perform, for example, sentiment analysis on this corpus. Moreover, the study focused only on archeological museums; it would be interesting to extend our sample and include other Greek museums, e.g. folk, nautical and others. Apart from a larger sample, more variables could be introduced into it, e.g. number of monthly/annual actual visitors. Variables related to followers, following and number of posts would prove extremely valuable; these, however, are not available, as archaeological museums in Greece do not maintain Instagram accounts.

5 CONCLUSIONS

The findings of this research indicate that most of the museums use at least one to three social media platforms for communication and marketing reasons. That means that with the use of social media, museums have the choice to illuminate and explore some tensions, such as, to highlight knotty juxtapositions, to share public experiences and private engagements and personal and communal pasts with their visitors provided their use is framed and understood in alignment (Kidd, 2011).

Only the Acropolis Museum has an official Instagram page. The rest of the archeological museums can be found only through location by tags made by Instagram users. What Instagram users do is that they find the location of the museums through Instagram and they upload their photos. That, of course, could increase the museum publicity. Overall, museum officials have not seized the opportunity that social media and especially Instagram offer today; their importance seems to be underestimated.

Even though the study of Draskalaki et al (2020) found that in an Archeological Museum there is limited interaction between exhibits and visitors, in our study most of the uploaded photos include museum exhibits. This, according to Budge and Burness (2017), means that attention to exhibition content is specifically drawn by objects. Some people though,

upload photos of themselves along with the exhibits – those people could be influencers. As influencer marketing is partly viral marketing (Chatzigeorgiou 2017), museums can exploit these posts in order to reach and attract more visitors.

Finally, as the statistical analysis has shown, there is no significant difference related to the locations of the museums, as both major archeological museums in Athens and Thessaloniki, as well as museums in the Greek province have similar distributions in all the dataset variables.

REFERENCES

Araújo, C.S., Corrêa, L.P.D., da Silva, A.P.C., Prates, R.O. and Meira, W. (2014). It is not just a picture: revealing some user practices in Instagram. In Proceedings of Web Congress (LA-WEB), 9th Latin American. Ouro Preto: IEEE, 19-23.

Beaudoin, J. E. & Bosshard, C. (2012). Flickr images: what & why museums share. Proceedings of the American Society for Information Science and Technology, 49(1), 1-7.

Black, G. (2012) Transforming museum on 21st century, Routledge: New York

Budge, K., & Burness, A. (2018). Museum objects and Instagram: Agency and communication in digital engagement. Continuum, 322(2), 137–150

Budge, K. (2017). Objects in focus: Museum visitors and Instagram. Curator: The Museum Journal, 60(1), 67- 85.

Budge, K. and Burness, A. (2017): Museum objects and Instagram: agency and communication in digital engagement, Journal of Media and Cultural Studies DOI: 10.1080/10304312.2017.1337079

Cabiddu, F., Carlo, M.D. and Piccoli, G. (2014). Social media affordances: enabling customer engagement. Annals of Tourism Research, 48:175–192.

Carah, N. and Shaul, M. (2016). Brands and Instagram: Point, tap, swipe, glance. Mobile Media and Communication, 4(1): 69–84.

Chatzigeorgiou, C. and Christou, E. (2019). Social media in tourism marketing: Travellers' attitudes and encounters. Published in: TOURMAN 2019 Conference Proceedings, Thessaloniki: Greece (27 October 2019): pp. 164-173.

Chatzigeorgiou, C., Christou, E. & Simeli, I. (2017). Delegate satisfaction from conference service quality and its impact on future behavioural intentions. Published in: 5th International Conference on Contemporary Marketing Issues ICCMI, June 21-23, 2017 Thessaloniki, Greece (21 July 2017): pp. 532-544.

Chou, W.S., Hunt, Y.M., Beckjord, E.B., Moser, R.P. and Hessee, B.W. (2009). Social media use in the United States: Implications for health communication. Journal of Medical Internet Research, 11, e48.

Christou, E. (2003). On-line buyers' trust in a brand and the relationship with brand loyalty: the case of virtual travel agents. *Tourism Today*, 3(1), 95-106.

Christou, E., Avdimiotis, S., Kassianidis, P., & Sigala, M. (2004). Examining the factors influencing the adoption of web-based ticketing: Etix and its adopters. Information and communication technologies in tourism 2004, the 11th ENTER International Conference in Cairo, Egypt, 2004, pp. 129-138.

Christou, E. & Kassianidis, P. (2002). Examining the Adoption of E-shopping for Travel Services: Determinants of Consumers' Perceptions. Information and Communication Technologies in Tourism 2002. A. Wober, A. Frew, and M. Hitz., (eds.), Springer-Verlag, Wien.

Christou, E. and Sigala, M. (2002). Conceptualizing the measurement of service quality and TQM performance for hotels: the HOSTQUAL model. *Acta Touristica*, 14(2),140-169.

Comm, J. (2009). Twitter Power: How to Dominate Your Market One Tweet at a Time. John Wiley and Sons, Hoboken NJ.

Chung, T.L., Sara Marcketti, S. and Fiore, A.M. (2014). Use of social networking services for marketing art museums. Museum Management and Curatorship, 29 (2): 188-205.

Daskalaki, V.V., Voutsa, M.C., Boutsouki, C. & Hatzithomas, L (2020). Service quality, visitor satisfaction and future behavior in the museum sector. Journal of Tourism, Heritage & Services Marketing, 6(1):3-8.

Dearolph, A. (2014). Vlogging the Museum: YouTube as a Tool for Audience Engagement. Ann Arbor: University of Washington.

DeNardis, L. (2014). The social media challenge to Internet governance. In M. Graham and W. H. Dutton (Eds.), Society and the Internet: How information and social networks are changing our lives (348– 359). Oxford, UK: Oxford University Press

Edwards, E. and Sigrid L. (2014). Uncertain Images: Museums and the Work of Photographs. Farnham, Surrey, England: Ashgate.

Gareth, J., Witten, D., Hastie, T. and Tibshirani, R. (2014). An Introduction to Statistical Learning: With Applications in R, USA: Springer Publishing Company

Fletcher, A. and Lee, M.J. (2012). Current social media uses and evaluations in American museums. Museum Management and Curatorship, 27(5): 505–521.

Grover, A. and Stewart, D. (2010). Defining Interactive Social Media in an Educational Context. In: Wankel, C., (ed). Cutting-Edge Social Media Approaches to Business Education. Charlotte, North Carolina: Information Age Publishing Inc.

Hays, S., Pages, J. and Buhalis, D. (2013). Social Media as a Destination Marketing Tool: Its Use by National Tourism Organizations. Current Issues in Tourism, 16:211-239.

Hochman, N. and Manovich, L. (2013). Zooming into an Instagram City: Reading the local through social media. First Monday, 18(7) http://www.firstmonday.dk/ojs/index.php/fm/article/view/4711/3698.

Hochman, N. and Schwartz, R. (2012). Visualizing Instagram: Tracing Cultural Visual Rhythms". Proceedings of The Workshop on Social Media Visualization (SocMedVis) in conjunction with The Sixth International AAAI Conference on Weblogs and Social Media (ICWSM12). Dublin, Ireland.

Hu, Y., Manikonda, L. and Kambhampati, S. (2014). What we Instagram: A first analysis of Instagram photo content and user types. Proceedings of the Eighth International AAAI Conference on Weblogs and Social Media, Ann Arbor, MI, (1–4): 595–598.

Jin, S. and Phua, J. (2014). Following Celebrities' Tweets about Brands: The Impact of Twitter-Based Electronic Word-of-Mouth on Consumers' Source Credibility Perception, Buying Intention, and Social Identification with Celebrities. Journal of Advertising, 43(2): 181-195

Kaplan, A.M. and Haenlein, M. (2010). Users of the World, Unite! The Challenges and Opportunities of Social Media. Business Horizons, 53(1): 59-68.

Kidd, J. (2011). Enacting Engagement Online: Framing social media use for the museum. Information, Technology and People, 24(1): 64-77.

Kietzman, J.H., Hermkens, K., McCarthy, I.P. and Silvestre, B.S. (2011). Social media? Get serious! Understanding the functional building blocks of social media. Business Horizons, 54(3):241-251.

Kirtiş, A.K. and Karahan, F. (2011). To be or not to be in Social Media arena as the most cost-efficient marketing strategy after the global recession. Procedia: Social and Behavioral Sciences, 24: 260–268.

Kyratsis, P., Chatzigeorgiou, C., Tsagkaris, A. & Dinopoulou, V. (2010). Failure mode and effect analysis (FMEA)

implementation in conference tourism services. *The Cyprus Journal of Sciences*; Nicosia Vol. 8: 119-131.

Lange, P. (2007). Publicly Private and Privately Public: Social Networking on YouTube. Journal of Computer-Mediated Communication, 13 (1), 361–380.

Lazaridou, K., Vrana, V. and Paschaloudis, D. (2017). Museums + Instagram. In: Katsoni V., Upadhya A., Stratigea A. (eds) Tourism, Culture and Heritage in a Smart Economy. Proceedings in Business and Economics, Cham: Springer.

Liu, Y. and Shrum, L. (2002). What is interactivity and is it always such a good thing? Implications of definition, person, and situation for the influence of interactivity on advertising effectiveness. Journal of Advertising, 31(4): 53–64

Miranda, C. A. (2013, May 13). Why can't we take pictures in art museums? ARTnews. http://www.artnews.com/2013/05/13/photography-in-art-museums

Nella, A. & Christou, E. (2016). Extending tourism marketing: Implications for targeting the senior tourists' segment. *Journal of Tourism, Heritage & Services Marketing*, 2(1), 36–42. http://doi.org/10.5281/zenodo.376336

Russo, A., Watkins, J. and Smith, G. (2009). The impact of social media on informal learning in museums. Educational Media International, 3(2): 153–166.

Russo, A., & Peacock, D. (2009). Great expectations: Sustaining participation in social media spaces. In Museums and the Web 2009 (pp. 23-36), Indianapolis, Indiana, USA, April 15-18. Retrieved from: Archives & Museum Informatics, http://www.archimuse.com/mw2009/papers/russo/russo.html.

Sajid, S.I. (2016). Social Media and Its Role in Marketing. Business and Economic Journal, 7 (1) doi: 10.4172/2151-6219.1000203

Sawilowsky, S. (2009). New effect size rules of thumb. Journal of Modern Applied Statistical Methods, 8(2): 597-599

Schwartz, R. and Halegoua, G.R. (2014). The spatial self: Location-based identity performance on social media. New Media and Society, 17(10), 1643-1660.

Sheldon, P. and Bryant, K. (2016). Instagram: Motives for its use and relationship to narcissism and contextual age. Computers in Human Behavior, 58: 89-97.

Stuedahl, D. and Smørdal, O. (2011). Designing for Young Visitors' Co-composition of Doubts in Cultural Historical Exhibitions. Computers and Composition, 28 (3): 215-223

Stylianou-Lambert, T. (2017). Photographing in the art museum: Visitor attitudes and motivations. Visitor Studies, 20(2), 114–137.

Suess, A. (2018). Instagram and Art Gallery Visitors: Aesthetic experience, space, sharing and implications for educators, Australian Art Education, 39 (1): 107- 122.

Veissi, I. (2017). Influencer Marketing on Instagram. http://www.theseus.fi/handle/10024/135448 [Accessed the 31st of January 2019].

Waters, R.D. and Jones, P.M. (2011). Using video to build an organization's identity and brand: A content analysis of nonprofit organizations' YouTube videos. Journal of Nonprofit and Public Sector Marketing, 23(3): 248–268

Weilenmann, A., Hillman, T. and Jungselius, B. (2013). Instagram at the museum: communicating the museum experience through social photo sharing. Proceedings of the SIGCHI Conference on human factors in computing systems, Paris, France.

Villarspesa, E. and Wowokowych, S. (2020). Ephemeral Storytelling with Social Media: Snapchat and Instagram Stories at the Brooklyn Museum. Social Media + Society, 6(1): 1-13

Zafiropoulos, K., Vrana, V. & Antoniadis, K. (2015). Use of twitter and Facebook by top European museums. Journal of Tourism, Heritage & Services Marketing, 1(1): 16-24.

Zappavigna, M. (2016). Social Media Photography: Construing Subjectivity in Instagram Images. Visual Communication, 15 (3): 1-22.