Architects' Reactions to COVID-19 Pandemic with Evidence from Their Social Media Accounts

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Abstract

The crisis caused by the covid-19 pandemic is being experienced by consecutive waves of effects, and more is expected until it settles down. The restrictions forced many of us to stay indoors, work remotely and communicate online, as much as possible. Although the advances in ICT were increasing online communication and remote work practice, a change in such a scale was not something expected this abruptly. Besides, the change did not stay limited to the work environment and blurred the line between private lives and the business environment. Social Networking Service (SNS) use increased exponentially both for business and social needs. This sudden change triggered by the pandemic not only challenged the way we work and communicate but also many questions about the future of the built environment emerged. This study attempts to identify the similarities and differences between reactions of a group of Turkish and international architects during the first wave of the COVID-19 pandemic, by using the data retrieved from their corporate SNS accounts. A mix of qualitative and quantitative methodology is adopted for content analysis of Instagram (IG) accounts. There are significant differences between architects' social network use and their expressed reactions to the pandemic. These differences are both between the Turkish and international architect groups, but also between the group members. Similar studies with different groups of architects, regions and the use of different SNSs should be repeated to compare the results and implications. One of the main contributions of this article is that, it tries to draw attention towards the role of SNSs for the architects to develop a professional identity in digital mediums and administer it within the company's management strategy. Research on architects' professional social media use and its implications on their management strategy and corporate practice seem quite scarce. The knowledge gap in this area is promising for further research.

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INTRODUCTION

Although crises caused by political and economic conflicts are more common and suggest a model for future ones, the extent of the crisis triggered by the coronavirus disease of 2019 (COVID-19) in the first weeks of 2020 was unexpected for most of the world. On the 11th of March 2020, the World Health Organization assessed the case as a pandemic depending on its alarming levels of spread and severity, calling for precautions (WHO, 2020). The unexpected interruption to people's mobility and imposed restrictions brought many industries to a standstill. Inevitably, architecture, engineering, and construction (AEC) industry also took its share. While construction sites struggled to stay operational, the majority of technical offices preferred to send their staff home and asked them to work remotely. Almost suddenly, people woke up into a new world where any kind of physical contact with 'other' people became almost offensive and our isolated homes became the only possible place that we can eat, sleep, work, and if possible socialize in a digital way. The work environment unavoidably shifted into digital mediums, forcing their limits.

Institutions of the AEC industry are discussing guidelines to overcome the present and predicted difficulties of the future. However, it seems that we have just started to understand the repercussions of the crisis caused by the COVID-19 coronavirus pandemic, and we are trying to predict how our daily lives and businesses will change in the near future yet. Discussions over the future of public spaces, public services buildings and office buildings are hot topics of debate, as well as the future of the architectural education. Moreover, a recent study shows that effects of economic crisis can be more destructive for architects (Nassereddine et al., 2021). While construction markets rise and fall about 10% in response to major economic crisis, this fluctuation can be up to 50% for architects (Mirza, 2020).

Architecture is a profession deeply interested in society and human behaviour. This interest tackles with any kind of change whether it is referring to a developmental or a destructive one. Moreover, strategic responses to a crisis is important for a firm to survive and there can be positive effects of the crisis in the field of innovation (Rodrigues et al., 2021). This exquisite shifts towards the information and communications technology (ICT) can also create opportunities and threats.

It is not just the usual ways of business communication and office programs that are considered to keep the business world operational during the COVID-19 crisis. Online meetings became a daily routine even for people who never practiced them before. Social networking service (SNS) platforms increased their presence in business communication to reach clients with ease and practicality (Bursztynsky, 2020), enabled by the smart phones with dedicated social networking applications. Smart phones became ubiquitous devices of our daily lives that are even becoming a standard for public services. And, although

they are mostly privately owned devices, due to their practicality they became an inseparable office equipment for businesses including the AEC industry. SNSs that enable instant messaging and live group video conferencing increased their popularity that are well suited to the isolation period.

Facebook, Instagram (IG), Pinterest, and LinkedIn are among the most popular SNSs in the architecture world and IG became one of the 'most important new tool for architects' in the last couple of years especially for design oriented professionals and businesses by the advantage of its visuals based interface (Abdallah, 2020). IG is a unique social network of its time, which is the first SNS that was 'born mobile' (Miles, 2014). Use of IG among the architects and architectural offices are also booming, not just on using its social aspects but also using it as a tool for improving their business (Lee, 2014). Moreover it is not limited to tech-savvy new generations that are using ICT innovations since their birth but it is already part of some renowned senior architects. Architect Norman Foster of London based Foster+Partners architecture office have started a personal as well as a corporate IG account in 2017, at age 82. He is being pointed out to be one of the best Instagrammers of the architecture world (Furman, 2019).

ICT technologies have implemented a revolutionary infrastructure into the human civilization, such that it seems somewhat impossible to think our future apart from it. New media technologies built over them are changing the way we communicate and do our businesses with an increasing pace. While our smart-phones are becoming an inseparable part of our bodies like a limb, just as (McLuhan, 1964) predicted, social media is becoming an inseparable part of corporate identity (Devereux et al., 2017). On the other hand, the concept of social media is literally young and its implications are yet to be further discussed. But it is becoming more apparent each day that, what social media changed so far seems to be only "a scratch on the surface of what is coming and what is possible" (Aral et al., 2013). All the professions should be aware of the opportunities presented by the advances in the ICT technologies, such as social media (Stonor, 2019). Taking these into consideration, it seems like SNSs are becoming an integral part of our lives, not just for leisure, or business, but also for manifesting a digital identity. In the business of architecture, the digital identity of an architect can easily get intertwined with his corporate identity. SNSs can be considered as a practical way for architects to express and discuss opinions about the predicted change and future implications that will affect the society and the profession. In this framework, SNSs create strategic value throughout the organization and become a tool for developing next generation of ideas (Arora & Predmore, 2013). Therefore, examining architects' IG practice as a business activity, appears to be worth examining.

The main research interest for this paper is to identify the first reactions of the architects against the COVID-19 pandemic, using their

IG activities. According to the tackled research interest, three research questions of qualitative and quantitative units of analysis are set as follows:

Q1: How was the performance of architects/architecture offices' Instagram accounts? (Quantitative & Qualitative implications)

Q2: Did Architects respond to the COVID-19 pandemic by their Instagram posts? (Quantitative implications)

Q3: How did the architects react to the pandemic? (Qualitative implications)

METHODOLOGY, SCOPE AND LIMITATIONS

This research is in a retrospective-documentary form, with descriptive analysis, trying to identify reactions of architects against the COVID-19 pandemic in the first wave of the crisis, using their social media traffic, in particular IG posts. This methodology is adapted to provide a summary of the available evidence and the critical analysis of the subject. In order to be legitimate, this kind of methodology needs to be transparent in data collection (Hadengue et al., 2017) and should involve a descriptive summary (Rodrigues et al., 2021).

A similar methodology is used by Ilter (2020), to make comparison between seven global and seven Turkey-based architecture firms. However, findings of mentioned research is limited as the short list of IG accounts are a mix of personal and corporate accounts, number of media uploads are taken from a third-party web site, and qualitative analysis of uploaded media is not detailed.

Using a parallel methodology, this research increases the number of companies compared to 10 each, and only corporate accounts are taken into account which introduces eight new international and four new Turkey-based firms. Media uploads are examined using relevant IG accounts, performance analysis are double-checked using two different dedicated web sites, hashtags are scanned, a more in-depth qualitative analysis is accomplished, and correlation analysis is used for possible relationships, which is expected to give more accurate and seminal results.

Content Analysis

Content analysis is a research method for analysing the content of various documents, such as visual and verbal data (Harwood & Garry, 2003), not necessarily from an author's or user's perspective (Krippendorff, 2004). It is often used to decide the occurrence of certain words, themes or concepts within the data provided. This method can be used to quantify the presence, meaning and relationship of such words, themes or concepts. As a distinction from many other social sciences research methods, content analysis does not require data collection directly from people. It uses data from recorded information in forms of text, media, or other articles. In this context, content analysis

method is selected for analysing the digital media content of corporate IG accounts.

Codes of the content analysis are formed using the keywords that are reminiscent to the COVID-19 pandemic crisis. These codes included direct references to the pandemic such as 'COVID-19' or 'corona' and varied through more contextual indicators such as 'stay safe and healthy' or 'difficult times'. Starting with a quantitative analysis, the frequency of these codes' presence are recorded. After that, a qualitative search for the stress caused by this global crisis that may be skipped by these pre-determined codes are looked for. Text and visuals are checked for possible implicit or explicit ties relative to the research questions. Findings of this qualitative search that are indicating an implicit relation to the research theme are also added as 'other' to the table of codes.

In order to maintain a more in-depth performance metrics analysis of the architects/architecture offices, two professional websites, dedicated to making statistical analysis for social networking sites, 'socialblade.com' and 'popster.com' are employed. A descriptive analysis of the selected digital media content is presented following theseanalysis.

Time Frame

In order to set a time frame for analysing the reactions of the architects, the period between the last week of February 2020 and the first week of June 2020, covering roughly 70 calendar days on average is chosen. This period is regarded as the first wave of the pandemic by many, although it is not scientifically sound until the pandemic is officially over (Zhang et al., 2021). However, the disturbing consequences of the contagion has been spread to the Africa, Europe and Americas in late February. In the following months, we saw restrictions and lockdowns, causing tremor globally. Although each country did have its own scheme and dates, in early June 2020 most of the European countries, as well as Turkey, started to ease the taken measures considering the predictions (Dzien et al., 2020) that pandemic will slow down in the summer months. Regarding this relatively turbulent period of the fight against the virus and representing the first wave of shock and despair ending with the ease of restrictions and lockdowns for many countries in the northern hemisphere, this period is considered appropriate for the research.

Sample Selection

While selecting the set of architects, it is found useful to set two groups of architects and make comparisons between these groups. 10 Architecture companies that are based in Turkey are selected based on the architect associations' data depending on their social media practice, retrieved from a research regarding social media use as an innovative tool for strategic brand management. These Turkey-based companies are Autoban, Avcı Architects, Bahadır Kul Architects, Çinici Architects,

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EAA-Emre Arolat Architecture, ERA Architects, Erginoğlu & Çalışlar Architects, GAD Architecture, Tabanlıoğlu, and Toner Architecture. Although the research showed more social media activities for some other companies, they are eliminated due to the lack of their IG accounts, or insufficient data for the assessed period.

On the international side, an international business magazine's short list 'The 10 most innovative architecture companies of 2021' is considered as the starting point for selecting the architects (Fast Company, 2021). The 10 architecture companies suggested by the web site are studied to reach their official IG accounts and make the necessary analysis over them. However, no trace of an IG account could be found for 3 of the 10 companies and 2 company's accounts did not provide the needed analysis for the decided time-frame because of their personal to corporate account status change was too recent. The 5 remaining companies from the Fast Company list is as follows: Mass Design Group, Studio Gang, Diller Scofidio + Renfro, SGA Architecture, and Gensler. As the list of international companies fell short of the intended number of 10 companies, another list, Archdaily's 'These Are the World's Most Innovative Architecture Firms' is referred (Grozdanic, 2016). A total of 10 companies to conduct the research is formed by adding BIG, Shop Architects, Perkins & Will, NBBJ and HOK to this list.

The separation between the firms depends on their home country only, and naming these groups is referencing the Engineering News Record (ENR) magazine. ENR releases annual lists ranking firms of the AEC industry, such as the Top 225 International Design Firms, and provide valuable data for researchers (Lu, 2014). As a US based magazine, ENR lists the firms based outside the US as 'International'. Regarding this separation, this research groups the firms as 'Turkey-based' and 'International', where the international group represents the firms that are based outside Turkey. In their business environment many Turkey-based firms have offices and active projects outside their homeland. Likewise, many of the international firms have offices outside their homeland, and have operations in Turkey.

Restrictions

Due to the research variables selected for this study, this research has many limitations. The architects selected for this research are innovative firms considered by either a magazine as stated above or a research on the social media use of architects. However, these specifications do not necessarily point out a high performance in innovating or successful social media usage as a management strategy of the firm. Besides all these peculiarities are quite time dependent, especially when the social media activities are addressed. So, a different sample selection, a different period and other social media networks may put forward different results. Moreover, other stakeholders of AEC, such as engineering firms, professional institutions like chambers, associations, non-governmental organizations, AEC industry related

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blogs, would all add-up to this discussion from different perspectives, and using a larger sample size will improve the statistical significance of the results.

Separating the corporate accounts of the firms, with the personal ones of the leading architects can be difficult for some of the businesses. Some of the architects/offices have side accounts besides their official business accounts that even have more followers than the business account. For an example, the IG account 'Zaha Hadid Architecture' has 1.1 million followers, where the official business account 'Zaha Hadid Design' has roughly 111.000 followers. Only the business accounts are deemed for this research to avoid any confusion.

The performance of individual IG accounts can be measured in different ways. The first measures and the most easily accessible ones are the number of the followers of the account, number of the accounts being followed by and number of media uploads (posts) shared by the users. However, these numbers are not enough to predict the performance of an account if the research focuses on a relevant period or some other basic comparisons between the account and that particular social networking population. Quantitative analysis made for the first research question of this research depends on the data taken from the social media analysis web sites 'socialblade.com' and 'popsters.com'. Moreover, as the content analysis of the IG accounts are made past the research period, possible posts and stories deleted by the users or the time setting, as well as links removed are being excluded from this research. Social media is a relatively new-established research area and the social networking platforms that are being explored are in a constant change of popularity. IG is selected as a preferred social networking platform frequently used by designers at the time of the research. However, other social networks in combination with different architecture offices may propose a distinct perspective.

ARCHITECTS' REACTIONS OVER THE SOCIAL NETWORKS
Performance of Architects/Architecture Offices on Instagram
For the first research question, a mixed way of analysis that has both quantitative and qualitative implications is used. In order to find quantitative answers to "Q1: How is the performance of architects/architecture offices' IG accounts" and interpret the findings, the selected social media analysis web sites are utilized. IG performance analysis summary of the selected architects'/architecture offices' IG accounts are shown on Table 1. The architects are sorted according to their media uploads during the period selected for the research. As the data retrieved from socialblade.com is weekly, there is a slight shift in start and end dates of the period analysed by this certain web site. Due to this shift, the period analysed is between February 24-29th to June 6-7th, and acknowledged as reliable. The start of this period cover the phase when the outbreak turned into a pandemic and restrictions as well as lock-downs took place all over the world. The end date complies

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with the ease of these restrictions mostly for EU and surrounding countries as stated in the methodology part. On the popsters.com side, the period is more certain and accepted as February 24th to June 7th.

Depending on this period, 'social grade', 'number of followers' and 'number of following' are taken from socialblade.com, and 'number of uploads', total likes', and 'total comments' are taken from 'popsters.com'. The metrics shown on the table include the overall numbers of posts shared by the account, total number of followers, and number of accounts followed by the account as basic indicators. Average likes and average comments are means of the responses for the shared content and provide data for the 'social grade rank' that is calculated by the socialblade.com in comparison with other similar accounts. These variables are also used to calculate 'engagement rates' by both analysis web sites, but they are excluded on Table-1.

The number of posts, number of followers and number of followed at the end of February are shown on Table-1 to reveal any meaningful changes that happened during the period of the pandemic restrictions. The architects are sorted according to their media uploads during the selected period. First three Turkey-based architects' media uploads are significantly higher above the average of both groups while Gensler is the top uploader with a slight difference with the top 3 Turkey-based architects. Emre Arolat Architecture's IG account is the only B- rated architecture office between the Turkey-based group as all the others are rated C+. Between the international architects, the only company that has C+ social media grade is SGA Architecture while all the others are graded as either B- or B. Table 1 provides numbers to assess the social media performance of these two groups.

Apart from the differences of account grades assigned by the Socialblade.com, the international group reaches an average of 94k followers at the end of the selected period, while in the Turkey-based group this number is around 15,5k. The percentage of increasing follower numbers are also different for international and Turkey-based groups. In this period, the international architects increase their followers by %7,92 while the Turkey-based architects' followers increase by %4,58. Similarly the mean value of accounts that international architects follow is 512 while Turkey-based ones is 340. In both groups, there are a few architects who loose followers or decreased the number of followed accounts in this period. The difference between number of followers also reflect from the number of responses. While the international group receives 1633 likes and 17,2 comments on average, the Turkey-based group has 345 likes and 3,2 comments. With these numbers, both groups have the same value of comments per follower by %0,02. However, Turkey-based architects have a greater value of likes per follower than the international ones, with values of %2,22 and %1,74 respectively. Table-1 does not show significant relations between these variables. However, while the international architects' data do not show a relationship between the number of

uploaded posts and the increase in their follower numbers, Turkey-based architects' number of posts and the increasing number of followers show a significant relationship in this period, when a Pearson's Correlation test is conducted (r (10) = .903, p < .001).

Table 1. Instagram Performance Summary of International and Turkey-based Architects'/Architecture offices'

			Home Country	Social Grade	Uploads	Followers		diff.	Following		diff.	Likes (Total)	Avg. Likes.	Comm. (Total)	Avg. Comm.
						F 24-29	J 6-7		F 24-29	J 6-7					
INTERNATIONAL															
1	Gensler	@gensler_design	USA	B	66	112.905	124.830	11.925	255	280	25	97.992	1.484,73	879	13,32
2	Studio Gang	@studiogang	USA	B-	38	67.823	73.084	5.261	312	345	33	47.416	1.247,79	419	11,03
3	NBBJ	@nbbjdesign	USA	B-	32	9.022	12.385	3.363	676	737	61	8.358	261,19	118	3,69
4	Perkins & Will	@perkinswill	USA	B-	31	59.924	64.835	4.911	341	338	-3	25.980	838,06	218	7,03
5	HOK	@hoknetwork	USA	B-	21	25.686	27.773	2.087	959	968	9	6.920	329,52	84	4,00
6	Mass Design Group	@massdesigngroup	RWA	B-	19	15.439	17.675	2.236	186	234	48	7.898	415,68	85	4,47
7	BIG - Bjarke Ingels Grp	@big_builds	DK	B	15	404.765	439.985	35.220	251	255	4	129.635	8.642,33	869	57,93
8	Diller Scofidio+Renfro	@diller_scofidio_renfro	USA	B	6	66.080	70.073	3.993	177	180	3	7.775	1.295,83	64	10,67
9	SGA Architects	@sgaarch	GB	C+	4	1.180	1.251	71	874	864	-10	264	66,00	7	1,75
10	Shop Architects	@shoparchitects	USA	B	1	108.773	108.758	-15	921	922	1	1.758	1.758,00	59	59,00
TURKEY-BASED															
1	EAA-Emre Arolat Arch.	@eaa_emrearolatarchitecture	TR	B-	63	45.987	48.295	2.308	225	229	4	34.770	551,90	202	3,21
2	GAD Architecture	@gadarchitecture	TR	C+	62	12.265	14.292	2.027	965	970	5	18.356	296,06	330	5,32
3	Autoban	@autoban212	TR	C+	62	22.670	23.723	1.053	849	894	45	22.013	355,05	190	3,06
5	Bahadir Kul Architects	@bkarc	TR	C+	11	7747	7964	217	194	137	-57	2.767	251,55	24	2,18
8	Avcı Architects	@avciarchitects	TR	C+	9	4712	4880	168	123	125	2	1.597	177,44	13	1,44
6	Tabanlıoğlu Architects	@tabanliogluarchitects	TR	C+	3	17.902	18.381	479	167	167	0	2.285	761,67	23	7,67
4	Erginoğlu&Calislar Arch	@ecarchitects	TR	C+	2	10.970	11.532	562	2	2	0	1.055	527,50	2	1,00
7	Cinici Architects	@ciniciarchitects	TR	C+	1	9.842	9.934	92	342	340	-2	507	507,00	8	8,00
9	Era Architects	@era_architects	TR	C+	0	11609	11491	-118	110	144	34	0	0,00	0	0,00
10	Toner Architects	@tonerarchitects	TR	C+	0	4.934	4.960	26	368	391	23	0	0,00	0	0,00

F 24-29: February 24-29th
J 6-7: June 6-7th

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Finally, Table-1 shows the number of posts uploaded in the selected period for each architect group. Total number of posts sent by the international architects is 233, while the Turkey-based ones have 213. That makes a difference of around %10 between the groups. However, while there are 3 companies that have a single digit number of posts in the international group, 6 of the Turkey-based architects have a number of posts below 10, and 2 of the Turkey-based ones do not have any uploads during this period. The number of total posts have a more homogeneous distribution for the international architects while %88 of the posts belong to only 3 Turkey-based architects. A more in depth analysis is needed to identify if these architects, who are in a way social media leaders of their scale, have responded to the pandemic during the crisis period or not.
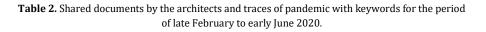
Traces of response to the pandemic by Instagram Accounts

Architecture extends beyond designing spaces and also shape the lives of people in different ways. The second research question of the study tackled with the idea that architects would have been reacting for the unexpected and traumatic setting created by the pandemic. In order to examine the 'Q2: Did Architects respond to the COVID-19 pandemic by their Instagram posts?' both group of architects' IG posts during the period of late February to early June are observed according to the content analysis framework formed. Keywords selected for this framework are checked in the descriptions on the visuals, including hashtags related to these keywords. Video clips are checked for its content as well as the 'stories'. Results of this scan is shown on Table 2. The numbers given in Table-2 shows different number of reactions expressed by the architecture offices. These responses bring us to our third research question: 'Q3: How did the architects react to the pandemic?'. Analysis of all these items are separated into three parts below, according to these items.

Analysis of the Instagram Posts

The dates of the architecture firms' first IG posts about the COVID-19 pandemic can be seen in Table-2. According to these dates, the first evidence of the pandemic can be seen at NBBJ's March 9th post. All the international architects have shared at least one post regarding the health crisis, and between the firms who responded, the latest first response belongs to SGA Architects on May 7th. HOK and Shop Architects have first response dates on April 10th and 4th. The first response dates are aggregating between mid to late March 2020 despite different home countries and the Turkey-based firms' first response dates also fit in these dates too. However, two of the Turkey-based architects did not share anything on IG during the research period and three of the Turkey-based firms did not mention the crisis despite they shared other posts. Despite the similarities between companies with different home country origins, some posts remind us the different

situation of China, where the pandemic started and spread to the globe. International firms that have China offices, like Perkins & Will or Gensler have IG posts mentioning their China offices are back to work. The dates of these posts, as early as 29th of April, give clues that the pandemic has a different progress in China.

Table 2. Shared documents by the architects and traces of pandemic with keywords for the period of late February to early June 2020.

#	Firm	Handle	First Related Post	Posts Total	Total evidence	Posts related	Stories attached	Link attached	Hashtags	Used Keywords	covid-19/corona pdm.	stayhome	social distancing	faceshield / visor	mask	lockdown	quarantine	crisis	difficult/chall. times	remote working	stay safe&healthy	other	keywords expanded
	INTERNATIONAL FIRMS																						
1	Gensler	@gensler_design	6.03.2020	66	56	41	15		47	55	32		4	1	1	1		5	1	4		6	office return, new normal
3	Studio Gang	@studiogang	29.03.2020	38	8	7		1	2	13	5	1	1	1	1	1		1	2	1	1	1	office return,
2	NBBJ	@nbbjdesign	9.03.2020	32	86	7	79		2	8	2	1	1		1				1	1	1	1	frontlines, office return
4	Perkins & Will	@perkinswill	19.03.2020	31	13	9	4	1	2	15	7		3							2		2	covid stories, #covidimpact, work must go on, frontlines, return to work
5	HOK	@hoknetwork	10.04.2020	21	8	8			11	13	5				1					1	1	6	frontlines*
6	Mass Design Group	@massdesigngroup	25.03.2020	19	39	10	28	1	16	16	9		2		1				2		1		3	frontlines*, #architecturecanheal, response guide
7	BIG - Bjarke Ingels Grp.	@big_builds	31.03.2020	15	2	1	1		1	2														
8	Diller Scofidio+Renfro	@diller_scofidio_renfro	20.03.2020	6	3	3			6	6				1									3	#washyourhands
9	SgA Architects	@sgaarch	7.05.2020	4	1	1			1	2	1												1	office return
10	Shop Architects	@shoparchitects	4.04.2020	1	1	1			1	1	1			1										
				233	217				89	131	61	6	11	3	3	1	0	6	7	9	2	22	
	TURKEY-BASED FIRMS																						
1	EAA-Emre Arolat Arch.	@eaa_emrearolatarchitecture	20.03.2020	63	5	5			3	9	4				1						2	1	1	sanitizer
2	GAD Architecture	@gadarchitecture	26.03.2020	62	8	8			4	19	9						2	5			2	2	1	missed construction sites, post covid
3	Autoban	@autoban212	20.03.2020	62	1	1				2		1								1				
4	Bahadir Kul Architects	@bkarc	.	11	0				0	0														
5	Avci Architects	@avciarchitects	16.03.2020	9	4	4			5	6	3	1									1	1		1	office return
6	Tabanlioglu Architects	@tabanlioguarchitects	18.03.2020	3	1	1				4	1		1								1	1		
6	Erginoglu&Calislar Arch.	@ecarchitects	.	2	0				0	0														
7	Cinici Architects	@ciniciarchitects	.	1	0				0	0														
9	Era Architects	@era_architects	.	0	0				0	0														
10	Toner Architects	@tonerarchitects	.	0	0				0	0														
				213	19				12	40	17	2	1	0	1	3	0	2	5	0	4	5	3	

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International and Turkey-based architecture firms listed in Table-2, are sorted according to the number of posts they have made during the

research period in groups. However, the pandemic response frequency in their posts' content is not exactly in line with the their activity performance. On the international architects side, Gensler is the most active firm with 66 posts in total, and they have 41 posts related to the pandemic which also makes the largest number of COVID-19 related posts. However, second most active firm Studio Gang with 38 posts do have only 7 related posts, which makes the firm fifth in number of COVID related posts. Instead, Mass Design Group, which is the sixth most active firm with 19 total posts, have 10 related posts about the crisis and takes the second place on this kind of sorting, followed by Perkins&Will, and HOK by 9 and 8 related posts respectively. Regarding the total posting activities in the selected period, third most active firm NBBJ with 32 total posts, have 7 COVID related posts. In the group of international architecture firms, all firms have a related post in their IG accounts.

In order to analyse these posts, certain keywords are selected to understand their usage frequencies. Selected keywords and the frequency they are used by the firms can be seen in Table-2. Between these keywords, 'COVID-19/COVID pandemic' derivatives are used 61 times and take the lead. Next, 'social distancing' is used 10 times, and 'remote working' 8 times, which makes these keywords second and third most used keywords respectively. Other than these specific ones, firms have used others that are not being repeated by most of the others. These keywords are coded as: 'office return/return to work', 'new normal', 'vaccine', 'frontlines', 'COVID stories', 'COVID impact', 'work must go on', 'architecture can heal', 'response guide', and 'wash your hands'.

When the content of the international group's posts are analysed, these items regarded as evidence are mostly related to the architects' proposals to re-thinking the project types of their practice according to the COVID-19 measures taken, as well as proposals for the post-pandemic era. Being the most active and responsive to the pandemic firm, Gensler has many proposals about workplace, school, healthcare, retail, hospitality, urban space transformations during and post-COVID era. Perkins & Will have proposals about healthcare buildings, hospitality industry and workplace return in their posts. The topic of their first post on March 19th is striking: "Design has the power to strengthen the spirit of the community". One of their posts is about a mobile COVID test lab prototype, while another post is about 'at home learning tips'. Mass Design Group and HOK also share their healthcare and wellbeing project experiences in connection with the COVID crisis. Diller Scofodio+Renfro has some hygiene related design posts. SGA is referring to 'return to work' in their only post during this specific period. Meanwhile, BIG, Shop Architects, HOK, and Gensler have posts showing their contribution to the healthcare workers by producing 3D printed face shield components. Studiogang's posts tackle with the popular expression 'social distancing' which is frequently used as a

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single most powerful measure to avoid the virus. These messages underline the importance of being social for the human kind and proposing the message should be 'physical distance' instead of being socially distant. Within their post, dating March 20th, they mention the pandemic by these words: "…staying safe and healthy through this challenging and uncertain time".

In the Turkey-based group, the earliest response came from Avcı Architects on March 16th. Tabanlıoğlu Architects' announcement of their office closure and home office transformation dates on March 18th. This post is Tabanlıoğlu Architects' only related post through their IG account aside a link attached to their bio that gives more information about this shift. On the Turkey-based side, three firms are conveying most of the posts in the researched period with a total of 187 posts. These firms are EAA, GAD, and Autoban. However, these firms only have 5, 8, and 1 posts regarding the pandemic, respectively. Avcı Architects have 4 posts, and as mentioned, Tabanlıoğlu have only 1 post about the global health crisis. Although Bahadır Kul Architects, Erginoğlu&Çalışlar, and Çinici Architects have posts in the researched period, they do not mention anything about the crisis and its consequences. No traces about the pandemic have been found in Toner, and Era Architects IG accounts.

When the used keywords are analysed, 'COVID-19/COVID pandemic' or similar steps forward with 17 times, followed by the key words 'crisis' and 'stay safe/healthy' that are used 5 times each. There are also a few uncommon keywords used is the Turkey-based group. These are 'sanitizer', 'missed construction sites', post-COVID', and 'office return'. On the content side, first pandemic related posts of GAD, Tabanlıoğlu, Avcı Architects, and EAA are announcements about their office closures. EAA repeats a similar set of posts about their international office closures in the following weeks. Autoban mentions that they work from home. Their indirect remark, 'site visits are halted' is repeated by GAD with the words 'missed construction sites'. Only Avcı Architects and GAD mention about their projects related to the COVID-19 crisis. These two firms dwell on their residential projects with inner courtyards, and facilities for quarantined residents. The most active Turkey-based architecture firm between the Turkey-based group, GAD has 4 significant posts about an online discussion series of "COVID Crisis and Education" that put forward the need for a new perspective for architecture education in the post-COVID era.

Hashtags (#) added to IG posts are powerful markers to reach other users who are interested in specific topics but not especially the sharing account itself, forming a social bookmarking system (Ibba et al., 2015). The posts are checked to find out the used hashtags. Gensler, Mass Design Group and HOK are the first three firms using hashtags effectively. Their posts have 47, 16 and 11 associated hashtags respectively. While all international architecture firms have used at least one hashtag about the issue, only three Turkey-based architecture firms

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have related hashtags. Avcı Architects have used 5, GAD have 4, and EAA have 3 hashtags in this period related to the crisis.

The hashtags and their frequency of occurrence are shown in Table-3. In a total number of 100 hashtags used, the most frequently used ones are covid19/covid-19 and corona/coronavirus. These combinations are not separated from each other because of their eminent synonymity. These two keyword groups have a frequency of 38 and 29 respectively. Third most used hashtag is 'stayhome' with a frequency of 5. The fourth and the following hashtags' frequencies range between 4 and 1. Hashtags 'socialdistancing, 'returntowork', and 'workingfromhome/homeoffice', are all used 4 times. Meanwhile, Gensler Design is the most frequent hashtag user of the both architecture company groups with 47 hashtags. Mass Design Group follows with 16 and Diller Scofidio+Renfro with 11 hashtags.

Table 3. Used Hashtags and the user frequency

	covid19 /covid-19	corona / coronavirus	stayhome	socialdistancing	returntowork	workingfromhome / homeoffice	pandemic / pandemic2020	washyourhands	remotework / workingremotely	covidstories	3dfaceshield	covidinsights	covidimpact	healthcareheroes	TOTAL
Gensler_design	22	20				3			2						47
MASS Design Group	7	5		4											16
HOK Network	5	1			1						2		1	1	11
Diller Scofidio + Renfro			3					3							6
Avcı Architects		1	1				3								5
GAD Architecture	1	1			1	1									4
EAA-Emre Arolat Arch.	1	1							1						3
Perkins&Will					1							1			2
Studio Gang	2														2
SGA				1											1
SHoP											1				1
BIG - Bjarke Ingels Group											1				1
NBBJ Design			1												1
Autoban															0
Bahadır Kul Architects															0
Tabanlıoğlu Architects															0
Erginoglu&Calislar Arch.															0
Cinici Architects															0
Era Architects															0
Toner Architects															0
TOTAL	38	29	5	4	4	4	3	3	3	2	2	1	1	1	100

In the Turkey-based architects group, Avcı Architects have 5, GAD Architecture have 4, and EAA-Emre Arolat Architecture have 3 hashtags used related to the pandemic in the specified period analysed. Despite their relatively high number of posts, some of the architecture companies did not use hashtags much frequently. For example, NBBJ has only 1 pandemic related hashtags despite their 32 posts and a total of 81 other evidence items. Similarly in the Turkey-based group, Autoban has 62 posts without any related hashtags.

Analysis of the Attached Stories and Links in Bio

In the social networking app IG, there are other tools users can prefer for sharing, apart from the posts. One of these alternative sharing types is called IG stories. IG stories are vertically formatted full screen videos or images. They appear on the screen with a 15 second limit for every item uploaded as a story. Rather than appearing in the news feed, these items are shown in a separate line on top of the application interface and disappear in 24 hours. However, the user may prefer to keep them by 'highlighting', which keeps them pinned to the user's profile until they choose to delete them. This way, users can keep different clusters of stories for different likes and reasons under each highlight topic created. While preparing these stories, users can add stickers on top of the images or videos. These stickers may indicate many information, such as text, location, hashtag, poll, quizzes etc., or mention another IG user. Some of the features like polls and quizzes are stories specific, as they cannot be placed on regular posts. Therefore, these additional information over the stories are also worth analysing with the shared story itself. However, as stated under the restrictions section, stories which are not highlighted or deleted by the user are exclusive of this research.

When the architecture firms accounts are analysed for pandemic related items, no highlighted stories have been found in the Turkey-based architects side. However, on the international architects side, there are five companies who have highlighted stories that are related to the global health crisis. Between these firms, NBBJ has 79 highlighted stories that clearly outperform any other firm in the number of either posts, stories or information bounded by links. 54 of these stories are highlighted under the topic of 'COVID-19 response' in NBBJ's account and accommodate various reactions. Some 25 more highlighted stories are under 'ideas' topic. Stories under this part are questioning the new workspace necessities and real estate strategies needed for the post-pandemic era. While these topics are existing also in the 'COVID-19 response part, they also tackle with modular construction for rapid healthcare response, conversion of public buildings such as dorms into healthcare units, safer inner navigation ideas for the hospital buildings, and showing their solidarity and contribution by 3D printing and assembling face shields for healthcare workers. All the highlighted stories have links attached over them providing third-party information for further details. Another firm using highlighted stories effectively is Mass Design Group. In comparison to their 19 posts, they have 28 stories attached to their profile page. Here, all their related stories are put together under the topic of COVID-19. Story topics discuss urban design, healthcare and office architecture, natural ventilation, and design hacks. There is also a panel announcement for 'design emergency', which captures the role of architecture in fighting a pandemic, and makes a bold statement: "All architectural decisions have social and political implications...".

The other 3 international architects that also used highlighted stories are Gensler with 15, Perkins&Will with 4, and BIG with 1 stories. Gensler's highlighted stories are on a 'work from home' survey. The point they emphasize is, that most of the office workers in the US want to return to the office and they discuss the possible strategies. Perkins&Will use the term 'physical distancing' instead of 'social', and point out discussions on office return, K12 schools and personal needs. Both companies have links on their stories, leading towards third party information sources. Meanwhile, BIG has a single highlighted story dated 1st of April, telling 'stay home!'.

IG users can also share links in the profile for more detailed information about an issue to focus on. But like the stories, their existence are subject to change by the users when desired and mostly used for directing the users to their company related web sites. Similar to the use of highlighted stories for expressing ideas about the global health crisis, no related links could been found in the profiles of Turkey-based architecture firms. Evidence from the international group is quite scarce too. Only Mass Design Group and Studio Gang's accounts showed evidence for attached links dedicated to the pandemic.

The link attached to Studio Gang's profile invites people to an annual mask design activity, this time dedicated to the COVID-19 pandemic. Beside these links still present, some posts and stories of both groups of architects also mention links in their bio, such as Studio Gang's May 14th post pointing out "Architecture, Hope, & COVID-19" link which was not available at the time of this research.

DISCUSSION

This research started with three main questions to identify the reactions of the architects during the lockdown period. Answers for the first research question are looked for in the performance assessment of the two selected group of architects in a certain timeframe. For the second and third research questions, we looked for the architects' reactions towards the COVID-19 pandemic in their official IG accounts. The content analysis of the IG posts show that, architects showed different reactions against the period of lockdown. Apart from their origin or IG performance in general, some of the architects shared implications on the unexpected effects of the pandemic in their IG accounts, while the others did not respond. When they did, in most cases it started with the announcement of their office closure, and work-from-home arrangements (@gensler_design, @perkinswill, @hoknetwork, @big_builds, @studiogang, @avciarchitects, @tabanlıoğlu, @gadarchitecture). Further, some of them reflected their concerns (@studiogang, @gadarchitecture) and some of them tried to motivate their followers to monitor the guidance being made by the authorities (@big_builds, @diller_scofidio_renfro, @autoban212, @tabanlıoğlu) or showing solidarity with the health care providers. Some of the architects showed their support for the efforts to provide supplies such as

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producing face shields (@gensler_design, @shoparchitects, @big_builds). While 5 of the Turkey-based architects did not respond to the crisis in their IG accounts (@bkarc, @era_architects, @ecarchitects, @ciniciarchitects, @tonerarchitects), all the international architects did. In this unresponsive group, @tonerarchitects and @era_architects did not share any posts. @ciniciarchitects had only one, and @ecarchitects had two posts during the lockdown period which may be associated with the absence of their response to the crisis. However, @bkarc shared 10 posts during the researched period but did not give any clue about the pandemic or the crisis caused by the pandemic. The distribution of the found evidence in numbers, for each group is shown in Figure 1.
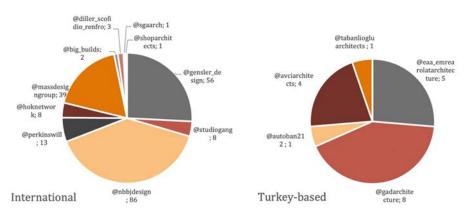

Figure 1. Evidence revealed for Turkey-based and international architecture firms.

One of the significant discussions captured by this study is the one that is put forward by Studio Gang (@studiogang). Is 'social distance' the correct expression to identify the needed distance between individuals to avoid the infectious particles, or is it the 'physical distance' that we are looking for? Likewise, Perkins&Will also use the term 'physical distancing' instead of the widely used one. This gripping viewpoint has a considerable amount of startling connections with the discussion of architecture and built environment. Another discussion is about the future of architectural education. Global Architectural Development (@gadarchitecture) is promoting the discussion on this hot debate adding the uncertainties of the post-COVID era. The sudden and compulsory shift towards the digital mediums in this lockdown period created an inevitable leap for the online education efforts. Moreover, it seems we will be facing more online education challenges in the near future and the distinct characteristics of the architectural design education will escalate the pressure on this already hot debate.

Detected between the IG activities of the architects, there are some outright statements that pose direct evidence for the discussion of this research. Perkins & Will, shared a post on March 19th with a striking topic: "Design has the power to strengthen the spirit of the community". On March 20th, Studio Gang shared a post with the phrase" …challenging and uncertain time" and the '#ArchitectureCanHeal' hashtag. Mass Design used phrases like "All architectural decisions have

social and political implications…" and "the role of architecture in fighting a pandemic" in their stories. Although these statements are not directly related to the COVID-19 pandemic itself, they are powerful messages that encapsulate the confident attitude, that architecture has the power to tackle with many social, political or environmental problems. Without any doubt, these statements were directed to the crisis we are still facing during the year 2021.

All the posts, stories and links in IG profiles can be removed whenever the user wants to. Mistakes or misunderstandings can be removed that way. Although it is not so common for corporate accounts, such a modification is detected during the analysis are made. One of the international companies, who had a very early response to the COVID-19 crisis with a phrase like "… expectations for a vaccine…", removed this part of the text months later. Although that phrase is now disappeared into the vastness of internet, this single occasion give hints about the importance and consequences of the shared content which can still be sensitive for some, even after a relatively long time.

CONCLUSION

Although it is a relatively new digital medium, this research shows that, architects seem to make an effort to gain ground in the digital mediums such as IG. The international architects group have more followers resulting higher interaction outcomes such as comment and likes. As the number of followers in total increase like a snowball in SNS world, the followers of the international architects are soaring more significantly during the period of pandemic compared to the followers of the Turkey-based architects. This difference may be linked to the scale of the architecture firms and rather low presence of the Turkey-based firms in global markets, compared to their existence in their homeland, despite their increasing efforts. In that sense SNSs seem to be the right platform to reach the globe. However, the results show that, IG presence of some of the Turkey-based architects are lagging behind their international counterparts. Also, they seem less intended for commenting on daily issues. Nevertheless, the performance of the Turkey-based group is not the same for all the architects just as the international group. EAA-Emre Arolat Architecture (@eaa_emrearolatarchitecture) seems quite close to the international group in most performance measures. Again, that can also be associated with the increasing presence of the firm in global markets with their latest works.

The results of the research show that, the confident attitude towards architecture as a solution towards the global problems can be traced through the architecture firms' IG accounts analysed according to their activities during the specified period, which can be regarded as the first wave of the COVID-19 pandemic. Although there are firms who did not reflect their reactions, traces of evidence show that architects are using SNS's not only for promoting their business but also to express their

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ideas about global issues in the context of architecture and more. Solidarity with the healthcare workers, suggestions for changing work environments, home-office arrangements, emphasized need for natural ventilation, and wellbeing concepts, strategies and predictions for different project types during and the post-pandemic era, concerns for the future of architecture education are some of the topics that reflect architects' SNS activities.

As we are entering the third decade of the 21st century, SNSs are becoming ubiquitous and occupy more in our personal and business lives. On the other hand, SNSs are persistently evolving to attract more attention of the users onto them, and the amount of user interaction is constantly increasing. In our swiftly digitalizing daily lives, architects are also trying to create a digital identity for their business and manage their communication strategies. The increasing presence and activities of architects and architecture companies in SNSs support this tendency. And ironically, we are more into our social networks in the days of so-called 'social distancing', as the world is trying to heal it's wounds caused by an unexpected pandemic.

The reliability of the digital outputs of the SNSs are limited to some extent and open to manipulation, which also adds up to the many limitations of this research. However, it becomes evident that, SNS use in AEC industry is worth considering from many aspects, and the publicly available data is quite promising. Today, strategic management, communication management, creating a corporate and brand identity are all under the impact of social networks. The research on this interaction is quite scarce, which makes it encouraging for further research.

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Resume

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