

# Chapter 14

## The Impact of Department of Construction Management Facebook Environment-Related Posts



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### 14.1 Introduction

The construction industry has become one of the major contributors to adverse impacts on the natural environment as projects are often associated with negative environmental impacts, which result in the degradation of the natural environment, which is a product of soil pollution, water pollution, air pollution, deforestation, destruction of wildlife, and land degradation. Furthermore, construction activities generate waste, noise, ground vibration, dust, hazardous emissions, disturbance of natural features, and the destruction of archaeological artefacts during the construction process and its activities, in which cumulative impacts result in environmental degradation (Chen & Li, 2006). This has resulted in increased awareness of the natural environment and the desire for a more sustainable approach by all stakeholders. Hence, it is imperative for all contractors to consider implementing appropriate environmental management practices to reduce the impact of the construction process and its activities on the natural environment and society as a whole, instead of only focusing on time, cost, and quality within a project as traditionally practiced.

Interviews conducted by Carpenter et al. (2016) among sustainability officers and student leaders at 21 leading sustainable universities in the USA revealed that the top American sustainable universities rely on social media to reach large audiences. Generally, their target audiences are students, staff, faculty members, local community residents, campus administration leaders, news media professionals, and alumni. Furthermore, sustainability officers primarily rely on Facebook to encourage interaction with their posted content.

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Narula et al. (2019) maintain the media is playing a role in shaping attitudes of responsibility in the general population. Social media is a mode of communication, sharing feelings and sharing information with each other; however, it can also enhance the knowledge of the general population. They emphasise that there are a range of topical environmental issues, which include, inter alia, worsening environmental conditions, climate change, the problem of waste disposal, and increasing pollution. Therefore, development of environmental awareness and the promotion of sustainable development have become goals or policies of not only governments, and non-government organisations (NGOs), but other stakeholders.

Black (1993) defines public relations practice as “The art and science of achieving harmony with the environment through mutual understanding based on truth and full information.” He states that there are two distinct branches of practice, namely, the reactive and proactive sectors. Reactive includes reacting to problems, dealing with crises, and managing change, and the proactive includes planned programmes that serve both the organisation and the public’s interest.

Wright and Hinson (2009) state that social media deliver web-based information created by people with the intention of facilitating communication, which now represents one of the world’s major sources of social interaction as people share stories and experiences with each other. However, their fourth study conducted among public relations practitioners globally indicates that public relations practitioners should measure the amount of communication that is being disseminated with respect to their organisations, or client organisations, through blogs and other social media (4.2/5.0), and/or analyse the content of what is being communicated with respect to their organisations, or their clients, in blogs and other social media (4.4/5.0). The mean scores presented in parentheses range between 1.00 and 5.00, 1.00 representing the lowest point and 5.00 the highest point.

Given the state of the planet, the impact of the built environment in terms of sustainability, the importance of public relations, and that the department undertakes environment-related posts, a study was conducted to determine the impact of ‘environment-related’ posts on the Department of Construction Management Facebook page during a calendar year to determine which attracted the most interest.

## 14.2 Review of the Literature

### 14.2.1 *Public Relations*

Black (1993) describes the role of public relations by presenting the hexagon model, the six sides representing the several factors which influence the role and scope of public relations: the publics of concern; issues of concern; media; the nature of the organisation; situational timing factors, and resources. However, this paper focuses on one specific issue of concern, namely, the environment, and in terms of the media ‘side’, social media in the form of Facebook. The nature of the ‘organisation’, namely, a Department of Construction Management within a university, implies that the built environment should be the focus of such environment-related posts.

Situational timing factors in turn imply that ‘current’ issues at the time of the post inform, to an extent, the topic of the post.

### ***14.2.2 The Impact of Social Media***

The study conducted by Wright and Hinson (2009), cited in the ‘Introduction’, determined the following: social media have enhanced the practice of public relations (4.0/5.0); blogs have enhanced the practice of public relations (3.8/5.0), and social media offer organisations a low-cost way to develop relationships with members of various strategic publics (4.0/5.0). These findings are notable, as they are 2009 vintage – 11 years old. Narula et al. (2019) maintain social media is playing an important role in sharing a range of environmental issues, suitable solutions thereto, updating the audience regarding the different types of disaster, and precautionary measures.

Can social media make a difference? Porter et al. (2007 in Carpenter et al., 2016) state that communicators who use social media perceive that they have more power in creating change than those who do not use social media to reach publics.

### ***14.2.3 Current Reality***

Before the advent of the Internet, audiences had to endure listening to or seeing advertisements repeatedly, and the advertisements were in control of the media that people listened to or watched (Evans, 2011). However, the Internet evolved in the 1990s, and audiences no longer had to endure commercials, as they could fast forward through commercials and ignore the ‘noise’ of marketing. Social media provides the forum for people to acquire information in a natural and more honest way than being subjected to marketing messages. Target audiences can be reached through user-generated content sites and social media communities. The reality is that the users and community members are now in ‘control’ and do not want to be ‘drilled’ with marketing messages.

## **14.3 Research**

### ***14.3.1 Research Method and Sample Stratum***

The research method can best be described as experimental in that posts pertaining to different issues were undertaken periodically by the author, the page administrator. The impact of environment-related posts was compared to the impact of non-environment related posts, and then the impact of four categories of

environment-related posts, namely, URL referral, photo, video, and media release, was compared.

Posts were constrained to the built environment, and construction, COVID-19 upon the onset thereof, particularly construction health and safety (CH&S), and in addition, tertiary construction management education and related issues such as seminars. In terms of the review of the degree of interest, the review spanned a period of a year from 15 June 2019 to 14 June 2020 and addressed issues such as 'reach', 'clicks', and 'reactions, comments, and shares'. Reach is the number of people who saw any of the page posts. Reach can be broken down into people who saw the posts with or without advertising (paid or organic posts). All posts were without advertising.

### 14.3.2 Research Results

Table 14.1 indicates that a total of 210 posts were made during the period, 50 (23.8%) of which were environment-related. The 50 environment-related posts resulted in a reach of 4902, 248 clicks and 93 reactions, comments, and shares. The totals equate to a mean reach of 98.0, 4.96 clicks and 1.86 reactions, comments, and shares. In terms of comparisons, non-environmental posts realised a mean reach of 124.4 per post, compared to environmental posts' 98.0. In terms of clicks, non-environmental posts realised a mean reach of 13.52 per post, compared to environmental posts' 4.96. In terms of reactions, comments, and shares, non-environmental posts realised a mean reach of 2.41 per post, compared to environmental posts' 1.86.

Table 14.2 provides an analysis of the Department of Construction Management's environment-related Facebook posts in terms of type of post. The single (2.0%) media release realised a mean reach of 239.0, followed by video (145.0), photo (141.4), and URL referral (87.29), the mean for all four types being 98.04. However, in terms of clicks, photo realised a mean of 15.20, followed by media release (13.00), video (11.00), and URL referral (3.26), the mean for all four being 4.96. In terms of reactions, comments, and shares, photo realised a mean of 5.20, followed by media release (4.00), video (1.50), and URL referral (1.43), the mean for all four being 1.86.

**Table 14.1** Summary of the Department of Construction Management's Facebook posts for the period 15 June 2019 to 14 June 2020

Category	Total		Reach			Click			R/C/S		
	No.	%	No.	%	No./post	No.	%	No./post	No.	%	no./post
Environment	50	23.8	4902	19.8	98.0	248	10.3	4.96	93	19.5	1.86
Non-environment	160	76.2	19900	80.2	124.4	2164	89.7	13.52	385	80.5	2.41
Total	210	100.0	24802	100.0	118.0	2412	100.0	11.49	478	100.0	2.28

**Table 14.2** Analysis of the Department of Construction Management’s environment-related Facebook posts for the period 15 June 2019 to 14 June 2020 in terms of type of post

Category	Total		Reach			Click			R/C/S		
	No.	%	No.	%	No./post	No.	%	No./post	No.	%	No./post
URL referral	42	84.0	3666	74.8	87.29	137	55.2	3.26	60	64.5	1.43
Photo	5	10.0	707	14.4	141.4	76	30.7	15.20	26	28.0	5.20
Video	2	4.0	290	5.9	145.0	22	8.9	11.00	3	3.2	1.50
Media release	1	2.0	239	4.9	239.0	13	5.2	13.00	4	4.3	4.00
Total	50	100.0	4902	100.0	98.04	248	100.0	4.96	93	100.0	1.86

Table 14.3 presents the Department of Construction Management environment-related Facebook posts for the period 15 June 2019 to 14 June 2020. The first column presents the date of the post, followed to the right by the post description, the type of post, reach, clicks, and then reactions, comments, and shares (R/C/S) in the extreme right-hand column.

A total of 210 posts were made during the period, 50 (23.8%) of which were environment related. The 50 posts resulted in a reach of 4902, 248 clicks and 93 reactions, comments, and shares. The totals equate to an average reach of 98.04, 4.96 clicks, and 1.86 reactions, comments, and shares. Furthermore, the top ten posts (20.0%) accounted for 35.1% of the reach, 44.4% of the clicks, and 46.2% of reactions, comments, and shares.

The top ten environment-related posts in terms of reach are ‘ACHASM Contribution to “Covid-19” “Construction Return to Work” Documentation’ media release on 28/05/20 (239); ‘SEEDS 2019 Conference Dinner, Ipswich, United Kingdom on 11 September - we received two awards’ photo on 03/10/19 (220); ‘Mitigating the spread of the Coronavirus’ video on 03/03/20 (179); ‘WATER MOST IN Belgium!!!’ (Elevated canal) photo on 28/09/19 (170); ‘Morocco to commence construction of world largest sea water desalination plant in 2021’ URL referral on 22/06/19 (169); ‘We are delighted to highlight X’s second place in the Greenovate Property Awards 2019 Competition for his submission titled “Implications of a natural ventilation retrofit of an office building” supervised by Y’ photo on 11/12/19 (161); ‘A bridge made of grass’ URL referral on 18/06/19 (157); ‘Asbestos-containing materials exist in many of our buildings and structures!’ URL referral on (145); ‘R1.2 billion solar farm approved for the Garden Route’ on 07/02/20 (143); and ‘Former Bricklayer Turns Stones Into Works of Art’ URL referral on 10/01/20 (139).

The ‘ACHASM Contribution to “Covid-19” “Construction Return to Work” Documentation’ media release on 28/05/20 (239) addressed the contribution of a group of Candidate and Professional Construction Health and Safety Agents (CHSAs) to the development of the construction industry’s COVID-19 regulations and guidelines under the leadership of the Executive Director, ACHASM, who is also a research associate in the Department of Construction H&S Management. This constituted a major intervention on the part of construction H&S practitioners.

**Table 14.3** Analysis of the Department of Construction Management's environment-related Facebook posts for the period 15 June 2019 to 14 June 2020

Date	Post description	Type	Reach		Clicks	R/C/S
			No.	%		
28/05/20	ACHASM Contribution to 'Covid-19' 'Construction Return to Work' Documentation	Media release	239	4.88	13	4
03/10/19	SEEDS 2019 Conference Dinner, Ipswich, UK, 11 September - we received two awards	Photo	220	4.49	33	18
03/03/20	Mitigating the spread of the Coronavirus	Video	179	3.65	9	1
28/09/19	WATER MOST IN Belgium!!! (Elevated canal)	Photo	170	3.47	14	4
22/06/19	Morocco to commence construction of world largest sea water desalination plant in 2021	URL referral	169	3.45	7	2
11/12/19	X's second place in the Greenovate Property Awards 2019 Competition for his submission titled 'Implications of a natural ventilation retrofit of an office building' supervised by Y	Photos	161	3.28	15	3
18/06/19	A bridge made of grass	URL referral	157	3.20	3	0
15/07/19	Asbestos-containing materials exist in many of our buildings and structures!	URL referral	145	2.96	10	3
07/02/20	R1.2 billion solar farm approved for the Garden Route	URL referral	143	2.92	2	2
10/01/20	Former bricklayer turns stones into works of art	URL referral	139	2.84	4	6
29/12/19	An Eye for Renewal   Carte Blanche   M-Net	URL referral	136	2.77	4	4
10/09/19	Johannesburg unveils the completed S-bend wall mural project:	URL referral	122	2.49	0	2
22/10/19	'There is ingenuity in Africa': The architect who builds with trash	URL referral	113	2.31	5	7
06/04/20	The National Institute for Occupational Health (NIOH) has arranged a PPE USE and COVID-19 Training Session	URL referral	111	2.26	9	2
05/10/19	Automated 'decking' swimming pool cover	Video	111	2.26	13	2
20/12/19	Prefab homes on stilts include solar panels, water collection systems and organic gardens	URL referral	109	2.22	2	1
30/04/20	Covid-19 occupational health and safety measures in workplaces Covid-19 (C19 OHS)	URL referral	108	2.20	18	1
14/05/20	South Africa's COVID-19 strategy needs updating: here's why and how	URL referral	104	2.12	3	0
17/04/20	Site operating procedures protecting your workforce during coronavirus (Covid-19)	URL referral	103	2.10	6	2
08/01/20	Transparent solar panels will turn windows into green energy collectors	URL referral	103	2.10	4	8
24/04/20	Housebuilders begin 'controlled' restart of sites	URL referral	99	2.02	9	1

(continued)

**Table 14.3** (continued)

Date	Post description	Type	Reach		Clicks	R/C/S
			No.	%		
26/09/19	Astronauts make concrete in space for the first time	URL referral	98	2.00	0	1
30/04/20	Presentations to the 'virtual' first Asia Pacific SDEWES conference on sustainable development of energy, water and environment systems	Photo	92	1.88	11	1
11/10/19	Plastic brick invention to launch in Cape Town	URL referral	91	1.86	6	0
09/03/20	Hemp wood, the 'new' oak. 20% stronger and grows 100 times faster!	URL referral	86	1.75	4	2
27/03/20	Australian university develops 'pandemic drone' to spot Covid-19 in crowds	URL referral	84	1.71	1	0
03/01/20	New York City passes law for bird-friendly exterior requirement for buildings	URL referral	83	1.69	2	0
21/04/20	Call for the designation of construction sector as essential services	URL referral	82	1.67	2	1
13/04/20	Commercial real estate must do more than merely adapt to coronavirus	URL referral	82	1.67	1	1
07/03/20	How Taiwan used big data, transparency and a central command to protect its people from coronavirus	URL referral	81	1.65	2	0
09/03/20	Ten coronavirus questions for construction firms	URL referral	80	1.63	2	2
09/01/20	House inside a rock	URL referral	75	1.53	3	3
28/04/20	Learning during COVID-19	URL referral	73	1.49	5	3
20/12/19	Tesla's new solar roof cheaper than A regular roof with solar panels	URL referral	73	1.49	2	0
29/02/20	Water theft: Thirty years of looting	URL referral	71	1.45	2	0
27/02/20	Sevierville company first in the world to produce hemp hardwood flooring	URL referral	68	1.39	0	2
14/05/20	Crushing coronavirus uncertainty: The big 'unlock' for our economies	URL referral	65	1.33	3	0
12/12/19	December 1998: White Paper on the Energy Policy of the Republic of South Africa	Photos	64	1.31	3	0
08/06/20	'What are the responsibilities of employers during COVID-19'	URL referral	62	1.26	4	0
11/03/20	Construction Health & Safety New Zealand (CHASNZ) has released a succinct resource that provides an overview of COVID-19 toolbox and outlines some easy steps to take to mitigate the risk of catching the virus	URL referral	62	1.26	0	0

(continued)

**Table 14.3** (continued)

Date	Post description	Type	Reach		Clicks	R/C/S
			No.	%		
20/12/19	UK renewables generate more electricity than fossil fuels for first time	URL referral	62	1.26	0	0
08/06/20	Covid-19: The folly of correcting mistakes when heading the wrong way	URL referral	61	1.24	0	0
18/01/20	This new building material has cement-like strength—and it's alive	URL referral	57	1.16	1	0
11/06/20	Research group predicts severe recession due to 'flawed, self-inflicted' hard lockdown	URL referral	53	1.08	2	0
08/03/20	Coronavirus: Get over it!	URL referral	49	1.00	5	0
19/03/20	Crane working at remote Antarctic site	URL referral	48	0.98	1	0
05/06/20	Free content for World Environment Day	URL referral	46	0.94	0	0
06/04/20	The power of good design	URL referral	40	0.82	3	4
28/01/20	Foresight Africa: Top priorities for the continent 2020–2030	URL referral	37	0.75	0	0
11/06/20	Spain: Taking sustainable energy to the next level	URL referral	36	0.73	0	0
<i>Total</i>	50		4902		248	93
<i>Mean</i>			98.04		4.96	1.86

The 'SEEDS 2019 Conference Dinner, Ipswich, United Kingdom on 11 September - we received two awards' photo on 03/10/19 (220) featured Professor X (Sustainability Retrofit Award) and Professor Y (Health and Safety Award), a research associate and a professor in the Department of Construction Management. Previous 'Impact of Facebook posts' research determined that posts relating to staff and students realised high reaches.

'Mitigating the spread of the Coronavirus' video on 03/03/20 (179) featured the Singaporean Minister for Health addressing their parliament with respect to the nature of COVID-19.

The 'WATER MOST IN Belgium!!!' (Elevated canal) photo on 28/09/19 (170) presented a notable photo of innovative engineering in terms of a canal negotiating local topography.

The 'Morocco to commence construction of world largest sea water desalination plant in 2021' URL referral on 22/06/19 (169) is relevant to the metropole in which the Department of Construction Management's university is located in that the metropole has had water restrictions in place for years, and the City of Cape Town has three operational desalination plants, i.e. the issue is 'close to home'.

'X's second place in the Greenovate Property Awards 2019 Competition for his submission titled "Implications of a natural ventilation retrofit of an office building" supervised by Y' photo on 11/12/19 (161) featured a member of staff and a student



in the Department of Construction Management. As stated above, previous 'Impact of Facebook posts' research determined that posts relating to staff and students realised high reaches (Smallwood, 2018).

'A bridge made of grass' URL referral on 18/06/19 (157) featured a bridge courtesy of BBC News. Every year the last remaining Inca rope bridge still in use is cast down, and a new one erected across the Apurimac river in the Cusco region of Peru. The Q'eswachaka bridge is woven by hand and has been in place for at least 600 years. Once part of the network that linked the most important cities and towns of the Inca empire, it was declared a World Heritage Site by UNESCO in 2013. No modern materials, tools or machines are used in the whole process of building the bridge – only grass and human power (Busque, 2019). Figure 14.1 provides a view of the bridge under re-construction.

'Asbestos-containing materials exist in many of our buildings and structures!' URL referral on 15/07/19 (145) is a post by SGS, Geneva, Switzerland, announcing the launch of its all-new Asbestos e-learning training course. Asbestos-containing materials are still an issue in South Africa, and the South African Asbestos Regulations 2001 were gazetted on 10 February 2002. These resulted in, inter alia, the substitution of asbestos fibre with synthetic fibre.



**Fig. 14.1** Q'eswachaka bridge spanning the Apurimac river in the Cusco region of Peru (Busque, 2019)



**Fig. 14.2** Wall section (Televičiūtė, 2016)

The ‘R1.2 billion solar farm approved for the Garden Route’ on 07/02/20 (143) featured a topical issue in South Africa, namely, electricity supply. The reason being the challenges courtesy of coal-fired power stations in the form of blackouts/power outages and the emissions from the power stations. Solar energy being a form of sustainable energy, in addition to the value of such construction projects, means that such posts are likely to attract interest.

‘Former Bricklayer Turns Stones Into Works of Art’ URL referral on 10/01/20 (139) features Johnny Clasper from Yorkshire, UK, who evolved from a bricklayer to a stonemason. He is cited as turning stones and rocks into anything ranging from patios to innovative sculptures and captivating mosaics (Televičiūtė, 2016) (Fig. 14.2).

The bottom ten environment-related posts in terms of reach are as follows: 11/06/20 ‘Spain: taking sustainable energy to the next level’ URL referral on 11/06/20 (36); ‘Foresight Africa: Top priorities for the continent 2020–2030’ URL referral on 28/01/20 (37); ‘The power of good design’ URL referral on 06/04/20 (40); ‘Free content for World Environment Day’ URL referral on 05/06/20 (46); ‘Crane working at remote Antarctic site’ URL referral on 19/03/20 (48); ‘CoronaVirus: Get over it!’ URL referral on 08/03/20 (49); ‘Research group predicts severe recession due to ‘flawed, self-inflicted’ hard lockdown’ URL referral on 11/06/20 (53); ‘This new building material has cement-like strength—and it’s alive’ URL referral on 18/01/20 (57); ‘Covid-19: The folly of correcting mistakes when heading the wrong way’ URL referral on 08/06/20 (61), and ‘UK renewables generate more electricity than fossil fuels for first time’ URL referral on 20/12/19 (62).

## 14.4 Conclusions

Given the reach, clicks, and reactions, comments, and shares, overall, the Department of Construction Management’s Facebook page is relevant.

Given the respective reaches, clicks, and reactions, comments, and shares, non-environmental posts can be deemed to have had a greater impact than

environment-related posts. However, the reaction to environment-related posts indicates that such posts are of interest and relevant.

Although the non-environment-related posts were not presented and analysed in the paper, it should be noted that five of the top ten posts overall in terms of reach were student/staff/industry personalia-related, which prior research has identified as having the greatest impact in terms of the Department of Construction Management's Facebook posts (Smallwood, 2018).

Based upon the findings, it can be concluded that certain environment-related posts are of greater interest than others. Those that are of greater interest include topical issues, personalia linked to the Department, and unique issues. Topical issues include COVID-19, access to water due to the local drought, solar energy, and asbestos-containing materials. Personalia linked to the Department include the receipt of awards by staff and students. Unique issues include 'WATER MOST IN Belgium!!! (Elevated canal)', 'A bridge made of grass', and 'Former Bricklayer Turns Stones Into Works of Art'.

The two personalia linked to the Department posts constituted 4.0% of the posts, and although they accounted for 7.7% of the reach, they accounted for 19.4% of the clicks and 22.6% of the reactions, comments, and shares. This further underscores the finding of prior research, namely, that personalia-related posts were identified as having the greatest impact in terms of the Department of Construction Management's Facebook posts (Smallwood, 2018). Furthermore, it leads to the conclusion that clicks and reactions, comments, and shares are important indicators and are ultimately the 'measure of impact'.

Furthermore, it can be concluded that Facebook plays an important role in sharing a range of environmental issues and suitable solutions thereto as contended by Narula et al. (2019).

## 14.5 Recommendations

It is recommended that Facebook page statistics be regularly reviewed to determine the impact and relevance of posts. Attention should be focused on clicks and reactions, comments, and shares.

Facebook page administrators should evolve a 'cocktail' of posts in terms of an ideal mix to optimise interest in, to inform, and to raise the level of environmental awareness and the impact of their pages. However, personalia linked to the department or organisation should feature prominently in posts. Doing so is likely to promote interest in a page, the issues addressed, and the 'owner'.

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