

Interactions on Government Facebook Pages: An Empirical Analysis

Research-in-Progress

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Abstract

There is a growing body of research on government use of Facebook (FB) and citizen engagement; however there is a paucity of empirical research that identify the extent of agency and audience engagement on government FB pages. Little is known if different types of agencies engage differently in FB. Based on a large-scale world-first empirical analysis of over 145 federal government FB pages, this article presents insights on online participation in terms of government posts and citizen interactions observed over three years (2013-2016) across different types of agencies (i.e. operational, policy, regulatory and specialist). Preliminary findings show convincing agency and audience engagement on FB pages as a platform for sharing and communicating. However there are differences among the agencies in terms of audience and agency engagement relative to post activity and interactions. The findings have implications for federal government agencies, both from benchmarking and capability building perspectives.

Keywords: Facebook, government, post types, interaction types

Introduction

Government SNS (social networking sites) and Facebook (FB) adoption represents a trend with potential to impact broad regulatory and public administration processes. Digital media and SNS have enhanced citizen information accessibility, government-citizen engagement and networking, and altered the way citizens socialize with one another and government; government SNS adoption represents an evolutionary implication for democratic engagement (Dixon, 2010; Linders, 2012; McKnutt, 2014). With citizens projected to increasingly expect government involvement, for administrators, “keeping pace with new is critical to governments committed to knowledge-based economies that simultaneously foster innovation and promote social cohesion” (McKnutt 2014, p. 49). The U.S and Australian government’s *Open Government Initiative* (Linders 2012; Chun, 2012; Alam and Walker 2011) and the U.K government’s *Big Society Project* represent initiatives for advancing social media (SM) government use and citizen engagement, with such initiatives seeking to devolve power to citizens and enhance collaboration. Efforts by governments to increase coproduction and collaboration through SNS adoption constitute “an extension of the current digitisation efforts of government services as a new wave of the e-Government era” (Mergel 2013a, p. 328).

Despite the prevalence of moves towards increased adoption, and initiatives in place to foster greater citizen engagement, and coproduction, research suggests “the dialogic affordances of social media remain underutilized by public relations and even democratic governments” (Heaselgrave and Simmons 2016, p. 133). SNSs are used to complement existing communication platforms, both online and offline, and do not serve to usurp or replace e-government services (Mergel 2013a, p. 328). Researchers have found “that practitioners are using [SNS] for one-way transmission of information”, as “information dumps” (p. 134; e.g., Abdelsalam et al., 2013; Lee, 2014; McKnutt, 2014; Mergel, 2013b; Mossberger et al., 2014; Reddick and Norris, 2013; Soon and Soh, 2014). This indicates there is a gap between theoretical knowledge and practical application of government SNS use, with “[m]any federal departments and agencies [...] still in the middle of navigating the uncertainties of using social media as an extension of the use of their online

presence” (Mergel 2013a, p. 328). Lack of empirical data about government FB engagement and use of social media for two-way communication led to call for research that explores the dynamics involved in social media use. In Australia, where research into federal government is limited (Alam et al 2011, Heaselgrave and Simmons 2016), there are few scholarly contributions to understanding the practical application of social media engagement. Further, there is a lack of large-scale empirical research on government agencies and their interactions with citizens through the use of FB pages. Majority of research in this area is based upon anecdotal cases of successful government implementations or interviews with government communicators; and focused on large populated cities or local level government (e.g. Councils). Hence research on FB in government is still in its infancy, fragmented and does not focus on different levels of government. However there is considerable differences among government relative to their functional areas (e.g. operational, policy or regulatory). It is asserted that government agency interactions on social media (i.e. Facebook) will vary based upon the functional areas of the government. This research aims to fulfil this gap.

The focus of this research is thus back on the federal government, particularly, how federal government is engaging on FB and what insights this can provide in terms of transforming government service delivery to better meet the needs of their different functions (e.g. policy, regulatory or operational). This research examines the extent of 145 Australian federal government uses of FB services in terms of citizen interactions with government posts. Specific research question that guide this research is: Are there any differences in audience interactions with government posts for different types of agencies?

From a theoretical perspective, the research will generate shed insights on interactions and engagement with government posts for different types of agency. From a practical perspective, the research will contribute new knowledge particularly for Australian federal government agencies, engagement strategies for post activity relative to citizen interaction. This will further assist in their efforts to benchmark against similar others and in identification of capability gaps in government interactions with citizens on FB pages.

Facebook in Government Research

Contemporary literature in SNS government adoption has had global reach, and increasing research has been undertaken in the field in the past five years, including in Australia (Alam and Walker 2011; Alam and Diamah 2011; Alam et al 2011; Collins, 2009; Hagan et al., 2009; Samuel, 2009; Skeels and Grudin, 2009; Howard, 2012; Heaselgrave and Simmons, 2016) and U.S (Mossberger et al., 2013; Snead, 2013). Research undertaken in the government SNS space has tended to be descriptive and explanatory, analyzing singular or multiple government SNS usage cases, and/or of the technological developments and implications of SNS adoption for citizen engagement and governmentality (Mergel 2013a, p. 329). Results from such exploratory and empirical papers have found that, while e-government has been adopted by government services with great interest, outcomes of increased engagement and efficiency regarding cost-effectiveness and downsizing have yet to be realized (p. 329). There is still confusion regarding appropriate strategies for public sector FB use (Hofmann et al., 2013; McKnutt 2014, p. 51; Warren et al., 2014).

Empirical and conceptual works in SNS government use reveal prevalence of particular findings. Results suggested governments increasingly employed FB as a communicative device, yet strategies were often misguided and FB underutilised (e.g., Alam and Walker 2011; Al-Wahaibi et al., 2015; Kavanaugh et al., 2012; McKnutt, 2014; Mossberger et al., 2013), with one-way ‘push’ communications employed (Abdelsalam et al., 2013; Lee, 2014; McKnutt, 2014; Mergel, 2013a; Mossberger et al., 2014; Reddick and Norris, 2013; Soon and Soh, 2014). Concern with citizen engagement is arguably prevalent due to the general consensus that citizen engagement with SM indicates prevalence of interactivity, with social media channels understood not only to perform functions of “mass dissemination but also [...] mass production and collaboration” (Linders 2012, p. 446; Mainka et al., 2014). Increased government-consumer interactivity constitutes a goal of government SM use (Criado et al., 2013).

There is an increased scholarly interest in smart cities in government research. Studies considered implications of SM use by nations (Alam and Walker 2011) or municipalities (Hartmann et al., 2013) and their impact within the context of population and tourism. For example, Lev-On and Steinfeld’s (2015) results supported their hypothesis that correlated “municipal-level FB adoption [with] population size,

location [...], as well as age, income, and education of the population” (p. 301). These studies were concerned with whether FB popularity for city pages resulted from effective SM communications or were due to general city popularity (e.g., Paris over Helsinki; Hartmann et al., 2013; Sáez-Martin et al., 2014; Mainka et al. 2015, p. 1723). Prevalence of population and tourism context-based articles (determined by agency-type studied) suggests the wide empirical applicability of government SM; another identified emerging agency-type category were department campaigns and initiatives (Lee, 2014; Soon and Soh, 2014) rather than agency-wide FB pages, though this applied to a small selection of studies within the Asian region. However no research took a holistic approach to empirically examine post and interaction activities and behavioural patterns across a large sample. There is evidence to suggest that government agencies engage differently in FB pages however no research has examined this identified gap. This research-in-progress is an attempt to contribute to this gap.

Theoretical Foundations

Despite these efforts, the capacity for scholars to adequately measure and evaluate these activities has been limited due to the fragmented nature of research; the literature has “yet to come together in a coherent and cohesive fashion” (Linders, 2012), with common measurement types yet to be cemented (Criado et al., 2013). Linders (2012) argues that “a common typology [is needed] for understanding, comparing, and guiding implementations” of coproduction and engagement in government social media” (p. 447). There has been comparatively few conceptually-oriented research, and those papers that have sought to categorize or thematically conceptualize frameworks to better understand the SNS government space have tended to approach such conceptual tasks differently. . Linders’ (2012) categorisation tended towards coproduction focus for social media use in government, with the division of three categories: citizen sourcing (C2G) (citizen consultation to improve representation and government responsiveness), government as a platform (G2C) (‘nudging’ of citizens by government to become informed and engaged), and ‘do it yourself’ government (C2C) (the self-organisation of citizens with little government interference) (p. 449). Criado et al. (2013), comparatively, developed three topics relative to innovation and implementation for SM in government: tools (relating to communication platforms), goals (organisational ends or objectives of SM usage), and topics (including predominant themes, methods, level of government, and country or region of extant research). Mergel (2013b) devised a framework for social media interactions around citizen engagement and impact based upon Open Government Initiative (OGI) by US government. Mergel provides a social media impact framework (pp. 330-331) with three interaction levels for social media interactions in public sector (see Table 1 which lists related mechanics for Facebook):

Table 1: Measuring Facebook interactions in the public sector		
Mission and Interaction level	Measurement goal for Facebook	Facebook Mechanics
Transparency	Information and education with implications for representation and citizen information accessibility through Facebook for accountability and trust	Number of fans, Number of likes for posts
Participation	Engagement measurement practices for citizen engagement with government-facilitated communication for consultation and satisfaction	Post types and post frequency, comments and likes on Facebook
Collaboration	co-creation and public-government relationship management through community building and creation of issue networks	Shares on Facebook to others or issue networks

We found this framework to align well with open government declaration of Australian government as proposed by the Gov 2.0 taskforce (DTO 2009). Hence we chose this framework as the basis for analysing Facebook interactions and associated measurements for analysing Australian government Facebook pages for this study.

Methodology

The study is part of a larger study that utilised a three-stage, exploratory mixed methods research design. Mixed methods research understands that quantitative and qualitative research, when combined, allow for a better understanding of the problem than quantitative or qualitative approaches alone (Creswell and Plano Clark, 2007). The three stages of the research are:

- Stage 1 Quantitative data analysis: Using the FB API through a third party data mining tool - Crowdtangle, FB page data was collected for all federal Australian Government FB Pages (145 in total). A quantitative data analysis was carried out based on Mergel's (2013b) framework by measuring page fan size, page posting frequency, post types (video, photo, etc.), and interaction types between 2013 -2016.
- Stage 2 Qualitative data analysis: For the top 68 agencies, a qualitative textual genre analysis was carried out by analysing wall posts on the agency FB pages. The aim was to understand the communicative practices so that agency and audience engagement can be assessed.
- Stage 3 Online Survey: Distribute a survey to government social media communicators to develop anecdotal feedback on efficiencies, challenges and risks.

This paper reports on the preliminary findings from stage 1.

Data Collection

Using FB API through the services of a third party mining tool CrowdTangle, FB wall post data for 145 Australian federal government agencies data were collected. The agency list was compiled from official government portals (i.e. australia.gov.au and data.gov.au). To the best of our knowledge, these sites list the current federal agencies that have an active FB page. Using FB API, page post activity and interactions data was collected for three years (Jan 2013-Jan 2016). The data included monthly posts by type (link, video, status and photo); interactions on posts (likes, shares and comments), page likes (i.e. fan size), page growth, post frequency etc. These are all publicly available data from those pages. The dataset was compiled from Jan 2013 through to Jan 2016, giving data points for 37 months which resulted in a large database of post usage data for federal government agencies.

Analysis Method

When defining the scope of an engagement it is important to identify both the type of use desired and the level of engagement expected from the initiative (Au 2010). Moreover measuring SM engagement is critical for successful implementation, yet there is lack of standard measure for such task (Chang & Kannan, 2008). Mergel (2013b)'s framework for social media impact includes metrics, procedures and outcomes to measure and interpret social media use in the public sector. Furthermore Au (2010) asserts that it is important to distinguish between audience and organisational engagement to understand the level of engagement evident in an initiative. Au (2010) states that measuring audience engagement and the effectiveness of web 2.0 tool has a high level of difficulty. In his report, Au (2010) presents a case of measuring SM engagements and effectiveness of Government Agency pages by using quantitative measures, such as the number of visitors. Hence we further extend Mergel's framework to include audience and agency engagement. For this study we define 'agency engagement' as the post activity by the government agencies and 'audience engagement' is measured as interactions by fans (likes, shares and comments) on government posts. This study will use both audience and agency engagement as a measure of level of engagement seen in the FB pages. A cursory investigation on a random sample of Facebook pages also found that there are very limited fan posts on government pages (for most they are non-existent). Fans mostly interact through the like, share and comments feature. Hence these mechanics were identified to measure audience engagement.

Against this backdrop, first the agencies were classified into four types based on their functionality according to the classification used in the State of the Service report 2014-15 by the Australian Public Service Commission (APSC 2015):

1. Operational (small or large) - involved in the implementation of public policy
2. Policy - involved in the development of public policy

3. Regulatory - involved in regulation and inspection
4. Specialist - provides specialist support to government, businesses and the public

Then comparison was carried out using Excel with an aim to explore for similarities and differences in engagement patterns across the four types of agency:

- Agency engagement: Patterns of usage of posts by types (i.e. photos, videos, status, links)
- Audience engagement: Interaction types across post types (i.e. likes, shares and comments)

Findings

Fan Size and General Observations

Among the 145 agencies, there are 73 operational, 46 specialist, 18 regulatory and 8 policy agencies. The operational and specialist agencies are leading in terms of fan size measured as page likes. There are 26 specialist and 20 operational agencies among the top 50 agencies by fan size. However if we consider the total volume of fans, then operational agencies have the most major share size of fans. There is only one policy and three regulatory agencies in the top 50 by fan size. Overall there are multiple Australian embassies in this top leaderboard chart. This might be due to the large population in those countries and their interest in Australia as a country to either visit or migrate.

The median fan size for all agencies is 15,738. This fan base is concentrated – Australia.com has 6.6 million fans and the top 10 Pages together account for 74% of these fans. The smallest 100 Pages collectively only account for 7% of the total fan base. There is a modest upward trend in fan growth among the pages. According to Mergel (2013b), the number of fans participating in these pages is indicative of the goal of agencies in successfully disseminating information for accountability through Facebook pages.

Agency Engagement based on Post Activity

Agency engagement is measured in terms of post activity on FB sites which has implications for level of participation (Mergel 2013b). In total, the federal agencies have published over 1.5 m (1, 53,812) posts over the last three years. During this time 77,336 photos, 11,489 videos, 9,055 status posts, and 55,932 numbers of Links were shared on the FB sites. Photos and links are by far the most popular type of post, which is also representative of the trends in FB sites in general. In terms of total number of posts posted by agencies over the last three years, specialist (53084) and operational (56960) agencies are actively engaging in FB with more posts than the regulatory (9919) and policy (8062) agencies. Hence operational agencies are leading with agency engagement.

Overall there is a steady growth in the cumulative number of posts made by federal agencies. From 2013 to 2016 there was a more than a 150 percent increase in posts across the 145 Pages. That means agency engagement has been growing due to the mandate by the Australian government to engage with citizens. Overall the ratio across different types of posts remains the same - majority of the posts are photos, followed by links, videos and status posts. Average post frequency is 0.69 indicating less than one post per day. The top 10 Pages accounted for only 13% (15,546). However, the top 74 Pages (50% of the total analysed) accounted for 68% of posts (78,488), leaving the implication that posting level did positively influence fan engagement implying that in terms of Mergel(2013)'s engagement impact, post activity increases fan participation.

As evidenced in the data (see Figure 1), the agencies differ both in terms of number of posts and type of posts they publish. Operational and regulatory agency posts have increased considerably over the last three years, whereas specialist agency post growth has been more consistent. This is because specialist agencies were already regularly using social media due to the nature of their business, whereas operational and regulatory agency may have started to engage actively due to the recent mandate by open government directive. Interestingly, policy agencies posts decreased over this timeframe. This can be due to only a small number of agencies in our dataset (only 8 agencies from a pool of 145 agencies) or not much engagement was required by these agencies.

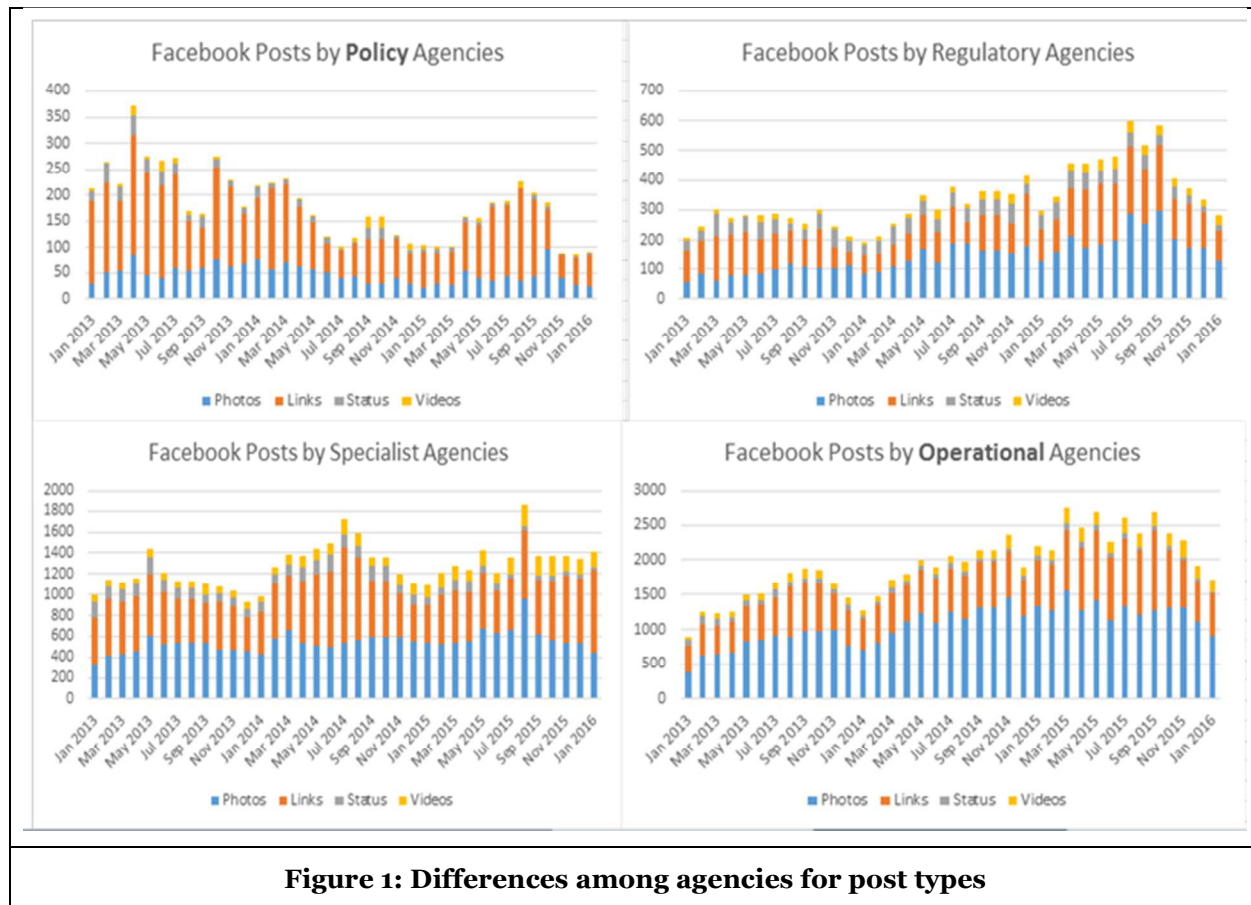


Figure 1: Differences among agencies for post types

In terms of quantity of posts, interestingly operational agencies lead the board; on an average they post 1925 posts per month. Second in the leader board is specialist agencies, publishing on an average 1279 posts per month. On the other hand, as expected regulatory agencies publish on an average 340 posts and policy agencies publish on an average 278 posts; these are significantly less in terms of quantity of posts per month as compared with operational and specialist. This has implications for Mergel (2013b)'s participation level. Regulatory and policy agencies are receiving less interaction from its audience (Mergel 2013b).

There is a clear tendency that operational agencies are posting more pictures than other agency types. This is interesting as one would expect that specialist agencies, which are mostly information and news and cultural based, may be posting more pictures. In terms of Video posts (includes both FB videos and other videos) and Link posts, agencies are divided into two group patterns:

- 1) Policy and regulatory agencies exhibiting similar behaviour.
- 2) Specialist and operational agencies exhibiting similar behaviour with Operational agencies sharing more links in recent times.

In terms of uploading status posts, all agencies demonstrate similar behavior with specialist agencies leading the board. However an interesting observation is that status posts exhibit a decreasing tendency over the years. This may be attributed to the fact that most FB posts are now accompanied by photos, a common practice across the field. Again this has implications for level of engagement and impact (Mergel 2013b). To increase participation, agencies need to use more visual communication rather than text based communication.

Audience Engagement based on Interaction Types

Audience engagement is measured in terms of number of likes, shares and comments on government posts which has implications for participation and collaboration level (Mergel 2013). Volume of interactions over three years have been impressive with interactions including 7,77,02,178 of likes, 1,70,02,648 of shares and 30,33,969 of comments. On average federal agencies receive 21, 00,059 of likes, 4, 59,531 of shares and 81,999 of comments per month.

Hence there is a clear trend in interaction types. There are more likes (75%) than shares (18%) and comments (6.5%). Comments are very low across the agency types. If we take Mergel (2013b)'s suggested mechanics to measure social impact through level of engagement, then these findings imply that agencies are engaging in low level of participation without any evidence of real dialogue. This also seems to support that the social impact of agency use of Facebook is not resulting in real collaboration. The findings further reflects that agencies still predominantly treat their Facebook Pages as outbound marketing and communications channels rather than places for serious discussions of difficult and controversial topics.

There are considerable differences in patterns of interaction for agency types as can be seen in Figure 2. As per volume of interactions, the ranking of agencies is operational, specialist, regulatory and policy in decreasing order. Overall operational agencies experience larger share of interactions with over 288,828 likes, 52795 shares and 16617 comments. There is a significant exponential growth in their interactions which shows that citizens are much more engaged with operational agencies. Specialist agencies also experienced growth over the years, but significantly less than operational. Regulatory agencies started slower than other agencies, but since 2014 have been slowly growing interactions with public. Policy agencies started later as well, but there is no pattern evident in their interactions with public. In terms of social impact (Mergel 2013b); hence policy agencies are attracting the least amount of participation.

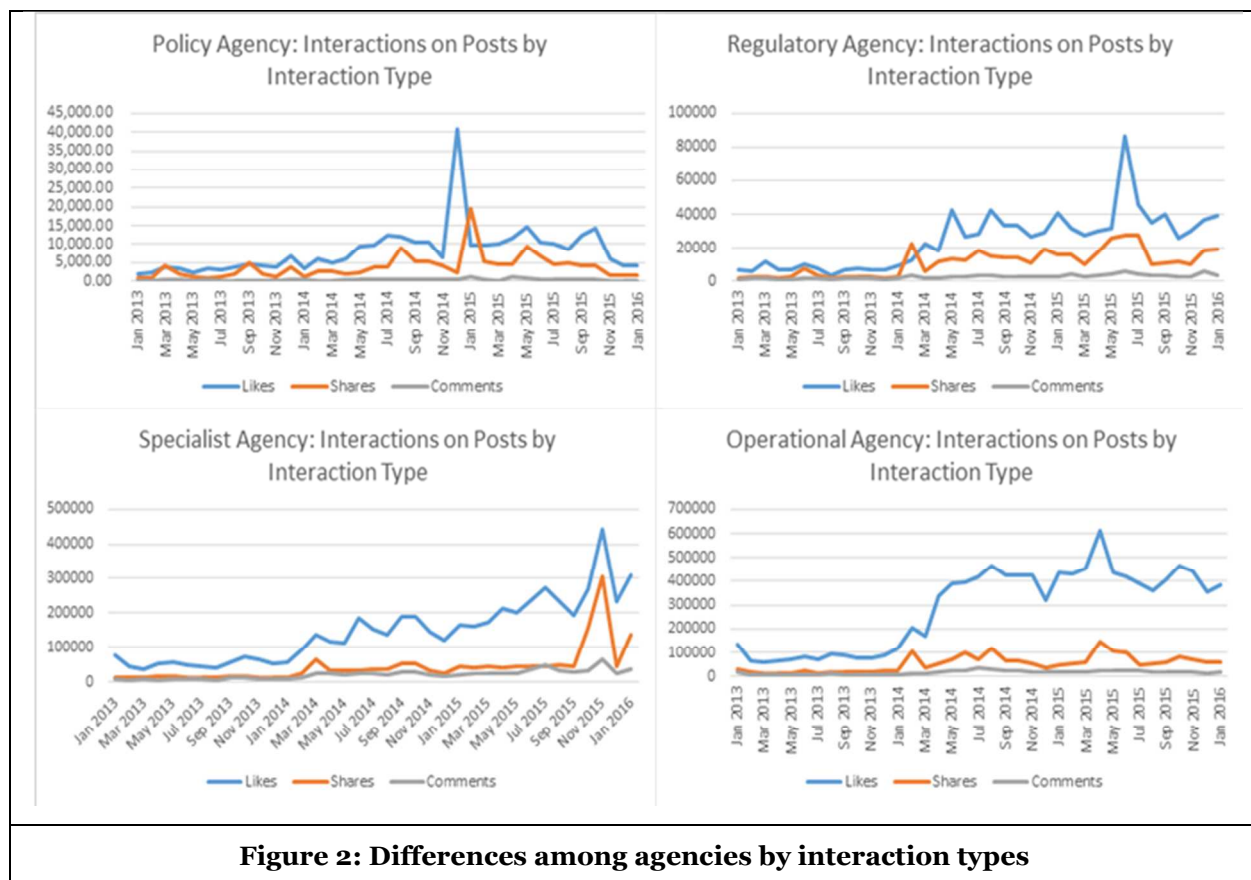


Figure 2: Differences among agencies by interaction types

Preliminary Conclusions - Differences between Types of Agencies

Based on preliminary analysis it can be concluded that different types of agencies demonstrate different agency and audience engagement patterns implying varied level of engagement and social impact as per Mergel's framework. Operational agencies have been found to be the most engaged both in terms of agency and audience engagement implying participation level of engagement. They are also delivering the best return on conversations as evidenced in their activity per post and interaction rates. This is an interesting finding, as it was expected that specialist agencies would be more active than operational agencies. There is a common tendency in terms of performance across these agencies. The ranking of these agencies are: 1) operational 2) specialist 3) regulatory and 4) policy in most categories. There is a clear inclination that operational and specialist agencies engagement pattern is similar whereas regulatory and policy agencies engagement pattern is similar (see Table 2). This implies that operational and specialist agencies are showing higher level of participation than policy and regulatory agencies. All of the agencies showing very low level of evidence for collaboration.

Table 2: Comparison of posts and interaction across agency types							
Agency Type	count	Total posts per page	Average posts per page type	Activity per post	Average daily posts	Total Interactions	Average interactions per page type
Operational	73	73,384	1005	188	0.90	13,785,522	188,842
Specialist	46	49,042	1066	164	0.95	8,026,604	174,491
Regulatory	18	12,961	720	114	0.64	1,482,464	82,359
Policy	8	6,787	848	70	0.76	477,228	59,653

Further preliminary conclusions can be drawn from this analysis:

- Overall there has been an increasing tendency in post activity and interactions on FB pages across all agency types. There has been a clear shift in the type of post agencies has posted to their Facebook Pages over the years. Top Pages tended to publish more visual (photo/video) posts. Video and photo postings have grown significantly faster than link postings, while the number of status posts has actually declined. At least eighty percent of over performing posts (i.e. posts with more than 1000 interactions) made significant use of imagery. Native Facebook video use has grown exponentially over the three years, more than quadrupled. Policy agencies share more links, whereas operational agencies post more status posts with photos.
- The progressive shift towards visual content, increasing posting frequency and changes in the terminology and topics that agencies have posted about in their pages has seen a trend for increased interactions per post. Interactions per post grew significantly across all types (Likes, Shares, Comments) from 2013 to 2016, seeing almost six times increase in total interactions per post on government Facebook Pages. The data indicates Australians have become more comfortable engaging with government via social networks as well as that agency has significantly improved the quality and shareability of their posted content.
- There is a clear trend that there are more likes (75%) than shares (18%) and comments (6.5%). This finding reflects that agencies still predominantly treat their Facebook Pages as outbound marketing and communications channels rather than places for serious discussions of difficult and controversial topics.
- In terms of Mergel's (2013b) framework of social impact, all agencies have successfully used Facebook for transparency and accountability. Operational agencies have shown highest level of participation,

followed closely by Specialist agencies. Regulatory agencies have shown low level of participation with regulatory agency showing minimal level of participation.

Implications for Research and Practice

This study tried to ascertain if there is any difference among agency types in relation to agency post activity and audience interactions. Using Mergel's (2013b) framework of social impact for social media interactions, we have observed from findings above that there are considerable differences among agency types. For successful engagement both audience and organisation involvement work as enablers of participation and collaboration. Simply posting and interacting on FB to support online participation is unlikely to create an adequate solution. So this research contributes to understanding the nature of popular post types and engagement in government FB pages to make an informed decision about social strategy.

In summary, the key contributions of this study are threefold. Firstly, the research contributes to gaining a better understanding of government FB phenomenon at federal level, in particular for Australian context. Secondly, the research reveals that varied level of engagement is visible within these sites relative to audience and organisational engagement. Thirdly, significant differences were found in agency engagement (post activity) and audience engagement (interaction) across different types of agencies based on their functional focus (i.e. policy, regulatory, operational and specific).

Research Limitations and Future Research

The types of engagement activities have been identified based on information on FB pages. The study is yet to conduct the survey and gather evidence from the organisation to make further conclusions. The metrics for engagement used in this paper are limited and based on available online wall posts. More metrics will be included in future research such as further engagement metrics, more qualitative data about alignment, outcomes and benefits realisation through survey. This research has other limitations. The research does not take into consideration the barriers to engagement. Future studies can also use Social Network Analysis (SNA) tools to understand audience engagement and its value and outcomes.

Acknowledgements

This research has received funding from Facebook Inc. and had employed research assistants to carry out the quantitative data collection and analysis.

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