Facebook Activity of Oklahoma Agritourism Facebook Pages

Introduction

Agritourism is an expanding industry in rural states (Tweeten, Leistritz, & Hodur, 2008). As of the 2017, there were 761 agritourism operations that generated more than $6.5 million in revenue (United States Department of Agriculture, 2019). Agritourism can provide economic incentive for preservation of agricultural heritage (Barbieri, 2013; LaPan & Barbieri, 2013; Mettepenningen, et al., 2012; Valdivia & Barbieri, 2014) while also improving farm family quality of life (Dickinson, 2001; Tew & Barbieri, 2012), providing family-related activities for visitors (Molera & Albaladejo, 2007; Tew & Barbieri, 2012), and strengthening rural development (Das & Rainey, 2010; Lupi, Giaccio, Mastronardi, Giannelli, & Scardera, 2017).

However, agritourism operators must overcome many challenges, including a lack of marketing experience amongst operators and limited supportive infrastructure within the industry (McGhee, 2007). Beginning agritourism operators may lack required business skills to succeed (Rogerson & Rogerson, 2014), and operators are concerned with developing promotion and marketing skills (Miller, McCullough, Rainey, & Das, 2012). Rural horticulture company marketers have cited a lack of time as a reason for not creating a social media account (Peterson, Boyer, Baker, & Yao, 2018). Indeed, a variety of business factors, such as personality of the business owner, manager education, business size, and years in business, can influence the marketing approach an agricultural business takes (Scott, Boyle, Czerniawska, & Courtney, 2018; Yao, Shanoyan, Peterson, Boyer, & Baker, 2018). Furthermore, agricultural companies may have multiple social media accounts but infrequently integrate them (Hanna & Lam, 2017).

Social media plays an increasing role in tourism marketing (Leung, Law, van Hoof, & Buhalis, 2013), and 17% of Oklahoma agritourism visitors reported hearing about the agritourism operation they visited via social media (Murphy, Melstrom, Shideler, & Cummings, 2017). Small investments in promotion could return large revenue for agritourism operations, especially through social media marketing (Sullins, Moxon, & McFadden, 2010). However, despite agricultural operators considering social media a "permanent element in agriculture" (White, Meyers, Doerfert, & Irlbeck, 2014, p. 9), agricultural operators had only basic skills in social media marketing, with low self-reported competence for higher-level tasks such as generating page 'Likes,' (Meyers, Shaw, Irlbeck, Doerfert, & Abrams, 2015).

Amongst social media platforms, 94% of social media marketers outside of the agriculture industry used Facebook, compared to the second most common platform, Instagram, at 66% (Stelzner, 2018). Furthermore, events are more effectively promoted on Facebook compared to platforms such as LinkedIn and Twitter (Moise & Cruceru, 2014). Social networking sites provide an advantage to traditional websites in providing information about events (Lee, Xiong, & Hu, 2012), and social media promotion can be less expensive for promoting events than paid advertising or traditional public relations efforts to earn media coverage (Moise & Cruceru, 2014).

Additionally, Facebook also provides opportunities for advertisements and user-generated content. Advertisements can provide tailored messages for social media users (Plume & Slade, 2018). One study found that Facebook advertisements directly influenced overall page likes, unlike non-Internet advertising (Voorveld, Araujo, Bernritter, & Rietberg, 2018). User-generated content can influence tourist intention to visit and satisfaction (Kaosiri, Foil, Tena, Artola, & García, 2019; Marchiori & Onder, 2015).

However, there is a need for tourism-related social media research (Leung et al., 2013), including quantitative content analysis of tourism social media to establish baseline data (Zeng &

Gerritsen, 2014). More research is needed to understand how perceptions of agritourism operators and visitors influence agritourism and marketing (Flanigan, Blackstock, & Hunter, 2014). Past research applying social media content analysis to branding as a whole has considered variables of social media interaction such as whether links, pictures, and video are included in material (Ashley & Tuten, 2014; Wallace, Wilson, & Miloch, 2011); degree of responsiveness measured through likes, comments, shares, and number of page followers (Fehrer, Woratschek, Germelmann, & Brodie, 2018; Parsons, 2013; Stefko, Bacik, & Fredorko, 2014; Yang, Lin, Carlson, & Ross, 2016); bandwagon effect (Kim & Sundar, 2014; Neubaum & Kramer, 2017; Peterson et al., 2018); posting frequency (Houk & Thornhill, 2013; Hudson, Huang, Roth, & Madden, 2017; Peñaflor, 2016); and date and time of post, number of retweets, and type of post (Lin & Pena, 2013). However, to date literature applying social media content analysis to agritourism has not been found.

Theoretical Framework

Public relations is a diverse field with many cultural connotations, and it is emerging as a creative discipline drawing from social theory and culture (L'Etang, 2013). Excellence Theory discusses four models of public relations (Waters & Williams, 2011). Press agentry is one-sided communication without serious consideration on reader needs, typically using dramatic effects to capture reader attention. Public information is one-sided information sharing to communicate useful information to readers. Two-way symmetry is a conversational approach to incorporate reader feedback to make communication more useful for readers, and two-way asymmetry is two-way communication with the primary intention of gaining information about readers' characteristics. Ideally, public relations consists of two-way symmetrical communication.

Social media offer the opportunity to engage in two-way symmetrical communication because of their inherently interactive nature. Social media is increasingly considered essential in public relations (Allagui & Breslow, 2016). Social media is changing public relations practitioners' interactions with media outlets, as journalists no longer passively receive media kits but instead actively request and respond to information (Waters, Tindall, & Morton, 2010). Additionally, there is also the opportunity to have more measured engagement with stakeholders (Saxton & Waters, 2014). For agritourism operations, this means there is the opportunity to meaningfully engage with potential visitors without having to go through traditional media boundaries, which could level the playing field for promotion. But while social media offer opportunities for interaction and dialogue, Duhé (2015) found that the dialogic and interactivity contributions of new media is a largely untapped area of public relations research.

New media enables researchers to evaluate both organization- and message-level engagement on social media, and message-level effects have been largely unexamined (Saxton & Waters, 2014). There are many measurements of excellence theory on social media, such as video, links, photos, and type of information (McCorkindale, 2010); likes, comments, and shares (Cho, Schweickart, & Haase, 2014); organization response to users, network extensiveness and growth, and user responses and posts (Bortree & Seltzer, 2009); and tone, details revealing users' demographics, and profanity (Woolley, Limperos, & Oliver, 2010), but there is no consensus on the best metrics to use. More exploration needed to understand the role excellence theory plays in organizational social media use, which is done in this study through analysis of agritourism operations' Facebook pages.

Purpose & Objectives

The purpose of this study was to describe overall activity of Oklahoma agritourism Facebook pages. The objectives of this study were the following:

1. Describe overall activity of Oklahoma agritourism Facebook pages,
2. Describe characteristics of pages with and without original posts, community posts, and events;
3. Describe the relationship between measurements of page activity;
4. Describe the relationship of post characteristics and page popularity;
5. Describe characteristics of events and relationships with people interested in attending an event; and
6. Compare characteristics of pages with and without advertisements.

Methods

A total of 393 agritourism operations were registered on the Oklahoma Department of Agriculture, Food, and Forestry (ODAFF) as of June 22, 2018. Of these agritourism operations, the population of the study consisted of the 287 operations that had complete registration information and a Facebook page affiliated with the operation. A minimum sample size of 165 is required for a population of 287 to achieve a 95% confidence interval and margin of error of +/-5.0 (Krejcie & Morgan, 1970), and this was achieved by representative stratified random sampling of the six Oklahoma regions listed on the ODAFF website to create a final sample of 174 agritourism operations. Stratified sampling was based on regional proportions due to the regional differences in Oklahoma agriculture (USDA-NASS, 2017), which is important given past research that has shown geographic differences in agritourism visitors and business characteristics in Colorado (Sullins & Thilmanny, 2007). The sample size by region was 48 for central (28%), 52 for northeast (30%), 20 for northwest (11%), 15 for south central (9%), 20 for southeast (11%), and 19 for southwest (11%).

Quantitative content analysis was performed using a code sheet developed by an agricultural communications graduate student and reviewed by one tourism faculty member, two agricultural communications faculty members, and one Oklahoma agritourism marketing specialist. Prior to data collection, interrater reliability was established from two samples of 30 Maine agritourism operations. After the second round of coding, all variables that had not received a minimum Cohen's kappa score of .4 were removed from the study. A final Cohen's kappa score of .94 was achieved for whether events, event posts, community posts, and original posts were present; the type of original post; the presence of "About" information (i.e., story, milestones, description, website, email, website, hours, founding year, price range, parking, phone number, and physical address); and event description word count, number of people interested and going/went to an event. Additionally, some variables were not suitable for Cohen's kappa assessment, and percent agreement was used instead. These variables were the presence of other social media, popular hours, public transit description, acceptable payment; original post word count, shares, total reactions, and attachments; and visitor post word count, shares, total reactions, and attachments. A final percent agreement of 96% was achieved for those variables.

Quantitative content analysis was performed on the sample of Oklahoma operations from August 14 to September 15, 2018. The agritourism operations' posts were logged if they occurred during June 2018. Characteristics of these posts were recorded as observed during the sampling time period of August 14 to September 15, and all reactions, comments, and shares were recorded as observed, as long as the initial post was made during the month of June. Posts were categorized

by general location and quality of the post. Community posts were defined as posts created in the Community area of a Facebook page by a member of the general public. Event posts were created by the general public under the "Discussion" section of an event's description. Original posts were created by the page administrator and appeared on the page's timeline.

All original and community posts made from June 1 to June 30, 2018, were included in the sample. Comments, reactions, and shares of these posts were recorded as observed in the period of data collection from August 14 to September 15, regardless of whether the comments, reactions, and shares were made in June. Additionally, events set to be held in June 2018 were included in the sample. All characteristics for events set to be held in June 2018 were recorded. Other page characteristics were recorded as observed in the data collection period of August 14 to September 15, 2018. These included overall page likes/followers, the number of other pages the agritourism operation Facebook page has liked, the amount of business/contact information, links to other social media accounts of the operation, reviews, price range, and advertisements by the page.

Following data collection, recorded data was aggregated and analyzed using SPSS software. Frequency was calculated for objectives 1, 2, 5, and 6. Measures of central tendencey were calculated for objectives 1, 3, 4, and 6. Bivariate correlation was calculated for objectives 2, 3, 4, and 5. Pearson's r correlation was used, with a "weak" correlation defined as $.1 \leq r < .3$, a "moderate" correlation as $.3 \leq r < .5$ and a "strong correlation as $r \geq .5$ (Cohen, 1988).

Results
RO 1: Describe Overall Activity of Oklahoma Agritourism Facebook Pages

Oklahoma agritourism Facebook pages had a median of 1,330.0 page likes per page ($M = 2,954.4$, $SD = 5,756.7$), as shown in Table 1. Community posts (i.e., posts by other Facebook users, not the agritourism pages) were observed on 32% ($n = 55$) of pages, with a median of 2.0 posts per page with at least one community post ($M = 3.4$, $SD = 4.1$). Original posts were observed on 69% ($n = 120$) pages, with a median of 7.0 posts per page with at least one original post ($M = 13.5$, $SD = 16.7$). Events were observed on 23% of pages ($n = 40$), with a median of 1.0 events per page with at least one event ($M = 2.6$, $SD = 3.1$).

RO 2: Describe Characteristics of Pages with and without Original Posts, Community Posts, and Events

Pages with at least one original post had almost four times the number of overall page likes ($Mdn = 1,881$, $M = 3,866$, $SD = 6,697$) as pages without any original posts ($Mdn = 486.0$, $M = 929$, $SD = 1,1823$), as shown in Table 2. Few pages without original posts had a community post ($n = 2$, 4%) or an event ($n = 2$, 4%). Similarly, pages with community posts had more page likes ($Mdn = 1,994$ $M = 4,445.0$, $SD = 7,566.5$) than pages without community posts ($Mdn = 1,022$, $M = 4,445.0$, $SD = 7,566.5$). Only 9 pages (17%) without an original post had a community post, compared to 46 pages (38%) that had both an original post and a community post.

A page has the opportunity to provide a variety of business-related information on its Facebook page, and the number of information items present on each page were cumulatively tallied for a "business information richness" score. These variables included contact information (i.e., phone number, physical address, email, website, and whether an additional social media account was listed), business information (i.e., parking, public transportation, price listing, acceptable payment, business hours, most popular hours), and story-related information (i.e., founding year, "about" description, business story, business milestones, whether team members were listed, and other page-specific information such as awards and mission statements). Most

items of business information were more frequently present on pages with at least one original post than pages without any original posts, as shown in Table 3 The business items with the smallest difference in frequency between pages with and without original posts were for listing phone numbers (n = 106, 88% of pages with original posts, and n = 43, 80% for pages without original posts) and websites (n = 101, 84% of pages with original posts, and n = 41, 76% for pages without original posts), and the business item with the largest differences between pages with and without original posts was listing an email address (n = 91, 76% of pages with original posts, and n = 28, 52% for pages without original posts).

RO 3: Describe the Relationship between Measurements of Page Activity

Both the number of reviews and the average score of those reviews were recorded. Overall page likes had the strongest relationship with reviews (r = .939), followed by the number of community posts (r = .567), as shown in Table 4 The number of likes had a weak, negative relationship with the total review score of a Facebook page, a cumulative average of public ratings on a 1-5 scale where 1 is lowest. Business information had a moderate relationship to page likes (r = .277). Pages could also provide links to other social media accounts, although only 9 pages (5%) listed at least one additional social media account. Instagram was most frequently listed (n = 7), followed by Pinterest (n = 2) and YouTube (n = 1). The number of social media accounts per page had a moderate relationship to page likes (r = .243).

RO 4: Describe the Relationship of Post Characteristics and Page Popularity

Pages with at least one community post had a mean of 3.3 community posts per page (SD = 4.1) created on 2.6 different dates (SD = 2.5) by 2.7 different Facebook profiles (SD = 3.6). Pages with at least one event post had a mean of 4.7 event posts (SD = 5.9) created on 3.3 different dates (SD = 3.8) by 3.4 different Facebook profiles (SD = 4.0). When comparing original, community, and event posts, community posts had the strongest relationship between page likes and the number of posts (r = .770), dates (r = .622) and sources (r = .761), as shown in Table 5.

A post created by another Facebook page and shared by the agritourism operation Facebook page was considered a shared post. The total number of pages each agritourism operation shared a post from had no relationship to reactions of those posts that had been shared (r = -.035) or overall page likes (r = -.002). Amongst the 174 agritourism Facebook pages evaluated, a total of 216 shared posts were observed. Of the 216 shared posts amongst all agritourism operations, 165 different pages were used as an original source.

RO 5: Describe Characteristics of Events and Relationships with People Interested in Attending and Event

A total of 105 events were created by 40 pages (23%). A median of 45 people (M = 144.2, SD = 430.7) were interested in each event and a median of 5 people reported going (M = 15.2, SD = 33.2). A total of 43 events (41% of events) from 32 pages (80% of pages with at least one event) had at least one event visitor post. The average number of people interested in attending all events hosted by each page did not have a relationship to page characteristics such as page likes (r = -.027), as shown in Table 6. A very strong relationship existed between the number of people interested in events and the number of people who reported going/went. However, the mean number of people interested in events per page had a strong correlation (r = .806) to the number of posts made after the event and a moderate correlation to the number of posts made on the day of the event (r = .440). Events with at least one event post (n = 43, 42% of events) had medians of 119 people interested (M = 271.7, SD = 632.0) and 11 people going (M = 27.0, SD = 47.4). Events

without any event posts ($n = 60$, 58% of events) had medians of 12 people interested ($M = 46.4$, $SD = 85.5$) and 3 people going ($M = 5.9$, $SD = 10.8$).

Table 1

Overview of Oklahoma Agritourism Facebook Activity

	Min.	*Q1*	*Mdn.*	*Q3*	*Max.*	*M (SD)*
Page likes ($n = 174$)	10.0	524.0	1,330.0	3,390.25	49,402.0	2,954.4 (5,756.7)
Page followers ($n = 174$)	11.0	519.5	1,302.0	3,311.5	48,690.0	2,873.2 (5,602.2)
Number of reviews ($n = 143$)	1.0	12.0	37.0	113.0	2,747.0	117.2 (295.8)
Review score ($n = 142$)	4.0	4.775	4.9	5.0	5.0	4.8 (0.2)
Original posts ($n = 120$)	1.0	3.0	7.0	17.75	106.0	13.5 (16.7)
Community posts ($n = 55$)	1.0	1.0	2.0	4.0	29.0	3.4 (4.1)
Events ($n = 40$)	1.0	1.0	1.0	2.75	16.0	2.6 (3.1)
Event posts ($n = 32$)	1.0	1.0	3.0	4.0	26.0	4.72 (5.9)

Table 2

Characteristics of Pages with and without Original Posts, Community Posts, and Events

Characteristic	Min.	Q1	Mdn.	Q3	Max.	M (SD)
Original posts						
Absent (n = 54)						
Page likes (n = 54)	10.0	154.25	486.0	1,162.75	5,193.0	929.1 (1,1822.7)
Original posts (n = 0)	n/a	n/a	n/a	n/a	n/a	n/a
Events (n = 2)	1.0	1.0	1.0	1.0	1.0	1.0 (0.0)
Event posts (n = 1)	0.0	0.0	0.0	0.0	0.0	n/a
Community posts (n = 9)	1.0	1.0	1.0	2.5	5.0	1.8 (1.4)
Present (n = 120)						
Page likes (n = 120)	52.0	967.5	1,881.0	4,513.75	49,402.0	2,865.8 (6,697.4)
Original posts (n = 120)	1.0	3.0	7.0	17.75	106.0	13.5 (16.7)
Events (n = 38)	1.0	1.0	1.0	3.25	16.0	2.7 (3.2)
Event posts (n = 31)	1.0	1.0	3.0	4.0	26.0	4.8 (6.0)
Community posts (n = 46)	1.0	1.0	2.5	5.0	29.0	3.7 (4.4)
Community posts						
Absent (n = 119)						
Page likes (n = 119)	10.0	388.0	1,022.0	2,679.0	45,386.0	2,265.5 (4,568.5)
Original posts (n = 74)	1.0	3.0	6.0	12.25	55.0	9.3 (10.3)
Events (n = 18)	1.0	1.0	1.0	2.0	16.0	2.4 (3.7)
Event posts (n = 13)	1.0	1.0	2.0	7.0	21.0	5.1 (6.2)
Community posts (n = 0)	n/a	n/a	n/a	n/a	n/a	n/a
Present (n = 55)						
Page likes (n = 55)	116.0	831.0	1,994.0	5,137.0	49,402.0	4,445.0 (7,566.5)
Original posts (n = 46)	1.0	5.0	14.0	24.5	106.0	20.3 (22.1)
Events (n = 22)	1.0	1.0	1.0	5.0	10.0	2.8 (2.6)
Event posts (n = 19)	1.0	1.0	3.0	4.0	26.0	4.4 (5.8)
Community posts (n = 55)	1.0	1.0	2.0	4.0	29.0	3.4 (4.1)
Events						
Absent (n = 134)						
Page likes (n = 134)	10.0	397.75	976.0	2,635.5	26,684.0	2,215.4 (3,374.1)
Original posts (n = 82)	1.0	3.0	5.0	12.25	46.0	8.5 (8.8)
Characteristic	Min.	Q1	Mdn.	Q3	Max.	M (SD)
Events (n = 0)	n/a	n/a	n/a	n/a	n/a	n/a
Event posts (n = 0)	n/a	n/a	n/a	n/a	n/a	n/a
Community posts (n = 33)	1.0	1.0	2.0	4.5	8.0	2.8 (2.2)
Present (n = 40)						
Page likes (n = 40)	707.0	1,557.25	2,553.0	4,434.0	49,402.0	5,430.3 (10,000.7)
Original posts (n = 38)	1.0	9.25	16.5	33.25	106.0	24.4 (23.4)
Events (n = 40)	1.0	1.0	1.0	2.75	16.0	2.6 (3.1)
Event posts (n = 32)	1.0	1.0	3.0	4.0	26.0	4.7 (5.9)
Community posts (n = 22)	1.0	1.0	2.5	4.25	29.0	4.2 (5.9)

Table 3

Presence of Business Information on Pages with and without Posts

	Pages without original posts (*n* = 54)	Pages with original post (*n* =120)
	n (%)[a]	*n* (%)[a]
Parking	13 (24%)	47 (39%)
Physical address	39 (72%)	107 (89%)
Phone	43 (80%)	106 (88%)
Website	41 (76%)	101 (84%)
Email	28 (52%)	91 (76%)
Hours		
"Always open"	13 (24%)	57 (48%)
Specific	10 (19%)	8 (7%)

[a]Proportion based on pages with and without original posts.

Table 4

Relationships of Frequency of Page Activities

Activities	Page likes	Original posts	Community posts	Events	Event posts
Number of reviews	.939*	.334*	.635*	.207*	.472*
Community posts	.567*	.435*	-	.259*	.497*
Event posts	.415*	.435*	.497*	.320*	-
Pages liked by page	.380*	.320*	.219*	.485*	.284*
Original posts	.359*	-	.435*	.401*	.435*
Business info richness	.277*	.263*	.134	.178*	.236*
Social media accts	.243*	.375*	.055	.078	.069
Events	.198*	.401*	.259*	-	.320*
Price range[a]	.171*	.107	.161*	-.012	.022
Review score	-.330*	-.225*	-.118	-.297*	-.074

[a]Scale of 1-4, where 1 was least expensive.
*$p < .05$.

Table 5

Relationship of Post Characteristics to Page Likes and Post Reactions

	Original posts[a]		Community posts[a]			Event posts[a]		
	Posts	Dates	Posts	Dates	Sources[b]	Posts	Dates	Sources[b]
Page likes	.297*	.337*	.770*	.622*	.761*	.647*	.754*	.029
Post reactions	-.093	-.113	.802*	.646*	.823*	.110	.084	.005

[a]Amongst pages with at least one such post.
[b]Number of people who created a post per page.
*$p < .05$

Table 6

Relationship of People Interested with Page Characteristics

Characteristic	People interested[ab]
People going/went[ab]	.955*

Event posts[a]	.498*
Events[a]	-.142
Original posts[a]	-.114
Community posts[a]	-.061
Page likes[a]	-.027
Time of posts	
Posts made before event[c]($n = 120$)	.283
Posts made day of event[c] ($n = 25$)	.440*
Posts made after event[c] ($n = 9$)	.806*

[a]Pages with at least one event.
[b]Mean calculated for people interested/going to all events hosted by the page.
[c]People interested in all events with at least one event post.
*$p < 0.05$ level.

RO 6: Compare Characteristics of Pages with and without Advertisements

Pages with advertisements had more page likes ($Mdn = 2,732.0$, $M = 3,993.4$, $SD = 3,153.7$) than pages without advertisements ($Mdn = 1,218.5$, $M = 2,849.2$, $SD = 4,953.6$), as shown in Table 7. Pages with advertisements also had a higher proportion of pages with at least one original post ($n = 15$, 94%) than pages without an advertisement ($n = 105$, 66%). Pages with advertisements had a lower proportion of pages with community posts ($n = 4$, 25%) than pages without advertisements ($n = 51$, 32%), but pages with advertisements had a higher median number of community posts ($Mdn = 3.0$, $M = 3.3$, $SD = 2.6$) than pages without advertisements ($Mdn = 2.0$, $M = 3.4$, $SD = 4.2$).

Table 7
Facebook Activity of Pages with and without Advertisements

	Min	Q1	Mdn.	Q3	Max	M (SD)
Absent ($n = 158$)						
Page likes ($n = 158$)	10.0	495.0	1,218.5	2,937.0	49,402.0	2,849.2 (4,953.6)
Events ($n = 37$)	1.0	1.0	1.0	3.0	16.0	2.7 (3.2)
Posts						
Original ($n = 105$)	1.0	3.0	8.0	19.0	106.0	14.6 (17.5)
Event ($n = 29$)	1.0	1.0	3.0	4.0	26.0	4.7 (6.1)
Community ($n = 51$)	1.0	1.0	2.0	4.0	29.0	3.4 (4.2)
Present ($n = 16$)						
Page likes ($n = 16$)	581.0	1,145.25	2,732.0	7,347.75	9,658.0	3,993.4 (3,153.7)
Events ($n = 3$)	1.0	1.0	1.0	-	3.0	1.7 (1.2)
Posts						
Original ($n = 15$)	1.0	2.0	5.0	11.0	18.0	6.0 (5.4)
Event ($n = 3$)	1.0	1.0	4.0	-	10.0	5.0 (4.6)
Community ($n = 4$)	1.0	1.0	3.0	5.75	6.0	3.3 (2.6)

Discussion/Conclusions

The majority of Oklahoma agritourism Facebook pages posted at least once and had at least one review. However, less than half of pages contained a community post, event post, or event. The page characteristics with the strongest correlation to page likes were number of reviews,

followed by number of community posts. This supports past research suggesting user-generated content is valued by the public for trip-planning and information needs (Kaosiri et al., 2019; Marchiori & Onder, 2015; Marine-Roig & Clave, 2015). However, it is also important to note user-generated content could be a product of page popularity, not a cause of page popularity.

Pages without any original posts still had business information available such as phone numbers and business hours. These pages may have utilized Facebook for purposes other than creating Facebook posts. Amongst all pages, only nine agritourism operations listed social media accounts besides Facebook under the "About" section of their Facebook page. This is similar to findings by Hanna and Lam (2017) that large agribusiness companies infrequently integrated social media platforms.

Pages with original posts had nearly four times the number of overall page likes as pages without original posts. However, there was only a moderate relationship between the number of original posts and overall page likes. This suggests a link between posting activity and overall page activity, but increasing the posting frequency may not produce a proportional increase in page likes. This supports the research findings of Peñaflor's (2016) that the influence of posting frequency varies amongst Facebook pages and findings of Houk and Thornhill that posting frequency correlates with page likes.

Pages without original posts were not completely inactive, and many still had some activity through community posts. While this activity tended to be lower in volume than pages with at least one original post during the sampling period, agritourism operators should be wary of leaving pages completely unattended because narratives about their operation could still be written whether the agritourism operator checks in frequently or not.

About two-thirds of pages had original posts, but only about one-third had community posts. When relating this to Excellence Theory, this could represent the public information model of Excellence Theory, characterized as one-way communication that provides beneficial information to the public (Waters & Williams, 2011). Because pages with at least one original post were more likely to have more page likes than pages without an original post, this suggests the public believes they benefit from following the page even if there is not much interaction. The strong relationship of reviews and community posts to overall page likes suggests the public desires to see more two-way communication. While there is value in providing useful information to the public, combining that with two-way interactions could prove to be more beneficial to agritourism operations.

Facebook has established itself as a unique social media platform for marketing events. However, less than one-quarter of agritourism operations had one event set to be held in June 2018, suggesting events may be an underutilized component of Facebook pages. Events with at least one post had more people interested in attending the event. Additionally, Moise and Cruceru (2014) found specific types of events were most frequently promoted on different social media platforms, with events such as trade shows, exhibitions, and concerts popularly promoted on Facebook; it is possible characteristics of the events are more influential on attendance than Facebook marketing activities.

Although Facebook is considered a unique social media platform for marketing events, the overall activity of the Facebook page may not influence event popularity, as there was no correlation between the number of people interested in attending an event and measurements of Facebook activity such as number of posts. Events with at least one event post more frequently contained a link in their event description; however, other differences, such as the presence of a description, were similar between the two types of events. This lack of correlation suggests it was

characteristics of the event page or the event itself that was most influential on visitors. For example, Lee et al. (2012) found level of emotional attachment to an event page influences overall attitude toward the event and suggested creating content such as videos to boost event attendance by increasing emotional engagement.

Facebook advertisements were directly related to overall page likes (Voorveld et al., 2018), and agritourism operation Facebook pages with an advertisement had a median number of page likes more than 1,500 greater than agritourism operation Facebook pages without advertisements. While advertisements can take many forms, such as boosted posts and videos, this research did not evaluate content or type of advertisements. The content of an advertisement may influence audience interaction with the advertisement (Plume & Slade, 2018), and future research should consider the influence of the content of agritourism Facebook advertisements on public reaction.

While advertisements are associated with more overall page likes amongst agritourism operations, pages with advertisements also more frequently had at least one original post, in comparison to pages without advertisements. It is possible other factors, such as posting frequency, influenced overall page popularity, but future research is needed to confirm the influence of advertisements on overall Facebook page popularity. Additionally, page likes and the presence of advertisements were measured at the time of data collection of August 14 to September 15, 2018, while variables such as the presence of original posts, community posts, and events were recorded if they were created in June 2018. Advertisements can only be seen under a Facebook page's "Info & Ads" section while they are running, and this is a limitation in comparison of pages with and without advertisements.

Recommendations

Facebook provides a variety of opportunities to share information through original posts, community posts, business information, reviews, and events. There are two primary recommendations for agritourism operations and those seeking to help agritourism operations, such as state departments of agriculture and Extension.

First, when agritourism operations have limited resources but seek to maximize page likes, operators should create at least one original post, encourage agritourism visitors to create reviews and community posts about their experiences, and develop Facebook advertisements. There was a very strong correlation between page likes and reviews, as well as a moderate relationship between page likes and number of original posts, number of event posts, and number of pages liked by a page. Increasing these activities will likely correspond with an increase in page likes; however, social media marketers must be careful to avoid overwhelming page followers with posts (Hudson et al., 2016). It is important to note the number of original posts is moderately correlated to the number of community and event posts, and increasing curated content may result in an increase in user-generated Facebook posts. Advertisements can be helpful for pages seeking to maximize page likes but with only moderate time to devote to page activity. With all of these marketing activities, it is essential to note that Facebook marketing cannot replace providing a quality agritourism experience.

Second, agritourism marketing practitioners should avoid placing agritourism operations in a one-size-fits-all category. Some posts saw high engagement with more than 800 comments, while other posts received no interaction at all. Furthermore, amongst the 174 agritourism operations in this research, overall page likes ranged from 10 total page likes to almost 50,000 page likes. Regional tourism marketers in Extension and state departments of agriculture should provide individualized advice and marketing to agritourism operations when possible and may

seek to quickly identify active and inactive pages or to classify pages for targeted marketing campaigns. Agritourism marketing practitioners should prioritize assisting pages without any original posts, especially if these pages do not also provide business information.

Future research should evaluate the degree to which characteristics of the agritourism operation and operator influence marketing strategies. Interviewing agritourism operators can consider how business characteristics and agritourism operators' personality and goals influence Facebook marketing decisions; comparing operators' perspectives to visitors' perceptions of Facebook marketing may also be helpful. Additionally, research should consider financial measurements, such as revenue and cost, in Facebook marketing strategies. Consistency between reported event attendance on Facebook and actual event attendance in person should be evaluated, as well as characteristics of the events that influence whether individuals express interest or plans to attend on Facebook. Finally, the sample should be expanded to consider agritourism operations outside of Oklahoma, social media platforms aside from Facebook, and additional time periods than June.

References

Allagui, I., & Breslow, H. (2016). Social media for public relations: Lessons from four effective cases. *Public Relations Review, 42*, 20-30. doi:10.1016/j.pubrev.2015.12.001

Ashley, C., & Tuten, T. (2014). Creative strategies in social media marketing: An exploratory study of branded social content and consumer engagement. *Psychology & Marketing, 32*(1), 15-27. doi:10.1002/mar.20761

Barbieri, C. (2013). Assessing the sustainability of agritourism in the US: A comparison between agritourism and other farm entrepreneurial ventures. *Journal of Sustainable Tourism, 22*(2), 252-270. doi:10.1080/09669582.2012.685174

Bortree, D. S., & Seltzer, T. (2009). Dialogic strategies and outcomes: An analysis of environmental advocacy groups' Facebook profiles. *Public Relations Review, 35*, 317-319. doi:10.1016/j.pubrev.2009.05.002

Cho, M., Schweickart, T., & Haase, A. (2014). Public engagement with nonprofit organizations on Facebook. *Public Relations Review, 40*, 565-567. doi:10.1016/j.pubrey.2014.01.008

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). New York, NY: Lawrence Erlbaum Associates.

Das, B. R., & Rainey, D. V. (2010). Agritourism in the Arkansas Delta Byways: Assessing the Economic Impact. *International Journal of Tourism Research, 12*, 265-280. doi:10.1002/jtr.752

Dickinson, K. (2001). *Deciding to diversify: A case study of seven Virginia farm businesses*. (Master's Thesis). Virginia Tech Electronic Theses and Dissertations.

Duhé, S. (2015). An overview of new media research in public relations journals from 1981 to 2014. *Public Relations Review, 41*, 153-169. doi:10.1016/j.pubrev.2014.11.002

Fehrer, J. A., Woratschek, H., Germelmann, C. C., & Brodie, R. J. (2018). Dynamics and drivers of customer engagement: Within the dyad and beyond. *Journal of Service Management, 29*(3), 443-467. doi:10.1108/JOSM-08-2016-0236

Flanigan, S., Blackstock, K., & Hunter, C. (2014). Agritourism from the perspective of providers and visitors: A typology-based study. *Journal of Tourism Management, 40*, 394-405. doi:10.1016/j.tourman.2013.07.004.

Gascoigne, W., Sullins, M., & McFadden, D. T. (2008). Agritourism in the West: Exploring the behavior of Colorado farm and ranch visitors. *Western Economics Forum.* Retrieved from https://core.ac.uk/download/pdf/6532785.pdf

Hanna, S., & Rowley, J. (2012). Practitioners views on the essence of place brand management. *Place Branding and Public Diplomacy, 8*, 102-109. doi:10.1057/pb.2012.5

Houk, K. M. & Thornhill, K. (2013). Using Facebook page insights data to determine posting best practices in an academic health sciences library. *Journal of Web Librarianship, 7*, 372-388. doi:10.1080/19322909.2013.837346

Hudson, S., Huang, L., Roth, M., & Madden, T. J. (2016). The influence of social media interactions on consumer-brand relationships: A three-country study of brand perceptions and marketing behaviors. *International Journal of Research in Marketing, 33*, 27-41. doi:10.1016/j.ijresmar.2015.06.004

Kaosiri, Y. N., Foil, L. J. C., Tena, M. A. M., Artola, R. M. R., & García, J. S. (2019). User-generated content sources in social media: A new approach to explore tourist satisfaction. *Journal of Travel Research, 58*(2), 253-265. doi:10.1177/0047287517746014

Kim, H. S., & Sundar, S. S. (2014). Can online buddies and bandwagon cues enhance user participation in online health communities? *Computers in Human Behavior, 37*, 319-333. doi:10.1016/j.chb.2014.04.039

Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and Psychological Measurement, 30*, 607-610. Retrieved from doi:10.1177/001316447003000308

LaPan, C., & Barbieri, C. (2013). The role of agritourism in heritage preservation. *Current Issues in Tourism, 8*, 666-673. doi:10.1080/13683500.2013.849667

Lee, W., Xiong, L., & Hu, C. (2012). The effect of Facebook users' arousal and valence on intention to go to the festival: Applying an extension of the technology acceptance model. *International Journal of Hospitality Management, 31*, 819-827. doi:10.1016/j.ijhm.2011.09.018

L'Etang, J. (2013). Public relations: A discipline in transformation. *Sociology Compass, 7*(10). doi:10.1111/soc4.12072

Leung, D., Law, R., van Hoof, H., & Buhalis, D. (2013). Social media in tourism and hospitality: A literature review. *Journal of Travel and Tourism Marketing,* 30:3-22. doi:10.1080/10548508.2013.750919

Lin, J.-S., & Pena, J. (2013). Are you following me? A content analysis on TV networks' brand communication on Twitter. *Journal of Interactive Advertising, 12*(1), 17-29. doi:10.10180/15252019.2011.10722188

Lupi, C., Giaccio, V., Mastronardi, L., Giannelli, A., & Scardera, A. (2017). Exploring the features of agritourism and its contribution to rural development in Italy. *Land Use Policy, 64 383-390.* doi:10.1016/j.landusepol.2017/03.002

Marchiori, E., & Onder, I. (2015). Reframing the image of a destination: A pre-post study on social media exposure. *Information and Communication Technologies in Tourism.* Proceedings of the International Conference in Lugano, Switzerland, February 4-6, 2015.

Marine-Roig, E., & Anton Clave, S. (2015). Tourism analytics with massive user-generated content: A case study of Barcelona. *Journal of Destination Marketing and Management, 4*, 162-172. doi:10.1016/j.jdmm.2015.06.004

McCorkindale, T. (2010). Can you see the writing on my wall? A content analysis of the Fortune 50's Facebook social networking sites. *Public Relations Journal, 4*(3). Retrieved from http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.470.6602&rep=rep1&type=pdf

McGhee, N. (2007). An agritourism systems model: A Weberian perspective. *Journal of Sustainable Tourism, 15*(2), 111-124. doi:10.2167/jost634.0

Mettepenningen, E., Vandermeulen, V., Huylenbroeck, G. V., Schuermans, N., van Hecke, E., Messeley, L., … Bourgeois, M. (2012). Exploring synergies between place branding and agricultural landscape management as rural development practice. *Rural Development, 52*(4), 432-452. doi:10.1111/j.1467-9523.2012.00575.x

Meyers, C., Shaw, K., Irlbeck, E., Doerfert, D., & Abrams, K. (2015) Identifying agriculturists' online communication tool training needs. *Journal of Applied Communication, 99*(3). doi:10.4148/1051-0834.1094

Miller, J., McCullough, S., Rainer, D., & Das, B. (2012). Communication training needs in Arkansas' agritourism industry. *Journal of Applied Communication, 96*(1), 68-81. doi:10.4148/1051-0834.1156

Moe, W. W., & Schweidel, D. A. (2012). Online product opinions: Incidence, evaluation, and evolution. *Marketing Science, 31*(3), 372-386. doi:10.1287/mksc.1110.0662

Moise, D., & Cruceru, A. F. (2014). An empirical study of promoting different kinds of events through various social media networks websites. *Procedia – Social and Behavioral Sciences, 109*, 98-102. doi:10.1016/j.sbspro.2013.12.426

Molera, L., & Albaladejo, I. P. (2007). Profiling segments of tourists in rural areas of south-eastern Spain. *Tourism Management, 28*, 757-767. doi:10.1017/j.tourman.2006.05.006

Murphy, C., Melstrom, R., Shideler, D., & Cummings, J. (2017). Agritourism in Oklahoma. *Oklahoma Cooperative Extension Service Fact Sheets*. Retrieved from http://factsheets.okstate.edu/documents/agec-1058-agritourism-in-oklahoma

Neubaum, G., & Kramer, N. (2017). Monitoring the opinion of the crowd: Psychological mechanisms underlying public opinion perceptions on social media. *Media Psychology, 20*(3), 502-531. doi:10.1080/15213269.2016.1211539

Parsons, A. (2013). Using social media to reach consumers: A content analysis of official Facebook pages. *Academy of Marketing Studies Journal*, 17(2), 27-36. Retrieved from https://www.abacademies.org/

Peñaflor, J. (2016). Beyond "Likes:" An assessment of user engagement in Facebook among Philippine academic libraries. *Library Management, 39*(1-2), 59-65. doi:10.1108/LM-12-2016-0100

Peterson, H. H., Boyer, C. R., Baker, L. M., & Yao, B. H. (2018). Trends in the use of new-media marketing in U.S. ornamental horticulture industries. *Horticulture, 4*(32). doi:10.3390/horticulturae4040032

Plume, C. J., & Slade, E. L. (2018). Sharing of sponsored advertisements on social media : Uses and gratifications perspective. *Information Systems Fronteirs, 20*, 471-483. doi:10.1007/s10796-017-9821-8

Rimal, A., Onyango, B., & Bailey, J. (2010). Farmers markets: Market attributes, market managers and other factors determining success. *Proceedings of the Annual Meeting of Agricultural and Applied Economics Association, USA*. Retrieved from https://ageconsearch.umn.edu

Rogerson, C., & Rogerson, J. (2014). Agritourism and local economic development in South Africa. *Bulletin of Geography, Socio-economic Series, 26*, 93-106. doi:10.2478/bog-2014-0047

Saxton, G. D., & Waters, R. D. (2014). What do stakeholders like on Facebook? Examining public reactions to nonprofit organizations' informational, promotional, and community-building messages. *Journal of Public Relations Research, 26,* 280-299. doi:10.1080/1062726X.2014.908721

Scott, G. G., Boyle, E. A., Czerniawska, K., & Courtney, A. (2018). Posting photos on Facebook: The impact of narcissism, social anxiety, loneliness, and shyness. Personality and Individual Differences, 133, 67-72. doi:10.1016/j.paid.2016.12.039

Stefko, R., Bacik, R., & Fedorko, I. (2014). Facebook content analysis of banks operating on Slovak market. *Polish Journal of Management Studies, 10*(1), 145-152. Retrieved from http://oaji.net/

Stelzner, M. A. (2018). *2018 Social media marketing industry report: How marketers are using social media to grow their business*. Retrieved from Social Media Examiner website: https://www.socialmediaexaminer.com

Sullins, M., & Thilmany, D. (2007). *Agritourism in Colorado: A closer look at regional trends*(EDR 07-17). Retrieved from Colorado State University Extension Service.

Retrieved from
http://hermes.cde.state.co.us/drupal/islandora/object/co%3A4259/datastream/OBJ/view

Sullins, M., Moxon, D., & McFadden, D. T. (2010). Developing effective marketing strategies for agritourism: Targeting visitor segments. *Journal of Agribusiness, 28*(2), 111-130. Retrieved from https://ageconsearch.umn.edu

Tew, C., & Barbieri, C. (2012). The perceived benefits of agritourism: The provider's perspective. *Tourism Management, 33*, 215-224. doi:10.1016/j.tourman.2011.02.005

The University of Georgia, Center for Agribusiness and Economic Development. (2006). *Georgia agritourism overview: Results from a 2005 business survey* (CR-06-11). Retrieved from https://athenaeum.libs.uga.edu/

Tweeten, K., Leistritz, L., & Hodur, N. (2008). Growing rural tourism opportunities. *Journal of Extension, 46*(2). Retrieved from http://www.joe.org

United States Department of Agriculture. (2019). *2017 Census Volume 1, Chapter 1: State Level Data*. Retrieved from
https://www.nass.usda.gov/Publications/AgCensus/2017/Full_Report/Volume_1,_Chapter_1_State_Level/Oklahoma/

USDA-NASS Southern Plains Regional Field Office. (2017). *Oklahoma agricultural statistics: 2017*. Retrieved from
https://www.nass.usda.gov/Statistics_by_State/Oklahoma/Publications/Annual_Statistical_Bulletin/ok_bulletin_2017.pdf

Valdivia, C., & Barbieri, C. (2014). Agritourism as a sustainable adaptation strategy to climate change in the Andean Altiplano. *Tourism Management Perspectives, 11*, 18-25. doi:10.1016/j.tmp.2014.02.004

Voorveld, H. A. M., Araujo, T., Bernritter, S. F., & Rietberg, E. (2018). How advertising inoffline media drives reach of and engagement with brands on Facebook. *Inernational Journal of Advertising, 37*(5). doi:10.1080/02560587.2018.1454703

Wallace, L., Wilson, J., & Miloch, K. (2011). Sporting Facebook: A content analysis of NCAA Organizational sport pages and Big 12 Conference athletic department pages. International Journal of Sport Communication, 4, 422-444. doi:10.1123/ijsc.4.4.422

Waters, R. D., Tindall, N. T. J., & Morton, T. S. (2010). Media catching and the journalist-public relations practitioner relationship: How social media are changing the practice of media relations. *Journal of Public Relations Research, 22*(3), 241-264. doi:10.1080/106727261003799202

Waters, R. D., & Williams, J. M. (2011). Squawking, tweeting, cooing, and hooting: Analyzing the communication patterns of government agencies on Twitter. *Journal of Public Affairs, 11*(4). doi:10.1002/pa.385

White, D., Meyers, C., Doerfert, D., & Irlbeck, E. (2014). Exploring agriculturalists' use of social media for agricultural marketing. *Journal of Applied Communications, 98*(4). doi:10.4148/1051-0834.1094

Woolley, J. K., Limperos, A. M., & Oliver, M.B. (2010). The 2008 Presidential election, 2.0: A content analysis of user-generated political Facebook groups. *Journal of Mass Communications and Society, 13*(5). doi:10.1080/15205436.2010.51684

Yang, S., Lin, S., Carlson, J. R., & Ross, W. T. (2016). Brand engagement on social media: Will firms' social media efforts influence search engine advertising effectiveness? *Journal of Marketing Management, 32*(5-6), 526-557. doi:10.1080/0267257X.2016.1143863

Yao, B., Shanoyan, A., Peterson, H.H., Boyer, C., & Baker, L. (2018). The use of new-media marketing in the green industry: Analysis of social media use and impact on sales. *Agribusiness, 35*, 281-297. doi:10.1002/agr.21581

Zeng, B., & Gerritsen, R. (2014). What do we know about social media in tourism? A review. *Tourism Management Perspectives, 10*, 27-36. doi:10.1016/j.tmp.2014.01.001