SPACE, TIME, PLACE, DURATION; GEOSPATIAL FRAMING AND SENSING IDENTITIES OF LANDSCAPE ARCHITECTS

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1 ABSTRACT
This paper presents findings from social media-based analytics that geo-locate social media clusters of architects, landscape architects, and planners throughout the world and the United States as a means of describing the emerging identities of these socially related and mediated groups. Three crowd-sourced surveys were conducted over a period of one month that identified tens of thousands of users and their topical interests according to professional affiliation. The social media user’s topical interests were analyzed according to the lexicographical content of their self descriptions. The lexicographical analysis followed framing and sense-making methodologies as a means of defining contemporary geolocated discourse among the three professions.

Preliminary findings from the crowd-sourced surveys suggest that:
• Each professional group has distinct identities defined by disproportionate mixes of similar topical interests.
• Professional identities in social media cluster around metropolitan geospatial groupings globally and in the United States.
• Social media users identified with these groups exhibit similar “framed identities” globally and in the US.
• Social media users associated with sustainability in the US exhibit unique “framed identities,” as do their counterparts within major metropolitan areas such as: San Francisco, New York, and Chicago.

The findings offer valuable methods for geospatial and lexicographical delineation of landscape architecture identities, and provide important analytical methods and definitions related to regional similarities and differences between landscape architects and other social groups. The findings are potentially useful to landscape architecture education programs as base data for regional, interdisciplinary, and educational research related to curriculum and program development.

1.1 Keywords
landscape architecture, social media, geo-location, lexicographic analysis, social identity
2 INTRODUCTION

It is well established that Web 2.0 applications (see Ellison, 2010 for definitions of contemporary social media terms) are providing new data for analysis, as well as, new methods for data utilization to explain significant relationships between individuals, social groups, and the landscape (Centola, 2010). Scholarly work increasingly addresses the expanding social networks, flows of information and human communication related to that data (Gabi, 2006); as well as the social meanings derived from that data that are shaping the activities and values of particular social groupings” (Healey, 2007). For example, Swaffield refers to the development of new social meanings prompted by widespread use of digital and communication technologies as potent stimuli for potential change in the professional of landscape architecture and landscape architecture education (Swaffield, 2002). To that point, Hewitt et al have identified landscape architecture related organizations, educational programs, and landscape architects, which employ social media to define social activities and social groupings (Hewitt, Taylor, and Nassar, 2011). Similarly, Hewitt et al, have harnessed website and social media-based analytics to identify social and geographic hotspots within the fields of architecture, landscape architecture, and urban design identified by professional project, research topic, landscape visualization, sustainable interest, and professional orientation. And while a limited body of scholarship addresses professional identity issues related to journalism, nursing, and education (Deuze, 2005; Wu, 2010) no scholarly work to date has examined the broader influence and impacts of social media to define identity within landscape architecture and related professions with broader implications for landscape architecture education.

This paper presents findings from social media-based analytics of geo-located groups of architects, landscape architects, and planners, globally and throughout the United States, as a means of describing their emerging social identities and relationships. Three crowd-sourced surveys were conducted over a period of one month in May and June 2012 that identified 31,745 users and their lexicographical interests according to professional affiliation. The social media user’s individual topical interests were analyzed according to the lexicographical content of their self descriptions. The lexicographical analysis follows framing and sense-making methodologies identified by Fiss and Hirsch as a means of defining contemporary geo-located discourse among the three professions (Fiss and Hirsch, 2006). Those framing and sense-making methods include the identification and quantification of meaningful and neutral self-descriptive terminology, and the correlation and ranking of that meaningful terminology between groups as a means of illustrating shared and unique identities.

3 METHODOLOGY

Consistent with scholarly research addressing the use of new technologies and data sources for urban studies, and for studies of social media that extract “real world” insights, (Fujisaka, 2010), data were mined from twitter feeds of professional groups including: the AIA, the ASLA, and the APA. The data-mined twitter feeds were geo-located both globally and within the United States to determine identifiable characteristics of the APA, ASLA, and AIA social media users. The geo-location data were mapped with ArcGIS to identify and compare size and proximity characteristics of AIA, ASLA, and APA social media users. The geo-located data were then analyzed for lexicographical content associated with AIA, ASLA, and APA member self-descriptions to reflect terminology both specific to each of the professions and shared across professions. Lexicographical content was also measured between sub-data sets of ASLA social media users associated with sustainability within the United States and in US model cities.

4 FINDINGS

4.1 Global Social Media Geo-location

The following graphs and maps represent findings derived from crowd-sourced data from the three organizations identified above. The graphs and diagrams illustrate the specific source networks from three perspectives: 1) international geo-located mapping of twitter accounts and their respective influence by number of followers, 2) national geo-located mapping of twitter accounts and their respective influence by number of followers, and 3) model metropolitan geo-located mapping of twitter accounts and their respective influence by number of followers. (Note: in the maps below the larger the symbol, the greater the number of twitter followers and their relative influence within AIA, ASLA, and APA groups. Also please note that cited numbers for each professional group does not correspond exactly with respective membership totals; and that data was generally not available concerning member’s confidential data).
Figure 1 below illustrates the relative influence and location of 9,632 social media users’ twitter accounts throughout the world associated with the ASLA. The map illustrates extensive social network activity related to the ASLA in the United States and in Europe, with modest social media activity in the Middle East and India, East Asia and Latin America, and minor social media activity in Africa and Australia. ASLA twitter users illustrated in the map represent approximately 30% of the total 31,745 users surveyed from the AIA, ASLA and APA. The corresponding bar chart indicates a range of 0-3,000 followers, with 3 users accounting for between 1,000 and 3,000 followers, 28 users counting between 200 and 800 followers, with the vast majority counting less than 200 followers. ASLA followers averaged 184 per user, for a reach of 1,772,288 twitter followers in total.

Figure 1. Relative influence and location of ASLA social media user’s Twitter accounts and number of followers

Figure 2 below illustrates the relative influence and location of 6,226 APA social media user’s twitter accounts throughout the world. The map shows less extensive social network activity related to the APA in the continental United States and in Europe with gaps in France and Eastern Europe, and minor social media activity in the Middle East and India, East Asia and Latin America, Africa and Australia.

Figure 2. Relative influence and location of APA social media user’s Twitter accounts and number of followers
The surveyed APA twitter users represent approximately 20% of the total 31,745 surveyed users. The accompanying bar chart indicates a range of 0-5,000 followers among APA members, with 3 APA members showing more than 3,000 followers, 3 members counting between 700 and 3,000 followers and the vast remaining majority (6,220) counting less than 200 followers. Total APA member followers averaged 78 per user, with a combined reach of 485,628 twitter followers in total.

Figure 3 below illustrates the relative influence and location of 15,887 social media user's twitter accounts throughout the world associated with the AIA. The map indicates extensive social network activity related to the AIA in the continental United States and in broader Europe, with modest social media activity in the Middle East and India, East Asia, Latin America, Africa, and Australia. AIA twitter users account for approximately 50% of the total 31,745 surveyed social media users. AIA twitter users exhibit a range of 0 to 5,000 member followers with 4 users indicating 3000 followers or more, and 14 users accounting for 700-3,000 followers. The vast majority has less than 200 followers each. Total AIA user followers averaged 197 per user, with a combined reach of 3,129,739 member followers.

![Map of AIA Twitter Followers](Image)

**Figure 3.** Relative influence and location of AIA social media user's Twitter accounts and number of followers

In summary, worldwide AIA, ASLA, and APA twitter users represent disproportionately sized social media user groups. Those associated with architecture represent approximately half of all total surveyed users, while landscape architects account for approximately three tenths and planners approximately two tenths of surveyed users. Members of the three groups are geographically dispersed globally, primarily within larger metropolitan areas with relatively consistent continental distributions, differing largely in terms of the degree of their representation within metropolitan areas. Larger groups tend to have more members in given metropolitan areas and in a greater number of metropolitan areas. Europe and the United States are by far the most socially connected regions. Individual influence within the groups globally is overwhelmingly based on small social networks. Less than .2% of architects, .01% of planners, and .4% of landscape architects have more than 200 followers. While individual social influence within the groups is limited to small groups, the reach of the entire groups can be extensive. Both the ASLA and the AIA count millions of combined member followers, while the APA counts almost 500,000.

### 4.2 National Social Media Geo-location

Findings derived from data-mined twitter feeds from the AIA, ASLA and APA for US geo-location and influence are based on a data subset associated with sustainability for the three group’s 22,149 twitter users. Figure 4 below illustrates the relative influence and location of 5,702 social media users associated with the ASLA in the continental United States. The map suggests that most influential social network
activity related to the ASLA is located in major metropolitan areas with some influential social media users in areas small to medium metro areas such as Bozeman, Montana. The majority of ASLA social media activity is located throughout the Midwest, the East and West Coasts, and especially the I-95 and I-85 corridors. According to the corresponding bar chart, the majority of influential global social media users are located in the US, as one would expect given the location of the organization. The proportion of influential users compared to total social media users within the US is similar to the proportion evidenced throughout the globe with 99.57% of the 5,702 US social media users counting fewer than 200 followers and slightly more than .4% with more than 200 followers.

Figure 4. Relative influence and location of US ASLA social media user’s Twitter accounts and number of followers

Figure 5. Relative influence and location of US AIA social media user’s Twitter accounts and number of followers
Figure 5 above illustrates the relative influence and location of 9,987 social media users associated with the AIA throughout the continental US. Consistent with ASLA social media use, the map indicates more influential social network activity related to the AIA in major metropolitan areas and some influential social media users in smaller metropolitan areas such as Bend, Oregon and Holland Michigan. As with the US ASLA, the majority of social media activity is located throughout the Midwest, the East and West Coasts, and especially along the I-95 and the I-85 corridors. Like the ASLA, the majority of influential social media users throughout the world are located in the US. The proportion of influential users compared to total social media users within the US, is also similar to that throughout the globe with 99.1 % of total 11,987 US AIA social media users counting fewer than 200 followers.

Figure 6 above illustrates the relative influence and location of 4,460 social media users associated with the APA throughout the continental US. Consistent with US ASLA and AIA social media use, the map indicates more influential APA social network activity in major metropolitan areas, but in significantly fewer areas throughout the US. Many of the metropolitan areas with US ASLA and AIA social media use indicate no APA social media users. As with the AIA and ASLA, the majority of social media activity is located throughout the Midwest, the East and West Coasts, but with significantly less activity along the I-95 and the I-85 corridors. There is surprisingly little activity in the Central US and Mountain West. Six states in these areas have fewer than 10 twitter users. Unlike the ASLA and AIA, virtually all influential APA twitter users throughout the world are located in the US, while the proportion of users with less than 200 followers is similar to that of global APA social media use (99.9 % of the total 4,460).

In summary, as with the globally surveyed AIA, ASLA, and APA social media users, those in the continental United States represent disproportionately sized groups. That proportion varies somewhat from global media users, with proportionately more US AIA users (55%) than global users (50%), proportionately less US ASLA users (25%) than global users (30%), and relatively equal global and US APA users (20%). Like global social media users, US AIA, ASLA, and APA members are geographically dispersed primarily within larger metropolitan areas, differing largely in terms of their representation within metropolitan areas. In general, the larger the US group, the greater number of members in metropolitan areas and the larger the range of metropolitan areas represented.

As with the global networks, individual influence within the US groups is overwhelmingly based on small social networks. As with the global networks, less than 1% of all US group’s members count more than 200 followers (2 % of architects, .01% of planners, and approximately .4% of landscape architects). As with the global reach of the three groups, both the US ASLA and US AIA count millions of combined member followers, while the APA counts hundreds of thousands.
4.3 Global Lexicographical Analysis

While analysis of the crowd sourced data to this point has provided clearly identifiable characteristics associated with geo-location and network influence of AIA, ASLA and APA members globally and nationally, lexicographical analysis of AIA, ASLA, and APA member crowd-sourced self descriptions offers more refined definition of their social identities and comparative relationships. The following charts and descriptions illustrate the 21 most utilized self-descriptive terms by social media users of the AIA, ASLA and APA globally. The sampled terms from the ASLA represent approximately 46% of the 9,632 total ASLA social media users accounts (given that not all user self descriptions were available through data mining). The graph on the left in Figure 7 below illustrates what might be framed as a “global ASLA social media user identity” based on most frequently cited self-descriptive terms. As illustrated in the chart, ASLA social media users overwhelmingly describe themselves as landscape architect designers, who are primarily urban, provide creative specialized services related to planning, building, art and construction in residential areas. They describe themselves as companies or firms that are professional, offering green and sustainable solutions. Some are students.

![Graph of ASLA Lexicographical Analysis - Self-Identifying Terminology](image1)

**Figure 7. Most frequently cited ASLA, AIA and APA social media user's Twitter descriptions**

The middle graph in Figure 7 above illustrates the sampled terms from AIA self descriptions representing approximately 42% of the total 15,887 AIA social media users surveyed. Global AIA social media users exhibit “framed identities” similar to ASLA social media users in many respects. AIA social media users overwhelmingly describe themselves as architects and designers, who are relatively urban, provide creative specialized services, marketing and management related to buildings, interiors, construction and art. They describe themselves as leading professionals offering engineering, consultancy and products that are sustainable and commercial in nature. Some of them are students.

The graph to the right in Figure 7 above illustrates the sampled terms from APA self descriptions representing approximately 53% of the total 4,460 APA social media users surveyed. Global APA social media users exhibit a “framed identity” similar in many respects to both ASLA and AIA social media users. Global APA social media users overwhelmingly describe themselves as urban/city planners, who provide services related to design, architecture, transportation, development, community, and the landscape. They describe themselves as professionals and consultants, whose work is related to sustainability, the university, public policy, advocacy and the environment. Some of them are also students.

In summary, lexicographical analysis of AIA, ASLA, and APA crowd-sourced self-descriptions suggests the following shared “framed” identities: 1) as a whole, global AIA, ASLA and APA social media users describe themselves in terms related to architecture, design, building, sustainability, professional services, urban contexts, and students; 2) global ASLA and AIA social media users (but not APA users) describe themselves most commonly in terms related to specialized creative services, construction and art; 3) global ASLA and APA (but not AIA) social media users describe themselves most commonly in terms related to landscape and planning; and 4) AIA and APA (but not ASLA) social media users describe themselves most commonly in terms related to consultancy.

Lexicographical analysis of AIA, ASLA, and APA crowd-sourced self-descriptions suggests the following unique “framed” identities: 1) global ASLA social media users (not AIA and APA users) describe themselves uniquely in terms of providing green solutions as a company or firm for residences; 2) global AIA social media users (not ASLA and APA users) describe themselves more uniquely in terms of
leadership, marketing, management, engineering, interiors and products; while 3) global APA social media users (not ASLA and AIA users) describe themselves more uniquely in terms of transportation, development, community, the university, policy, advocacy, the public and the environment.

4.4 Lexicographical Analysis within the Continental United States

Lexicographical analysis of AIA, ASLA and APA social media users, to this point, has suggested globally “framed” identities exhibiting both shared and unique characteristics. Given Hewitt, et al.’s identification of the numerous uniquely “framed” group identities within architecture, landscape architecture, and urban design at the global metropolitan level, initial review suggested that ASLA, AIA, and APA social media users would exhibit similarly unique “framed” identities at nation-state level in comparison to global ASLA AIA and APA users. Little evidence within the surveyed data, however, suggests such differing uniquely “framed” identities among US AIA, ASLA, and APA social media users. For example, AIA, ASLA and APA surveyed data from US self-descriptions are similar in proportion to the equivalent surveyed global data. Similarities between the three groups’s global and US “framed” identities are also evident, indicating higher rankings for sustainability in all three groups and lower student rankings in all three groups. Unique terms associated with US ASLA “framed” identities (not ASLA globally) include those related to ecology. Two unique terms associated of US AIA “framed” identities (not AIA globally) were technology and development. In general US APA “framed” identities show very little difference from global “framed” identities.

4.4 Geo-locational and Lexicographical Analysis for Sustainability in the United States

In light of Hewitt, et al.’s identification of the presence of uniquely “framed” social media identities in global metropolitan areas, and because of the scant evidence of such identities among total US AIA ASLA and APA social media users, ASLA data from subsets of the US social media users were analyzed at national and metropolitan area scales related to shared interests concerning sustainability (see Hewitt, 2011, and GENERALITIES above for background). The following maps and charts illustrate the geo-location and lexicographical analysis of ASLA social media users associated with sustainable terminology located throughout the US, as well as in the San Francisco Bay Area, the New York City Area, and the Chicago Area.

Figure 8 below illustrates the relative influence and location of 467 ASLA social media users associated with the sustainability in the continental United States. The map suggests that (unlike general global and US ASLA activity) ASLA social network activity related to sustainability is located in a wide range of small to large metropolitan areas. While the majority of US ASLA social media activity related to sustainability is located throughout the Midwest, the East and West Coasts (similar to general US ASLA activity), 15 states, largely in the Central and Mountain West US, have 2 or fewer users associated with sustainability. According to the corresponding three-dimensional bar chart, the vast majority (approximately 98.5%) of US ASLA social media users associated with sustainability count less than 200 followers. None count more than 300 followers (while some in the general US ASLA count as many as 3,000 followers).

According to the corresponding two-dimensional bar chart, lexicographical characteristics of US ASLA social media users associated with sustainability also vary significantly from those of the general US ASLA social media users. As illustrated in that chart, US ASLA social media users associated with sustainability overwhelmingly describe themselves as sustainable landscape architect designers, who are primarily urban, and who provide creative innovative services related to ecology, decoration, gardens, art and green building. They also describe themselves in terms of providing service related to the environment, planning, development, and economics in residential and community contexts. None are students.
4.4.1 Sustainable ASLA Social Media Activity in the SF Bay Area

Figure 9 below illustrates the relative influence and location of the 23 ASLA social media users associated with the sustainability in the greater SF Bay area. The map suggests that ASLA social network activity related to sustainability is primarily located in the urbanized portion of the greater metropolitan area. According to the corresponding three-dimensional bar chart, 100% of the SF Bay Area ASLA social media users associated with sustainability count less than 200 followers. All but 2 (approximately 91%) count 25 or less followers, and all but 4 (approximately 83%) count less than 10.

According to the corresponding two-dimensional bar chart, the lexicographical characteristics of SF Bay Area ASLA social media users associated with sustainability vary considerably from both US ASLA social media users in general and US ASLA social media users interested in sustainability,
especially in terms of their emphasis on plants, construction, food, social concern, restoration, management and place. As illustrated in the chart above, SF Bay Area ASLA social media users associated with sustainability describe themselves as sustainable landscape architect designers, generally less urban and more interested in plants than those in the US. They provide creative work related to ecology, gardens, construction, art and building. They also describe themselves as providing work related to the community, food, environment, restoration, management, and planning, in social and place-related contexts. None are students.

4.4.2 Sustainable ASLA Social Media Activity in the NY City Area

Figure 10 below illustrates the relative influence and location of the 25 ASLA social media users associated with sustainability in the greater New York City Area. The map suggests that NY City ASLA social network activity related to sustainability is primarily located in the urbanized portion of the greater metropolitan area. According to the corresponding three-dimensional bar chart, all but one (96%) of the NY City Area ASLA social media users associated with sustainability count less than 200 followers. 11 users (approximately 44%) count between 25 and 200 followers, and all but 4 of the remaining 52% of users count 20 or fewer.

![Figure 10. Relative influence and location of New York City ASLA social media user’s Twitter accounts associated with sustainability and number of followers](image)

According to the corresponding two-dimensional bar chart, the lexicographical characteristics of NY City Area ASLA social media users associated with sustainability also vary considerably from their general and sustainable US ASLA counterparts in terms of their emphasis on plants, writing/editing, recognition, film, social concern, and interest in space. As illustrated above, NY City Area ASLA social media users associated with sustainability describe themselves as sustainable landscape architect designers, who are urban and more interested in plants than the general US ASLA social media users associated with sustainability. They provide creative services related to ecology, decoration, art, writing, editing and film. They describe themselves as recognized firms offering green services related to planning in social and place-related contexts. None are students.

4.4.3 Sustainable ASLA Social Media Activity in the Chicago Area

Figure 11 below illustrates the relative influence and location of the 19 ASLA social media users associated with sustainability in the greater Chicago Area. The map suggests that Chicago Area ASLA social media related to sustainability is located primarily in the urbanized portion of the greater metropolitan area. According to the corresponding three-dimensional bar chart, like NY all but one (approximately 95%) of the Chicago Area ASLA social media users associated with sustainability count
less than 200 followers. Eight users (approximately 41%) count between 25 and 200 followers. All but four of the remaining (55%) users count 20 or fewer followers.

According to the corresponding two-dimensional bar chart, the lexicographical characteristics of Chicago Area ASLA social media users associated with sustainability also vary significantly from their US ASLA counterparts in terms of their emphasis on management, marketing, construction, natural resources, business and associations, water and ponds. As illustrated in Figure 11 below, Chicago Area ASLA social media users associated with sustainability describe themselves as sustainable landscape architect designers, who are somewhat urban and more interested in natural resources than the general US ASLA social media users associated with sustainability. They provide services related to ecology, management, construction, marketing, environment, and the development of natural resources. They describe themselves as businesses and associations offering green services related to gardens, ponds, and water. None are students.

![Figure 11. Relative influence and location of Chicago ASLA social media user's Twitter accounts associated with sustainability and number of followers](image)

5 DISCUSSION

The paper has presented findings from social media-based analytics of geo-located groups of architects, landscape architects, and planners globally and throughout the United States that describe social identities and relationships consistent with Fiss and Hirsch, suggesting: 1) that worldwide and US AIA, ASLA, and APA twitter users represent relatively consistent but disproportionately sized social media user groups, 2) that are geographically dispersed globally and in the US primarily within larger metropolitan areas with relatively consistent continental distributions, differing largely in terms of the degree and extent of their representation within metropolitan areas, 3) that individual influence within the groups globally and within the US is overwhelmingly based on small social networks, and 4) that the social reach of the each group can be extensive (Fiss and Hirsch, 2006). While findings suggest shared “framed identities” among the AIA, ASLA and APA globally and in the US associated with the terms architecture, design, building, sustainability, professional services, urban contexts, and students, general US “framed” identities indicate higher rankings for sustainability in all three groups and lower student rankings in all three groups.

Identifiable unique “framed” social identities and relationships also consistent with Fiss and Hirsch, suggest: 1) that global ASLA social media users describe themselves more uniquely in terms of providing green solutions as a company or firm for residences; 2) that global AIA social media describe themselves more uniquely in terms of leadership, marketing, management, engineering, interiors and products; and 3) that global APA social media users describe themselves more uniquely in terms of transportation, development, community, the university, policy, advocacy, the public and the environment.
Unique terms associated with US ASLA “framed” identities address ecology. Unique US AIA “framed” identities included reference to technology and development. US APA “framed” identities, however, showed very little difference from global counterparts.

While both the global ASLA and general US ASLA users exhibited similar shared and unique identities (which are likely attributable to ASLA origins within the US) Hewitt et al’s work concerning differing unique landscape architecture social media identities associated with different global metropolitan areas appears consistent with findings related to sub categories of ASLA social media use related to sustainability (Hewitt et al., 2011). That work also appears consistent with study findings suggesting considerable variance in “framed” identities between ASLA social media users associated with sustainability in US metropolitan areas.

6 CONCLUSION

On its face, this paper offers worthwhile findings related to the establishment of baseline definitions and descriptions related to landscape architecture social media use, location, and self identity, especially in relation to associated design and planning groups. The paper however, also offers worthwhile findings that confirm and build upon previous research associated with landscape architecture, geo-location and identity, and particularly associated methodologies related to social media data analysis and lexicographical analysis. The continuation and publication of related research offers opportunities to landscape architecture programs in terms of professional development, curriculum development, pedagogy, site analysis, program marketing, and alumni surveys.

7 REFERENCES