



Article

Location in location-less environments: The role of geospatial concordance in online information evaluation

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Andrew J Flanagin 

University of California Santa Barbara, USA

Grant McKenzie

McGill University, Canada

Audrey Abeyta

University of Missouri, USA

Abstract

In spite of the capacity for the Internet to connect people and information irrespective of geography, physical location may paradoxically provide influential indicators of the perceived expertise of strangers and the credibility of the information they provide that may in turn guide people's behaviors. To address this, this study examined the novel concept of *geospatial concordance* or the degree to which entities implicated in the sharing of aggregated opinions in online information pools are physically close to each other in geographic space. Predictions were tested in the context of user-generated online reviews using stimuli reflecting various types of geospatial concordance: between information consumers and online reviewers, between reviewed venues and their reviewers, and between consumers and reviewed venues. Findings support geographic perspectives emphasizing space as a mental construction imbued with particular meaning and confirm psychological views that people mentally construe places at different levels of abstraction, depending on their psychological, and physical, distance from them.

Corresponding author:

Andrew J Flanagin, Department of Communication, University of California Santa Barbara, 4005 Social Sciences & Media Studies, Santa Barbara, CA 93106, USA.

Email: flanagin@ucsb.edu

Keywords

Construal level theory, geospatial information, information credibility, information evaluation, user-generated content

To help select from among the abundant and tremendously diverse information options residing on the Web efficiently, people invoke a host of strategies to evaluate the expertise of strangers, the credibility of the information provided by them, and to determine their own courses of action in light of such assessments. In this pursuit, a major rhetorical argument has been that in environments that connect people to information seamlessly, immediately, across space, and over time location is relegated to the background of people's information evaluation calculus because it is so easily overcome. In this manner physical location is viewed mainly as a barrier to be surmounted by technologies rather than as a relevant feature considered by online information consumers. Yet, compelling evidence demonstrates that physical location is a critical factor in people's information assessments (Hansen and Wänke, 2010; Hecht and Moxley, 2009; Wilken, 2008). Indeed, the consideration of location-based information may paradoxically provide new insight into information evaluation in a contemporary media environment lauded for its location-less nature. This study articulates and develops this insight by explicitly considering the role of geospatial location in people's evaluation of online information pools and subsequent behavioral intentions.

The relevance of location in location-less environments

Information pools, or online repositories comprised of people's combined information contributions that are readily accessible to others (Cheshire and Antin, 2008), enable sharing among disaggregated individuals and have tremendous utility for those seeking insight into unknown entities within familiar domains. Contemporary information pools include a variety of popular review forums and a wide array of websites, applications, venues, and discussion groups online that provide people with the aggregated opinions of others, based on their personal experiences. Unlike resources that leverage mobile location awareness as a central feature (such as Waze for traffic navigation and Foursquare for location sharing), thereby empowering users as "digital wayfarers" who interact seamlessly with physical and digital spaces simultaneously via mobile devices (Frith, 2018; Hjorth and Pink, 2014), information pools rely on data that are contributed and retrieved without regard to the location of users.

In this way, although data in them may be location-specific, information pools are thought to derive value for their users independent of the location of those providing data to them. Because their value is not fundamentally a function of the spatial relations among interactants, information pools are typically acclaimed for transcending distance constraints and the value and utility of information in such pools has, to date, been understood to unfold independent of physical location cues. Nonetheless, spatial information is often prominent in various forms of information pools.

Key concerns of consumers relying on online information pools supplied by unknown others include effectively evaluating the expertise of strangers, judging the credibility of the information provided by them, and determining their own actions in view of such assessments. Although many have extolled the power of Internet-based communication to locate others with shared interests independent of their physical location (e.g. McKenna and Bargh, 2000), and research often focuses on contexts where technologies can effectively transcend physical distance among interactants online (e.g. Wilson et al., 2008), the physical distance between entities in information pools can in practice signal social and psychological distinctions that profoundly impact individuals' online information assessments and behavioral intentions. In instances where information consumers are faced with assessing the opinions of strangers, the relative physical distances between relevant entities might have important implications for such outcomes.

The relative geographic distance between entities (i.e. reviewed venues, reviewers, and the consumers of those reviews) is captured in this study by the novel notion of *geospatial concordance*, or the degree to which entities implicated in the sharing of aggregated opinions online are physically proximate to one another. More specifically, geospatial concordance consists of several varieties, involving propinquity (a) between information consumers and online reviewers, (b) between reviewed venues and their reviewers, and (c) between information consumers and reviewed venues. Information pools in this experimental study are operationalized in the form of aggregated online restaurant reviews, since they constitute a popular and geographically-specific resource where individuals' personal opinions are routinely contributed, collected, and evaluated by others.

The role of geospatial concordance in the evaluation of information pools

Not surprisingly, geographic science has long recognized the importance of differences in physical distance, for example, in domains such as wayfinding and navigation. There is also, however, substantial research in the geosciences examining the significant role that geospatial relationships between features play in explaining human-environment dynamics. Moreover, recent work in this domain has explicitly examined the ways in which spatial cues affect human behavior in online contexts, such as information pools.

For instance, in a test of Tobler's first law of geography (i.e. spatial auto-correlation) it has been demonstrated that, regardless of the cultural domain, in online information repositories nearby spatial entities have a higher likelihood of connection than those that are further apart, demonstrating that "the very medium that was supposed to oversee the 'death of distance'—the Internet—has instead facilitated the reaffirmation of a theory about the importance of distance that . . . has roots dating back centuries" (Hecht and Moxley, 2009: 103). Similarly, in an examination of geo-tagged Wikipedia contributions, "the likelihood of an anonymous contribution . . . exponentially decreases as the distance between the contributor and article location increases" (Hardy et al., 2012: 16), consistent with "prior results on information diffusion as a spatial process, but . . . counter to theories that a globalized Internet

neutralizes distance as a determinant of social behaviors” (p. 1). Therefore, examinations of geospatial information online clearly indicate its specific relevance as a factor in human relations, particularly in the form of contributions to information pools, in which information provision flows from both local and non-local sources, depending on the nature of the particular information venue (Hecht and Gergle, 2010; Thebault-Spieker et al., 2018).

Geography thus has a rich tradition of acknowledging that physical location endures in importance, even online. Moreover, physical location has been shown also to embody particular *mental* representations, suggesting that location is not merely of a corporeal reality but also of psychological importance. For instance, physical location is often yoked to “mental maps,” which guide people’s feelings or predispositions about particular places (Matei et al., 2001; Thebault-Spieker et al., 2017). In this manner, the physical and mental distance from a location can be related, and can affect the nature and degree of people’s attitudes and associated behavioral intentions.

In a similar fashion, physical distance can be viewed as a dimension of psychological distance. Construal level theory (CLT), for example, is rooted in the notion that people mentally represent (or construe) objects and events at different levels of abstraction, depending on their psychological distance from them (Liberman et al., 2007; Trope and Liberman, 2003, 2010). Research shows, for instance, that larger geographical distances prompt higher levels of mental representation (i.e. more abstract, global, or broad; Henderson et al., 2006; Fujita et al., 2006), which has consequences for information judgments and behaviors (Henderson and Wakslak, 2010). In online information pools, nearer geographic relations are likely to prime lower level construals (represented in concrete specific and local terms), which emphasize psychologically close phenomena and specific features that are more immediately relevant for evaluation and determining actions. Thus, geography and psychology similarly note a convergence between physical and mental distance.

Moreover, construals can implicate judgments of expertise, credibility, and downstream behaviors. For example, evidence has shown that truth ratings are enhanced by lower level (i.e. more concrete) construals (Wright et al., 2012), tweets of likely (versus unlikely) events are judged to be more spatially close (Sungur et al., 2017), online news items about a geographically distant location are seen as more believable when the construal level of people’s mindsets and psychological distance cues are congruent (Sungur et al., 2016), and statements are rated as more true when written in concrete language, particularly when they were represented as spatially proximal (versus distant), ostensibly due to the greater vividness of concrete statements (Hansen and Wänke, 2010). Thus, when individuals relying upon information in online pools have high geospatial concordance with the reviewer providing the information (i.e. they are geographically close to one another), this spatial auto-correlation should prompt concrete mental representations that should produce evaluations consonant with the information provided. Given the positively-valenced, local, and concrete information from a purported reviewer in the stimuli for the present study, geospatial concordance between individuals and reviewers should therefore prompt positive information trust associations along the outcomes examined in this study, as articulated in H1:

H1_{a-c}: Geospatial concordance between an *individual* and a *reviewer* is positively related to (a) the perceived general expertise of the reviewer, (b) the perceived credibility of the review, and (c) behavioral intent to follow the recommendation.

Yet, although the aforementioned perspectives indicate that geospatial concordance between individuals and online reviewers should result in the perceptions and intentions specified in H1, they are relatively agnostic about the specific *mechanism* underlying the proposed relationships. Accordingly, Henderson and Wakslak (2010) note that research in the domain of psychological and physical distance should consider factors that may be related to physical distance because it “often covaries with several variables (e.g. familiarity, similarity)” (p. 393). For example, physical proximity may be a simple cue for shared social identification or, more formally, homophily (the perceived similarity among individuals), which is likely to coincide in meaningful ways with geospatial concordance.

For instance, among online discussion group members higher levels of homophily are related to more positive information evaluations, greater perceived information credibility, and a higher likelihood to act on advice offered by others (Wang et al., 2008). In the context of attitudes toward online user-generated ratings content specifically, perceptual homophily between users and online reviewers is positively related to information trustworthiness and expertise, which are the main elements of perceived credibility (Ayeh et al., 2013). And, among online support group users, source credibility is positively correlated with homophily (Wright, 2000). Finally, similarity in factors like language intensity are linked to greater source credibility (Aune and Kikuchi, 1993), and receivers evaluating online consumer reviews can perceive less social psychological distance from reviewers, based on experiences, linguistic styles, and other indicators, which can in turn heighten perceived message credibility (Hernández-Ortega, 2018).

Allied perspectives, too, illustrate how similarity is related to the outcomes examined here. For instance, the social identity/deindividuation theory of computer-mediated communication (Lea and Spears, 1991) rests on the fundamental notion that in online venues with at least partial anonymity social similarity, rooted in salient group identification, guides online norms, behaviors, and trust. Similarly, social identity theory (SIT; Tajfel and Turner, 1986) and self-categorization theory (SCT; Turner, 1991) posit that individuals act in concert with those with whom they personally identify, often due to perceived similarities. With regard to information pools, SIT and SCT suggest that people may more readily trust information under conditions of shared group identification, such as achieved by shared location. H2 formalizes these relations by focusing on the role of perceived similarity between individuals and online reviewers as a mediating factor for the relationships proposed in H1:

H2_{a-c}: Perceived similarity with the reviewer mediates the relationships (i.e. H1_{a-c}) between individual/reviewer concordance and (a) the perceived expertise of the reviewer, (b) the perceived credibility of the review, and (c) behavioral intent to follow the recommendation.

The geographically unbounded nature of the Web would seemingly act against information consumers attributing additional credibility to a reviewer’s contributions to

information pools by virtue of reviewers being proximate to a reviewed venue. Indeed, given the possibility that people regularly travel far from their own home locations, and the legitimacy of reviews of specific types of entities (such as restaurants) that do not necessarily rely on particular local knowledge, it may seem that reviewer expertise and review credibility should be agnostic to a reviewer's home location. In fact, this is the espoused value of the Internet's capacity to link information across distance.

Yet, as noted already, there is considerable evidence connecting physical location and psychological closeness, suggesting that entities may be perceived as particularly expert by virtue of their proximity to a venue being reviewed, due to enhanced and perhaps sustained firsthand experience with it. Because, for instance, contributions to information pools originate disproportionately from local (versus distant) individuals (Hecht and Gergle, 2010), nearby spatial entities are more likely to be connected than those that are further apart (Hecht and Moxley, 2009), and information contributions are more likely to originate from those in closer proximity (Hardy et al., 2012), it follows that information consumers are also likely to perceive local sources as more expert and credible. Simply put, information consumers are likely to perceive reviewers closer to a reviewed entity as more knowledgeable, in spite of features of Internet-based information pools that may mitigate against this. Moreover, although construals are typically conceived in reference to one's self, distance dynamics can apply also to others, as people take their viewpoint by placing themselves in another person's position. For example, past research has successfully manipulated distance construals by having people imagine the perspectives of others, such as colleagues, friends, and neighbors (Broemer et al., 2008; Eyal et al., 2008; Katzir and Eyal, 2013; Kross and Grossmann, 2012). Thus, such perspectives hinge on viewing phenomena from not only one's own actual, but alternatively from another's projected, position. Local knowledge is thus seen as highly valuable for others, as it would be for oneself, due to specific insights gained by local proximity, as specified in H3:

H3_{a-c}: Geospatial concordance between a reviewed *venue* and *its reviewer* is positively related to (a) the perceived general expertise of the reviewer, (b) the perceived credibility of the review, and (c) behavioral intent to follow the recommendation.

Geospatial concordance implicates the venues or targets of reviews as well, but as understood in terms of the individual actors at play. Consumers of reviews, for instance, assess reviewed venues in terms of their relative sense of *place* (versus space)—or their particular understanding of locations as imbued with significance (Tuan, 1979)—which is likely a function of their geographic proximity to such venues. Shamai (1991), for instance, distinguished place as the “knowledge, belonging, attachment, and commitment” to a location, based on one's experience or familiarity with it, and Thebault-Spieker et al. (2017) show that mental maps, or individual mental representations of locations guided by associated attributes (see Lynch, 1960), impact individual attitudes in the sharing economy, as people calculate their behaviors. In this fashion, closer geographic proximity to a venue (e.g. a restaurant) might yield a greater sense of personal place, psychological closeness, or connection to it.

Closer psychological connections to a place, in turn, should prompt *diminished* trust in third-party reviewers of that place along relevant outcome variables (i.e. perceived reviewer expertise, review credibility, and likelihood to heed proffered advice), even in spite of others' firsthand experiences. In this fashion, high geospatial concordance between an individual and a reviewed venue might generate low-level construals, marking psychologically close connections (e.g. the sense of connection to one's own "place"), which are reflected in terms of opinions about the third-party reviewer. Put another way, it is likely that the connection one feels via proximity to a venue may be threatened by an interloper who lacks the same level of familiarity with the "place." This, in turn, may create skepticism about the reviewer's expertise and opinions, as well as resistance to follow their recommendations. Again presuming positive review information this suggests H4, which proposes specific outcomes from the geospatial concordance between people reading reviews and the reviewed venue:

H4_{a-c}: Geospatial concordance between an *individual* and a *reviewed venue* is negatively related to (a) the perceived general expertise of the reviewer, (b) the perceived credibility of the review, and (c) behavioral intent to follow the recommendation.

Finally, the evaluation of user-generated opinions in information pools is also subject to a great many additional indicators of information reliability. Among the most compelling factors proposed in existing research is the role of information cascades (Easley and Kleinberg, 2010) or bandwagon effects (Bikhchandani et al., 1992), which exert significant influence by virtue of people's tendency to conform to others' opinions, particularly in large numbers. Evidence shows, for example, that in the context of e-commerce a high volume of user ratings is associated with greater purchase intention (e.g. Lee, 2009; Liu, 2006; Park et al., 2007; Zhang et al., 2010) and that higher bandwagon perceptions result in higher ratings of product credibility (Sundar et al., 2009). Moreover, in online forums, validation by masses of people have been shown to be as trustworthy as expert validation (Jucks and Thon, 2017). In the context of this study, this suggests the role of review volume, as articulated in H5:

H5_{a-c}: Review volume is positively related to (a) the perceived general expertise of the reviewer, (b) the perceived credibility of the review, and (c) behavioral intent to follow the recommendation.

Method

Procedure and sample

Participants recruited through Amazon's Mechanical Turk were first asked the zip code of where they lived and were then instructed they would be presented with a screenshot of a website "where people have provided their personal reviews of restaurants," containing a description of the restaurant, along with a restaurant review and a brief description of the person who provided it. Before seeing this stimulus page, subjects were told

the location (city and state) of the restaurant and of the individual providing the review. They were also instructed to “take enough time to look at the page carefully before you proceed” and, upon seeing the stimulus page, were not allowed to advance beyond it for at least 15 seconds. After viewing the site, participants answered questions about the restaurant/reviewer pair.

The final, valid sample consisted of 253 participants ($N=253$) who were compensated at nearly twice the national hourly minimum wage rate, and at a rate above the minimum wage in all US states at the time of data collection, as assessed by trial runs of the study conducted to determine average completion times and pro-rated payment. 53% of subjects were female (47% male), their average age was almost 37 years ($SD=11.64$; age range=19 to 75), and they reported using the Internet for 17.25 years ($SD=4.70$) on average. Participants reported living in 241 unique zip codes in the United States.

Stimuli, experimental conditions, and manipulation checks

Each participant’s zip code was used to determine their specific geographic location and, in order to maintain the plausibility of the stimulus, only people residing in major US cities were used in the study (i.e. subsequently showing subjects a stimulus indicating that a random individual had provided a review of a restaurant in the same small town as that in which the participant lived would severely undermine the believability of the task, since it would be highly unlikely). Custom experimental stimuli were generated automatically in real time by creating the stimulus “websites” for the study that shared to varying degrees locations among (a) the individual participating in the study, (b) the fictitious reviewer providing the review, and (c) the fictitious restaurant that was the target of the review. These entities were manipulated to be (a) in the same city, (b) in a different major city in the same state, or (c) in a major city in a different state, depending on the experimental condition. Major cities consisted of the 100 most populated cities in the United States (based on 2010 census data), although to ensure 2 major cities from each state, the first and/or second largest city within a given state was used in 20 instances. Cities as close to 1,500 miles away from each other as possible were selected to represent major cities in different states, in order to provide a significantly large difference in geographic distance compared to the within-state scenario. In this fashion, experimental stimuli were created reflecting various levels of geospatial concordance between an individual and a reviewer, between an individual and a reviewed venue, and between a reviewed venue and its reviewer.

Each restaurant review stimulus included the name of a restaurant, an appropriate food image, a phone number and URL for the restaurant, and a map showing the restaurant’s location. Maps were created based on point selection within the vicinity of existing anonymized restaurant locations collected from the Foursquare local businesses review platform; phone numbers were preceded by the proper area codes for the city and neighborhood; and the URL was the name of the restaurant followed by “.com.” To enhance stimulus generalizability and to guard against personal preference biases, restaurants of six different ethnicities (American, Chinese, French, Mexican, Indian, and Italian) were portrayed randomly in the stimuli. Because no differences on any of the outcome measures were found among various restaurant ethnicities they were subsequently collapsed in the data.

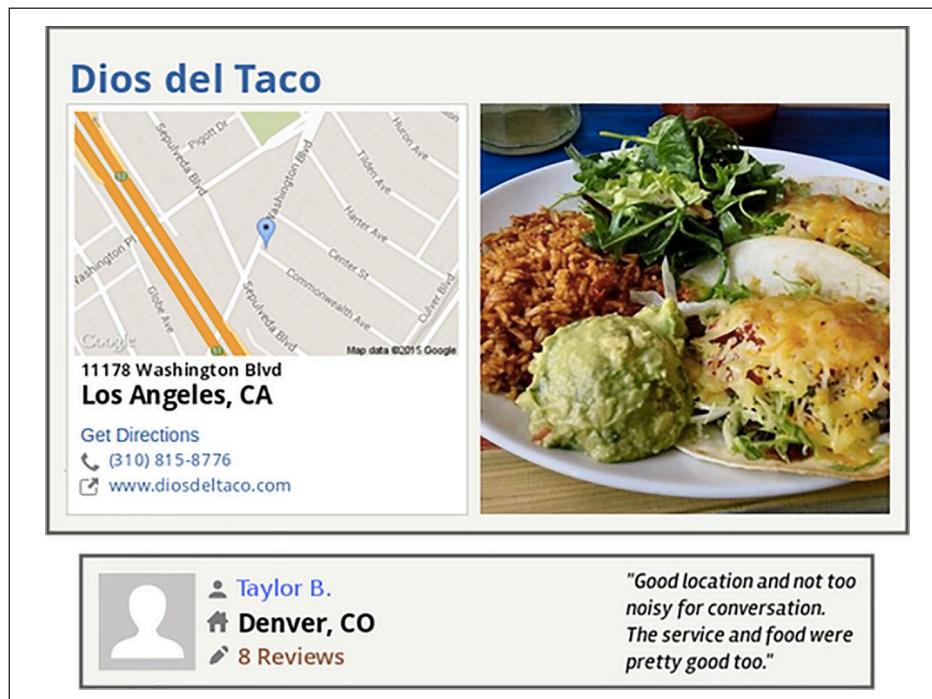


Figure 1. Example stimulus image depicting a (Mexican) restaurant in Los Angeles reviewed by an individual living in Denver who has a low number of previous reviews.

Reviewer information included a generic icon and a reviewer name ("Taylor B.") that was pilot tested to be non-sex-specific. The restaurant review was pretested to be positive. Each of these factors was held constant across all experimental conditions, although the number of reviews provided previously by the reviewer was manipulated to represent low and high values as detailed in the "Measures" subsection. The city of the reviewer was varied as previously described. Figure 1 shows an illustrative stimulus image.

To gauge whether participants correctly recalled the location of the reviewer and the restaurant relative to each other, they were asked if the reviewer and the restaurant were in the same state and also if they were in the same city. Only those who recalled both the city and the state correctly were deemed to fully pass the manipulation check and were included in further analyses. A manipulation check for the number of reviews was conducted by asking participants a multiple-choice question about whether the reviewer had provided from "very few (less than 10)" to "a large amount (approximately 300)" of reviews. A chi-square test of independence was performed to determine if subjects responded appropriately ($\chi^2=125.81$, $df=1$, $p < .001$), and only those who correctly identified low versus high numbers of reviews were retained for subsequent analyses. It is possible that location- and review-specific cues were reinforced—though not invoked—by these manipulation checks, to some unknown

degree. To further ensure that participants were paying due attention to the post-stimuli questionnaire, an attention check item asked them to enter a specific response on a Likert-type five-point scale and only those answering correctly (98%) were retained for further analyses. Two cases were omitted due to a technical issue that resulted in faulty display of the stimulus.

Measures

As detailed earlier, *geospatial concordance measures* were derived by combinations of (a) the location of the experimental subjects (individuals) based on their zip codes and manipulation of the indicated locations of (b) the reviewer and (c) the reviewed venue (restaurant). In this manner, low (different states), medium (different cities in the same state), and high (same city) levels of concordance between (a) an individual and a reviewer, (b) an individual and a reviewed venue, and (c) a reviewed venue and its reviewer were derived. To maintain consistency in the conceptual level of analysis across factors in the study (i.e. to keep all relevant variables focused on the individual), *review volume* was operationalized at the level of a single reviewer and was manipulated to be either low (8 reviews) or high (296 reviews), based on an open-ended and confirmatory pilot testing with a sample separate from the main study.

Remaining variables were all measured on a five-point Likert-type scale where higher values indicated greater agreement; final variables were composed of mean values of relevant items. The perceived *general expertise of the reviewer* ($\bar{X} = 2.73$, $SD = .78$; Cronbach's $\alpha = .82$) was measured by four items designed to assess the degree to which subjects saw the reviewer as expert, trusted, influential, and experienced in the domain of restaurants. Sample items included "To what extent is this reviewer an expert about restaurants in general?" and "How likely are others to follow the advice of this reviewer?" Following past research (Flanagin and Metzger, 2007), five items tapping into the trustworthiness, believability, and reliance upon the review were averaged to measure the *perceived credibility of the review* ($\bar{X} = 3.17$, $SD = .81$; Cronbach's $\alpha = .93$), including the sample items "How trustworthy is the information provided in the review?" and "How credible is the review information?" Subjects' *behavioral intent to follow the recommendation* was assessed by two items: "I would be interested in eating at this restaurant" and "Based on the review, I would be likely to eat at this restaurant if I could" ($\bar{X} = 3.58$, $SD = .83$; Cronbach's $\alpha = .88$).

Perceived similarity with the reviewer was measured by an adapted four-item version of the perceived attitude homophily scale (McCroskey et al., 1975) including, for example, "How similar are you to this reviewer?" and "How strongly do you identify with this reviewer?" ($\bar{X} = 2.64$, $SD = .82$; Cronbach's $\alpha = .86$). Finally, to control for their potential effects on the outcome measures, subjects' sex (as a possible indicator of identification with the gender-neutral moniker of the reviewer; male = 1, female = 2) and prior behavioral disposition were measured and considered in the analyses. *Behavioral disposition* was assessed by the level of agreement with the items "I like to eat at restaurants like this one" and "I often eat at restaurants like the one I just saw in the review" ($\bar{X} = 3.42$, $SD = 0.89$; Cronbach's $\alpha = .83$).

Results

$H1_{a-c}$, $H3_{a-c}$, $H4_{a-c}$, and $H5_{a-c}$ exploring the effects of review volume and the three forms of geospatial concordance on (a) the perceived general expertise of the reviewer, (b) the perceived credibility of the review, and (c) behavioral intent to follow the recommendation were tested with a hierarchical regression analysis. Tests for linearity, normality, collinearity, independent errors, and homoscedasticity indicated that the assumptions of the linear model were well met.

In the first block of the regression, predisposition to the restaurant type under review and the respondent's sex were entered in order to account for their effects on the outcome measures. The second block included review volume. The third block contained the three forms of geospatial concordance, each of which was dummy coded to represent the levels of concordance, and iterations were run to include all possible group comparisons. The final model for each dependent measure was significant: perceived expertise of the reviewer— $F(9,239)=14.56; p < .001; R^2=.36$; perceived recommendation credibility— $F(9,239)=6.53; p < .001; R^2=.20$; and behavioral intent to follow the recommendation— $F(9,239)=27.20; p < .001; R^2=.51$.

As shown in Table 1, although $H1_a$ was not supported, $H1_b$ and $H1_c$ largely were: when individuals are in different states from reviewers (versus in the same city as them) they find reviews to be less credible and report intentions to heed those recommendations less. In addition, individuals find reviews to be less credible if they are in the same state as reviewers, compared to the same city. $H3_a$, $H3_b$, and $H3_c$ all received strong support, demonstrating that geospatial concordance between the reviewer and the venue being reviewed is important. When reviewers are not in the same state as the venue being reviewed (versus being in the same city), individuals find the reviewer to be less expert, the recommendation to be less credible, and report being less likely to follow the advice advocated in the review. Also, when reviewers and the venue are in the same state, versus being in the same city, reviewers are seen as less expert. And, when reviewers are in the same state as the venue being reviewed, they find the reviewer to be more credible and are more likely to heed the review, compared to when reviewers and venues are in different states. $H4_b$ and $H4_c$ also were primarily supported: when individuals are in a different state than the reviewed venue (versus in the same city) they find reviews to be more credible and report greater intentions to heed recommendations. Moreover, in further support of $H4_c$, individuals are less likely to heed reviews if they are in the same state (but different city) as the reviewed venue, as compared to being in different states. Finally, $H5_a$ was supported, whereas $H5_b$ and $H5_c$ were not: higher review volume resulted in greater perceptions of the reviewer's expertise, but not in greater perceptions of their credibility or enhanced likelihood to follow their advice.

Overall, the hierarchical regression models explained substantial variance on each dependent variable, although some notable differences emerged. Specifically, the perceived expertise of the reviewer was explained primarily by the number of reviews provided, which was not an important factor in explaining recommendation credibility or behavioral intent, suggesting that although the volume of reviews boosts one's perceived expertise it is not as influential for downstream effects. Variance on behavioral intent was largely accounted for by the control variable of behavioral predisposition (the degree to

Table 1. Hierarchical regression analyses of the effects of control variables, review volume, and geospatial concordance measures (i.e. between an individual and a reviewer [I/R]; between a reviewer and a reviewed venue [R/V]; between a reviewed venue and an individual [V/I]) on (a) the perceived expertise of the reviewer, (b) the perceived credibility of the recommendation, and (c) behavioral intent to follow the recommendation.

Predictors:	Reviewer Expertise	Recommendation Credibility	Behavioral Intent
	Beta	Beta	Beta
Block 1			
Behavioral Predisposition	.28 ***	.23 ***	.69 ***
Sex	.12 *	.11	.03
R ²	.09	.06	.47
Block 2			
Review Volume	.46 ***	.04	.04
Change in R ²	.20	.00	.00
R ²	.29	.06	.47
Block 3			
I/R Concordance, Low (vs High)	-.05	-.24 **	-.12 *
I/R Concordance, Medium (vs High)	-.06	-.16 *	-.05
I/R Concordance, Medium (vs Low)	-.01	.07	.07
R/V Concordance, Low (vs High)	-.31 ***	-.35 ***	-.13 *
R/V Concordance, Medium (vs High)	-.21 **	-.11	.02
R/V Concordance, Medium (vs Low)	.09	.22 ***	.15 **
V/I Concordance, Low (vs High)	.10	.19 *	.17 **
V/I Concordance, Medium (vs High)	.03	.07	.06
V/I Concordance, Medium (vs Low)	-.06	-.11	-.11 *
Change in R ²	.07	.14	.04
R ²	.36	.20	.51

All coefficients are from the final step of the analysis. * $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$. n=249.

which a person enjoyed eating in similar restaurants as the one reviewed), which was also significant in explaining the other outcomes. The concordance measures, which were added into the models after all other factors were accounted for, nonetheless explained important levels of variance across all outcomes, demonstrating their unique value, particularly in explaining the perceived credibility of the recommendations made by reviewers.

H2_a, H2_b, and H2_c were tested via mediation analyses using Model 4 in the SPSS PROCESS macro (Hayes, 2017). The three levels of geospatial concordance (low, different state and city; medium, same state, different city; and high, same state and city) were dummy coded for each analysis, with the low concordance condition as the comparison group.

H2_a examined the indirect effect (IE) of geospatial concordance between the individual and the reviewer on perceived expertise of the reviewer, mediated by perceived similarity with the reviewer. As shown in Figure 2(a), compared to individuals residing in a different

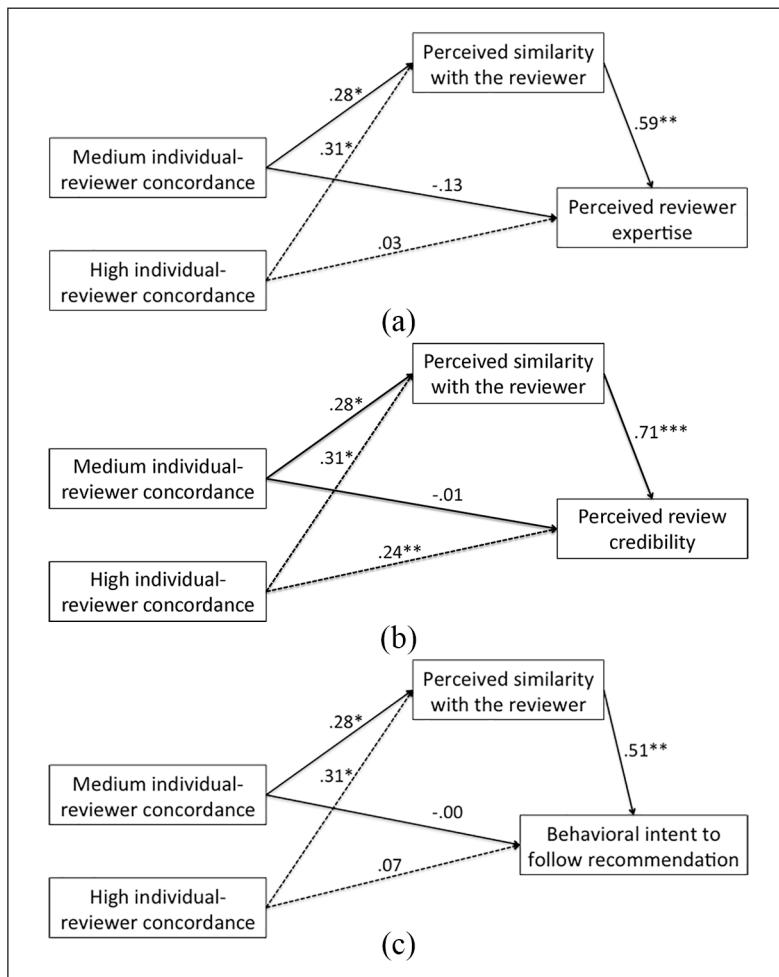


Figure 2. (a) Mediation model depicting the relative direct and indirect effects of individual-reviewer geospatial concordance on the perceived expertise of the reviewer. * $p < .05$; ** $p < .0001$, (b) Mediation model depicting the relative direct and indirect effects of individual-reviewer geospatial concordance on the perceived credibility of the reviewer. * $p < .05$; ** $p < .01$; *** $p < .0001$ and (c) Mediation model depicting the relative direct and indirect effects of individual-reviewer geospatial concordance on the behavioral intent to follow the recommendation. * $p < .05$; ** $p < .0001$.

state than the reviewer, people located in the same state (medium concordance) or same city (high concordance) as the reviewer felt significantly more similar to the reviewer (same state: $b = .28, p < .05$; same city: $b = .31, p < .05$). Similarity, in turn, predicted more positive perceived reviewer expertise ($b = .59, p < .0001$). The mediation model accounted for a significant amount of variance in the outcome variable, $F(3, 247) = 51.12, p < .0001$, $R^2 = .38$, and bootstrap confidence intervals for the unstandardized IEs based on 5,000

bootstrap samples did not include zero (same state: $IE = .1624$, $SE = .0721$, 95% CI = .0276 to .3093; same city: $IE = .1844$, $SE = .0780$, 95% CI = .0352 to .3455), providing evidence for significant mediation. These findings thus support H2_a: individuals living in the same state or city as the reviewer—compared to those living in a different state than the reviewer—felt more similar to the reviewer; consequently, they rated the reviewer as more expert.

H2_b examined the indirect effect of geospatial concordance between the individual and the reviewer on perceived reviewer credibility, mediated by perceived similarity with the reviewer. As shown in Figure 2(b) (which also illustrates the relationship between the independent variable and the mediator noted in the test of H2_a), similarity predicted more positive perceived reviewer credibility ($b = .71$, $p < .0001$). The mediation model accounted for a significant amount of variance, $F(3, 247) = 100.21$, $p < .0001$, $R^2 = .55$, and bootstrap confidence intervals for the unstandardized IE based on 5,000 bootstrap samples did not include zero (same state: $IE = .1970$, $SE = .0879$, 95% CI = .0289 to .3750; same city: $IE = .2236$, $SE = .0964$, 95% CI = .0368 to .4163), providing evidence for significant mediation and thus support for H2_b: individuals living in the same state or city as the reviewer—compared to those living in a different state than the reviewer—felt more similar to the reviewer; consequently, they rated the review as more credible.

H2_c examined the indirect effect of geospatial concordance between the individual and the reviewer on behavioral intent to follow the recommendation, mediated by perceived similarity with the reviewer. As shown in Figure 2(c), similarity predicted more positive behavioral intentions ($b = .51$, $p < .0001$). The mediation model accounted for significant variance in the outcome variable, $F(3, 247) = 28.05$, $p < .0001$, $R^2 = .25$, and bootstrap confidence intervals for the unstandardized IE based on 5,000 bootstrap samples did not include zero (same state: $IE = .1402$, $SE = .0641$, 95% CI = .0232 to .2747; same city: $IE = .1592$, $SE = .0703$, 95% CI = .0300 to .3016), in support H2_c: individuals living in the same state or city as the reviewer—compared to those living in a different state than the reviewer—felt more similar to the reviewer, and they consequently reported higher behavioral intent to follow the recommendation.

Discussion

The impetus for this study was evidence indicating that in spite of the capacity for the Internet to connect people and information irrespective of geography, physical location may paradoxically provide influential indicators of the perceived expertise of strangers and the credibility of the information provided by them, and might ultimately guide people's actions in light of such assessments. Applied to the domain of online (restaurant) reviews, location proximity was approached through the novel concept of *geospatial concordance*, or the degree to which entities implicated in the sharing of aggregated opinions online are physically close to each other in geographic space. Experimental evidence from this study confirms the importance of geospatial concordance in the evaluation of user-generated information online and demonstrates that physical location is indeed a critical factor contributing to people's information assessment and behavioral intentions.

For example, the extent to which the consumers and providers of online reviews are in close geographic proximity to one another acts as a strong force in determining how credible people find reviews to be and the likelihood that they will heed the recommendations contained in them. People see reviews as progressively less credible as reviewers are believed to be located in a different (vs the same) city within one's own state or in a different state altogether, and people are less likely to heed advice when it originates from an out-of-state reviewer versus one located in the same city, in spite of the fact that restaurant opinions do not fundamentally or necessarily rely on one's city of origin. These findings support geographic perspectives showing that physical location endures in importance even online and psychological perspectives such as CLT suggesting that more concrete mental representations produce evaluations consonant with available information. That said, because the present study does not provide a direct test of the specific tenets of CLT (e.g. by examining specific levels of mental representation or psychological distance cues) further research is necessary to test this definitively.

Moreover, evidence from this study also adds important context to these findings that is largely absent from past explanations of the importance of physical distance. For example, outcomes linked to the relation between physical and psychological distance are conceivably a function of factors that co-vary with this relation, such as familiarity and similarity (Henderson and Wakslak, 2010), as articulated in the host of perspectives examining the role of homophily, social identification, and similarity (Tajfel and Turner, 1986; Turner, 1991), often specifically in the context of online support, ratings, and reviews (Hernández-Ortega, 2018; Wang et al., 2008; Wright, 2000). To test this possibility, this study also examined the role of perceived similarity between individuals and online reviewers as a mediating factor and found strong evidence that individuals living in the same state or city as the reviewer (compared to those living in a different state) felt more similar to the reviewer and, as a consequence, they rated the reviewer as more expert, found the reviewer's opinions to be more credible, and thus reported higher behavioral intent to follow the proposed recommendation. These findings provide fresh insight into the critical role that feelings of homophily between people play in information evaluation and intentions and confirm recent research on online consumer review platforms showing that the social psychological distance between reviewers and subjects is an important mechanism driving receivers' responses to reviews (Hernández-Ortega, 2018). Yet, for the most part, this factor is not accounted for in research examining the dynamics of review platform information.

This study further extends past work by confirming that geospatial concordance between a reviewer and the venue being reviewed is a critical factor in the degree to which people find reviewers to be expert, trust their opinions, and are willing to act on them. Results show, for instance, that a reviewer is much more likely to be judged as an expert if they live in the same city as the restaurant they are reviewing, as opposed to a reviewer who lives in another state or even a different city within the same state. Also, credibility and behavioral intent are stronger when the reviewer lives in the same city as the restaurant, or even when they live in a different city within the same state as the venue, as compared to when a reviewer lives in a different state than the restaurant they review. Overall, propinquity between reviewers and the targets of their reviews is highly

influential in people's information evaluations, demonstrating that not only are information contributions to online repositories often likely to originate from those close to a target venue (see e.g. Hardy et al., 2012; Hecht and Gergle, 2010; Hecht and Moxley, 2009) but also that people appear more likely to value the opinions of those in close geographic proximity to a venue. Theoretically, this validates geospatial perspectives suggesting that people recognize the benefits of the situated understanding of places (e.g. Couclelis, 1992; Thebault-Spieker et al., 2017) and that although typically conceived in reference to one's self, distance dynamics can be seen through others' eyes as well, as people imagine others' viewpoints by placing themselves in their position (see e.g. Broemer et al., 2008; Eyal et al., 2008).

Results of H4_{b,c} suggest that the role of situated knowledge about a place—readily imagined to be valid for a third party (e.g. when a reviewer is located close to a reviewed venue, as above)—is also critical to people as they consider reviews of entities in locations well known to themselves. Consistent with perspectives that emphasize the lower level construals applied to, and greater senses of place for, psychologically and physically close locations, findings from this study in part demonstrate that geospatial concordance between an individual and a reviewed venue is *negatively* related to the perceived credibility of another person's review and behavioral intent to follow their recommendation. Perhaps as closer psychological connections to a place are formed by geographic proximity diminished trust in third-party reviewers of that place results, even in spite of reviewers' purported firsthand experiences with the target venue. Thus, these findings suggest that because greater concordance in this instance begets less credibility (of others), one's own closeness to a place is privileged over anyone else's closeness to the same place. In the end, it appears that one's sense of ownership of a place is privileged even over a stranger's "actual" experience with it.

In many ways, findings such as this validate the basic egocentrism of the CLT perspective, which is grounded in the notion that one's reference point is the self (or another's prospective self) in relation to others and that closer psychological distances are thus experienced and represented nearer this reference point. Yet, because research in the CLT tradition has framed physical distance somewhat crudely (i.e. near vs far) it has not pinpointed precisely how variations in distance relate to the psychological level of construal (Henderson et al., 2011). The current study makes a contribution toward specifying the distance function by demonstrating that at least three levels of geospatial concordance are meaningfully distinguished by people and that more extreme (i.e. high vs low) differences appear to be more influential. Though these findings suggest a "distance decay" effect, research has also demonstrated thresholds beyond which the negative relation between distance and relatedness begins to wane (Li et al., 2014), and work has shown that in some instances the nuances of individuals' mental maps are potentially inaccurate (Matei et al., 2001; Thebault-Spieker et al., 2017), suggesting that exploration at a higher spatial resolution is necessary in future work.

Geospatial factors, however, affected the outcome variables unevenly. Although all its forms were significant predictors, geospatial concordance measures had only a relatively modest influence on people's behavioral intentions—by far the best predictor of behavioral intention was behavioral predisposition (in this study, the degree to which a person enjoys eating in restaurants similar to the one reviewed). Predispositions were

similarly important in explaining the other outcome variables, which highlights the need to account for relevant and intuitive explanatory factors in research models, as was done in this study. By contrast, notable variance in the perceived credibility of reviewers' recommendations is explained by the three forms of geospatial concordance, suggesting that credibility can be described as an attribute with significant geographic properties. And, the perceived expertise of a reviewer is largely a function of the volume of reviews left by that individual in the past and, to a lesser extent, the degree to which the reviewer shares a location with the target of the review. This demonstrates that expertise hinges on particular and available indicators of experience and, additionally but less so, on situated and relevant geospatial knowledge. Overall, although significantly impacting all outcomes examined in this study, geospatial concordance appears to most strongly and directly influence the evaluation of a message, versus its source or effects, although the indirect effects of geospatial concordance through perceived similarity between individuals and reviewers are profound, as already articulated.

Although past research has demonstrated the importance of the volume of third-party reviewers' opinions on individuals' credibility assessments and behavioral intentions (Lee, 2009; Sundar et al., 2009), the role of such social drivers in this study was inconsistent. Whereas the volume of reviews provided by a reviewer over time had a profound effect on the perceived domain expertise of the reviewer, its impact was not important with regard to the perceived credibility of the reviewer's recommendation or people's behavioral intentions to heed the review. Thus, again, people seem capable of separating indicators of a reviewer's experience (i.e. the number of reviews provided to date) from assessments of the content of their message (i.e. recommendation credibility) or of behaving in accordance with their recommendation. This provides fresh insight into the dynamics of user-generated opinions by demonstrating that although reviewer experience can translate to perceived expertise people are readily able to assess messages independent of this type of influence.

Finally, efforts to leverage physical location are increasingly common as information from and about individuals is readily available online today. For example, users of mobile devices are routinely targeted by location-based mobile marketing and predictive analytics strategies (Bradlow et al., 2017; Fritz et al., 2017), and mobile media are used to build familiarity with geographic locations, often in real time as people traverse physical spaces (Humphreys and Liao, 2011; Wilken, 2008). Results of this study extend understanding of the role of physical location by demonstrating that location-based indicators are consequential also in more static and more common information pools. Even though such repositories rely on data that are contributed and retrieved without regard to the location of users, the location-specific information in them provides influential indicators of the perceived expertise of strangers and the credibility of the information they provide that may in turn guide people's behaviors. Thus, this study adds a new depth of understanding to the role that physical location plays in individuals' information assessment calculus, which is a function of their own and others' proximity to one another. In this fashion, the study of geospatial concordance adds another dimension to the growing body of scholarship on how people currently process and understand "place" by examining its more nuanced but no less important effects.

Conclusion

Rather than Internet-based tools heralding the “death of distance” (Cairncross, 1997), findings from this study underscore the complex and integral influence of physical location as embodied in particular mental representations, imbued with profound psychological importance. Results therefore support geographic perspectives that emphasize space as a mental construction instilled with particular meaning and confirm psychological views noting that people mentally construe places at different levels of abstraction, depending on their psychological, and physical, distance from them. Findings from this study may also be viewed as evidence that basic and long-standing markers of physical environmental sensemaking are likely to endure in their importance, both because such indicators are fundamental to the experience of being human and because, as such, they are unlikely to fade to obscurity merely since digital tools currently appear to provide that possibility.

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ORCID iD

Andrew J Flanagin  <https://orcid.org/0000-0002-0928-5861>

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Author biographies

Andrew J Flanagin is a Professor in the Department of Communication at the University of California, Santa Barbara, where he is a former Director of the Center for Information Technology and Society. His work broadly considers processes of social influence in digitally-mediated environments, with emphases on the use of social media for information sharing and assessment; people's perceptions of the credibility of information gathered and presented online; and processes of collective organizing as influenced by the use of contemporary technologies.

Grant McKenzie is an assistant professor of spatial data science in the Department of Geography at McGill University, where he leads the Platital Analysis Lab, an interdisciplinary research group that works at the intersection of information science and behavioral geography.

Audrey Abeyta is employed as an academic advisor at Columbia College.