

*Far More Alike Than Different:** Longitudinal analysis of LGBT events in Meetup.com

Keywords: *LGBT, Doc2Vec, Meetup, Social Movement, Social Embeddedness*

Extended Abstract

As the culture and lifestyle of the lesbian, gay, bisexual, and transgender (LGBT) community become more embedded in our daily lives, an increasing number of studies varied from sociology to computer science have focused on the life and challenges of LGBT people [3], as well as the social process and political movements through which their identities become "legitimized" [4, 1].

However, existing works on LGBT community have only focused on LGBT events by isolating them from other social events whilst they have evolved through other aspects of active daily interactions. This approach limits our understanding of LGBT community by ignoring the significant interaction between their social activities with others, such as hiking and career meetings. Furthermore, lacking of existing studies on the linkage between social events by LGBT community and other daily social activities has a potential risk to create a sense of "otherness" towards LGBT events.

Here, we analyze (1) how much the social activities of the LGBT community are intertwined with other daily social activities, and (2) how those relationships with various social activities have changed, using more than 1.6 million social events on Meetup.com, one of the most popular event-based social network (EBSN), across the entire United States from 2006 to 2018.

As illustrated in 1a, our dataset contains numerous LGBT event information from a variety of regions in the United States from Honolulu to Alaska. Also, it is interesting to note that LGBT events are frequently hosted in "politically conservative" cities and states, such as Wyoming and Oklahoma, beyond the major cities like San Francisco, New York City, and Boston (1b). This shows the diversity of our dataset by demonstrating that it is not biased toward "large" or "LGBT-friendly" cities. As shown in Figure 1c, both the overall number of events (left-side y-axis) and the number of events particularly for the LGBT category (right-side y-axis) have been increasing in Meetup.com. Over time, it has become more popular and is now a well-established EBSN for gathering people online and offline. The fact that the number of events in the LGBT category has also increased, along with other categories, is further evidence of the platform's size and popularity. Utilizing this representative dataset, we explore the evolution of LGBT events by focusing on their relationships with other diverse social activities, while challenging stereotypes and an expectation that LGBT events would differ from non-LGBT events.

By vectorizing all events including LGBT events applying the Doc2Vec algorithm to their event descriptions [5], we first check the similarity between each primary categories and the LGBT category. We calculate the cosine similarities between the mean vector of all event vectors for each master category and the mean vector of all events in the LGBT category for each year, as shown in 1d. Our result shows that the Politics category turns out as the farthest

* "I believe we can all come together because if you take away the labels, you realize we're far more alike than we are different." - Ellen DeGeneres

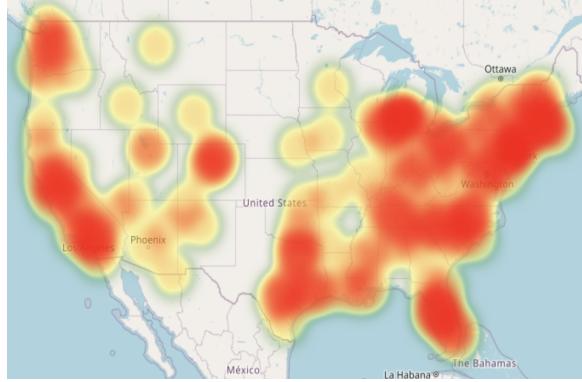
category from the LGBT category, which is in the opposition to the idea that every LGBT life is frequently politicized and eventually turns them into "accidental advocates" [2]. Everyday culture has consistently been the closest to LGBT events, as well as Other, which only comprises the Singles subcategory, has been the second closest since 2010. Moreover, Art showed an increasing slope whereas Training, Sports, Religions, and Traditions exhibited a slightly diminishing aspect with time.

Then, how and where are the LGBT events scattered in the space of social events, and how have their relative locations been moved? By mapping the vectors of all social events in 2-dimensional space using the t-SNE algorithm, we examine the landscape of LGBT and other types of social events to investigate the trace of LGBT events from the evolutionary perspective. As presented in Figure 2, LGBT events have been developed through consistent relationships with other categories across eras. For instance, they have been distant from Tech and Career & Business categories, while located closer to Singles and Outdoors & Adventure events. There exist dynamic patterns over time, being branched out into other categories such as Dancing, and New Age & Spirituality.

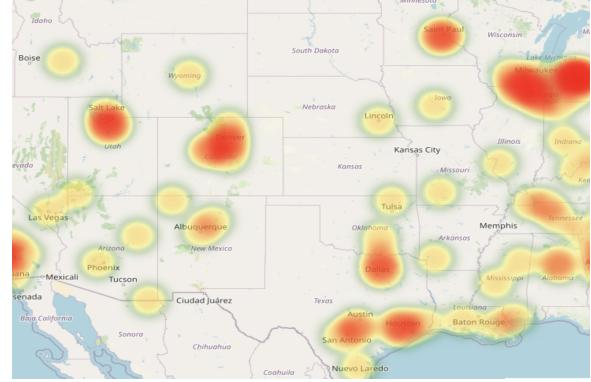
As an ongoing research, our results show that the social events by LGBT community have been developed with no difference from non-LGBT categorized events. This begs our next research question: Then, why do people choose to publish their general everyday activities under the "LGBT" category? We believe our research can provide a detailed and comprehensive analysis of the evolution of LGBT movements while investigating differences between descriptions from politically liberal and conservative regions and how minority social movement affects the events. Our study brings a more nuanced and complex understanding of LGBT movements by illuminating the diversity of experiences and perspectives within communities.

References

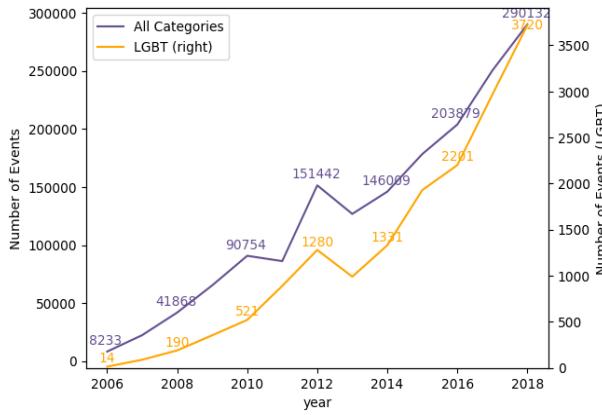
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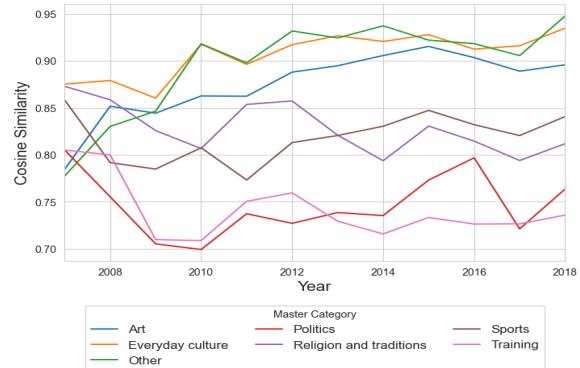
(a) Heatmap of LGBT events in the United States



(b) Heatmap of LGBT events in the Central region



(c) Number of Events by Year in MeetUp.com



(d) Cosine Similarities of Master Category to LGBT

Figure 1: (a) Heatmap represents the number of events per 1000 people in each county, color-coded by event density. The data was collected with latitudes and longitudes and aggregated at the county level.(b) Zoomed-in version of the United States heatmap, specifically highlighting the central region. (c) Total number of events in all categories (purple line) and the number of events in the LGBT category (orange line) for every two years. Each data point is annotated with its corresponding value.(d) Plot of cosine similarity between master category mean vector and LGBT category mean vector. The higher the score, the more similar the vectors are. The scores were calculated using `scipy.spatial.distance.cosine` in Python.

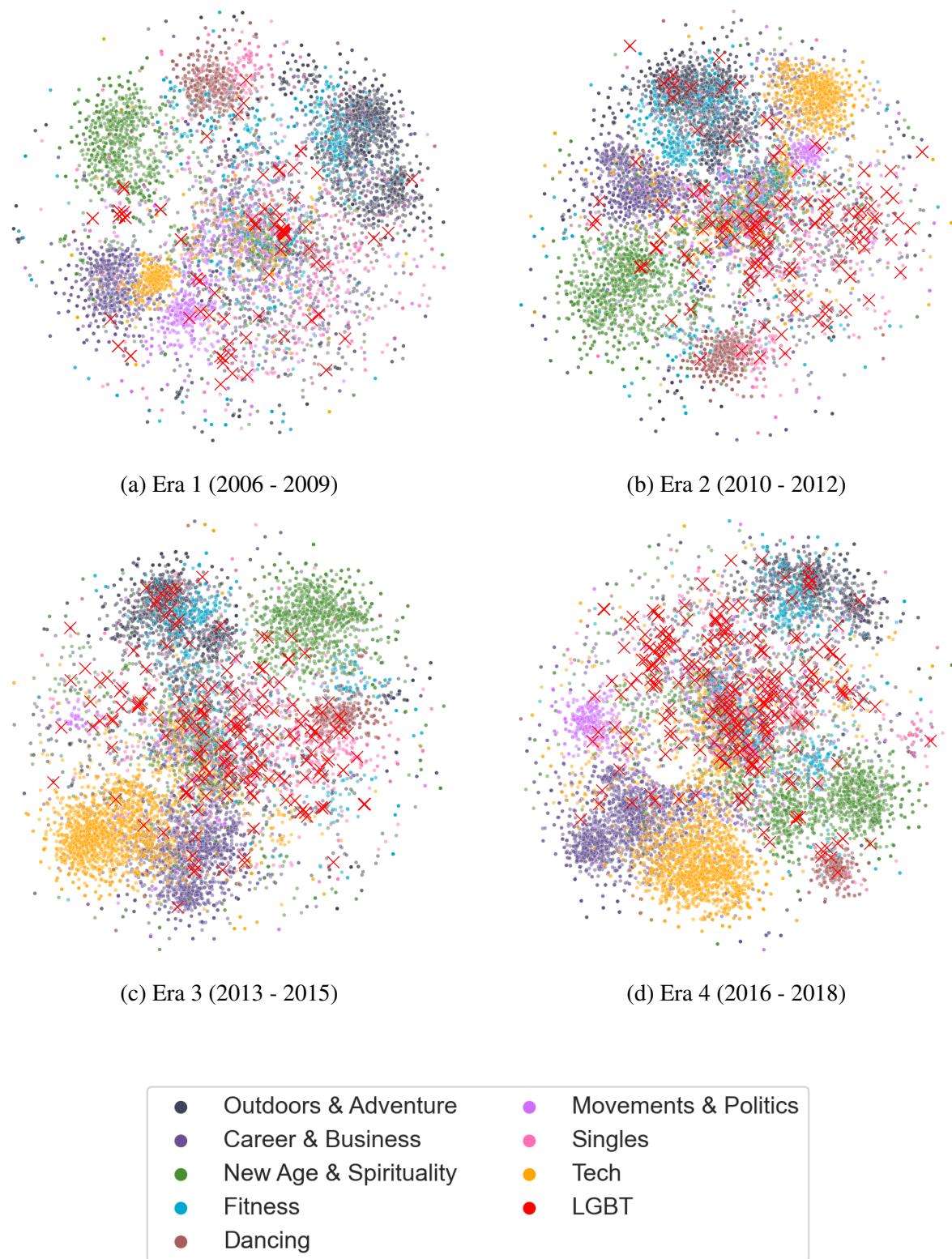


Figure 2: Evolution of Meetup Event Categories Across Four Eras. Whole dataset into four time periods. For visualization, we randomly selected 20,000 events per era, while preserving the category ratios.