Mapping Ideological Communities on Weibo During Public Controversies

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Introduction and Background

- Rising Polarization of Ideology on Chinese Social Media
- Limited Previous Understanding of Network Structures and Inter-group Activity
- Motivation: Noticing Some Users from LGBT+ Occasionally Align With Nationalist Discourse During Controversies, Which Challenged the Usual Assumption

Research Question

- RQ: In the context of high-profile public controversies on Weibo—defined as gender- or politics-related events that enter the platform's Top 10 trending topics and elicit over 100,000 public interactions—how do conservative and progressive communities differ from the general public in their social network structures, internal cohesion, and cross-group interaction patterns?

Hypothesis

- Progressive and conservative communities on Weibo exhibit distinct social network structures during public controversies, with progressive groups showing higher internal fragmentation and conservatives demonstrating stronger cohesion and more targeted cross-group engagement.

Literature Review

- Feminist and LGBTQ+ communities in China use Weibo to build visibility and solidarity, often employing creative tactics to navigate censorship. (Liu 2016; Hou 2015, 2020; Tan 2017; Engebretsen Schroeder 2015; Cui et al. 2022)
- Nationalist and anti-feminist users actively form counter-networks that reinforce traditional gender norms and oppose progressive voices. (Peng 2022; Chen et al. 2019)
- Online ideological battles are not only political but deeply gendered, shaping distinct patterns of digital mobilization. (Yang 2019; Peng 2022)

Research Design

- **User Group Classification (Three Groups)**:
  - **Progressive users**: Those consistently using hashtags or language associated with feminist, LGBTQ+, or liberal discourse
  - **Conservative users**: Those consistently using nationalist, anti-feminist, or statist rhetoric
  - **General public users**: Random sample of users posting on the same controversy but who show no repeated ideological markers and have no strong connection to labeled users

Research Design

- **Ideological user classification:**
  - Use **snowball sampling** to identify seed hashtags associated with gender/political controversies
  - Build **co-occurrence hashtag networks** by extracting all hashtags that appear alongside the seed ones in 2,000 posts
  - Manually code a stratified sample of posts for each candidate hashtag to determine ideological alignment:
    - *Progressive:* supporting feminism, LGBTQ+ rights, liberal values
    - *Conservative:* promoting nationalism, anti-feminism, or cultural traditionalism
    - *Neutral:* unrelated or ambiguous stance
  - Label users based on consistent use of ideologically aligned hashtags **across multiple posts (2)** and/or **frequent interaction (3 retweets/mentions/replies)** with already-labeled users
  - Apply **interaction-based propagation** to extend labels to users heavily embedded in ideological networks

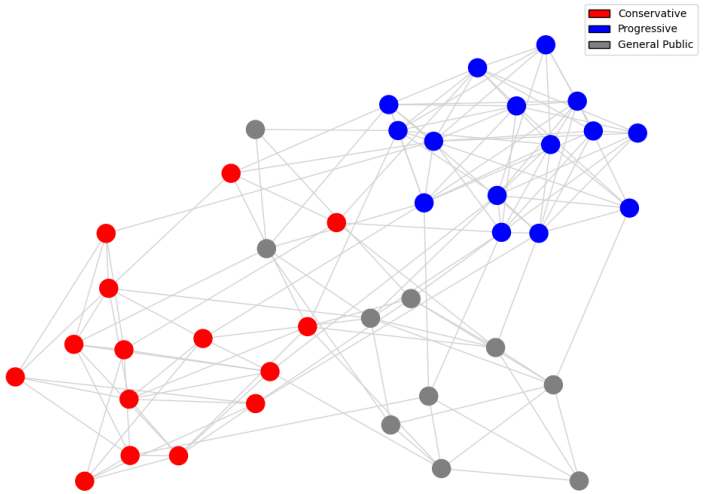
Research Design

- **Data collection:**
  - Define **public controversies** as events that:
    - Enter Weibo's Top 10 trending topics
    - Receive 100,000+ public interactions (likes, reposts, comments)
    - Concern gender, sexuality, or political representation
  - Observe each event over a **10-day window** (pre-event, peak-event, post-event phases)
  - Scrape posts and metadata using Python tools: `snspy`, `selenium`

Research Design

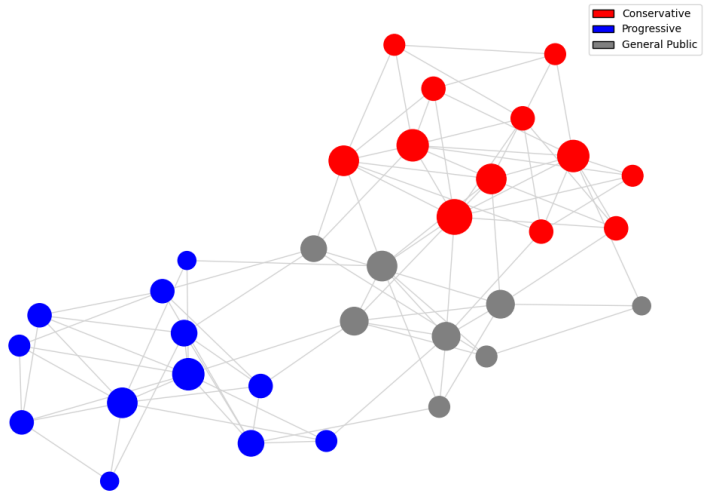
- **Network construction and analysis:**
  - Create directed graphs where:
    - **Nodes** = individual users
    - **Edges** = retweets, mentions, replies, annotated with timestamp
  - Construct three networks:
    - Progressive-only, conservative-only, and full interaction network (includes general public)
  - Compute:
    - **Centrality**: in-degree, out-degree, betweenness (measuring influence and exposure)
    - **Modularity (Louvain)**: detects how strongly communities cluster
    - **Clustering coefficient**: density of local neighborhoods
    - **Assortativity**: extent to which users interact within same ideological group
    - **Cross-group interaction rate**: frequency of ties between ideological communities
  - Compare metrics across time windows to detect structural shifts

Mock-Up 1: Progressive Clustered Cohesion



- **Scenario:** A Weibo controversy involving gender topics
- **Edge:** Directed interaction (retweet, reply, mention) between users
- **Structure:**
  - Progressive users form a tightly connected core
  - Conservative users cluster but remain moderately dense
  - General users are structurally peripheral
- **Theoretical basis:**
  - Reflects "resilient support networks" under censorship pressure (Hou, 2020; Cui et al., 2022)
  - Conservative group displays moderate modularity (Chen et al., 2019)

Mock-Up 2: Conservative Centralization



- **Scenario:** A nationalism-triggered controversy
- **Node size:** Proportional to degree centrality, highlighting influential users
- **Structure Interpretation:**
  - Conservative dominate the center, indicating strong intra-group connectivity, Progressive users appear fragmented
  - General users bridge ideological groups more actively than Mock-Up 1
  - Centralized conservative dominance may suggest media amplification
  - Progressive users' fragmentation may reflect suppression or reactive posting patterns (Peng, 2022)

Timeline and Costs

- **Timeline:**
  - **May 2025** – Finalize API access and begin full-scale Weibo data scraping
  - **June 2025** – Complete ideological user labeling and interaction network construction
  - **July 2025** – Conduct social network analysis and extract metrics (modularity, centrality, etc.)
  - **August 2025** – Visualize results, validate findings, and prepare final report or publication
- **Costs:**
  - No direct financial cost; all work conducted on personal computing resources with Open source tools and data only

Preparation and Support

- **Training and Preparation:**
  - Continued development in Python and network science libraries (networkx, igraph)
  - Strengthening knowledge of ideological discourse classification and manual coding protocols
  - Plan to review additional literature on community detection and dynamic network analysis
- **Expert Support (Advising):**
  - Reaching out to **Professor Sabrina Nardin**, an expert in social network analysis and political discourse, to serve as project advisor
  - Open to collaborating with faculty from communication, computational social science, or Chinese politics

GitHub Repo

- **Link: https://github.com/ruoting-Y/MACS30200**
- **Thank You!**