

Welcome!

Outcomes

- Today is a culmination of a great deal of boundary crossing work and experimentation
- Work is grounded in vision and values
- Less “technology first” conversations

Intentions

- Assessment sheets available for feedback
- Please explore, share, critique, and add to the posters
- Open-ended starting points for dialogue, develop understanding, learn together, and reflection

Cybersecurity
Fake News and Disinformation
Facial Recognition on Security Issues



Zoning Politics
Stormwater Governance
Flooding & Community Rebuilding (Taiwan)



Smart Waste Governance
Food donation and waste reduction
Smart Bin for Garbage Sorting

Community economic empowerment
Smart Parcel Sorting



Discovery City App

Public Transit
Smart Parking
Mobility options
Smart Parking App
Smart Cockpit of A Car



Makerspaces and STEM education
Contemplative Collaboration Spaces
Urban Study Room

Telemedicine
Emergency Health Services
Intelligent Ambulance System



Energy access and reliability
Smart Street Lamp



Smart Cities & University-Community Partnership: UVA-Tsing Hua Global Classroom

Sharon Ku & Sean Ferguson

Xiafei Yang, Jimmy Howerton, Zihao Zhang, Zhe Dong, Xun Liu

Engineering & Society, UVA





Trump's ban on Chinese telecom giant Huawei could cut off rural Americans' cell service

"These rural areas are going to not get served, and it puzzles me why these senators ... don't see the problem here," a tech advocate said.



Course Design

STS 4500 Engineering-Community Engagement in Smart Cities Design: A local to Global Strategy

Time: Tuesday/Thursday 3:30-4:45; 5:00-4:45 (Fall 2019)

Instructor: Prof. Sharon Tsai-hsuan Ku; Prof. Sean Ferguson

Teaching Assistant: Xiafei Yang (Civil Engineering; Smart Cities Research Group); Zihao Zhang (School of Architecture, Urban Planning); Dong Zhe (School of Architecture; History of Architecture)

Office Hour: By appointment

Course Description



What does it mean for a city to be “smart”? Is smartness a desirable quality of future cities? How to design a city and its infrastructures which are not just smart, but safe, inclusive, supportive and sustainable? What capacities should engineers develop in order to design humane infrastructures?

Local-Global Curriculum Design

To effectively structure this interdisciplinary and international curriculum, we divide this course into two tracks:

- Global Community Engagement with Tsing Hua University, China
- Local Community Engagement with support from Smart C'ville and Vice Provost Office of Univ. Outreach

Innovative Pedagogies



- Contemplative exercise in and out of class
- Global Classroom with Tsinghua University: Student in Global Track are paired with Chinese partners for prompt interview.
- Integrating Intro to Engagement course covering Charlottesville history and culture with STS course on smart city critique, value sensitive design and stakeholder analysis framework.

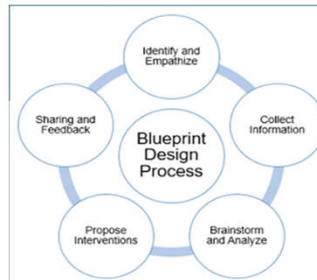
Prompt Interview & Community Outreach

Effective integration of interdisciplinary and international curriculum required two interlocking tracks: 1) Global Community Engagement and 2) Local Community Engagement. Each track had its community engagement plan structured by shared prompts to facilitate sharing of ideas and directing community outreach.



Global Track Prompt Sheet	Local track before interview	After you think Chinese students would answer	For second Chinese student responding to the interview	Your reflection after completing the interview
1. List your 3 present/ future hypotheses for future cities and explain why.				
2. What do you predict is going to be "smart"? Do you think smart city is desirable future?				
3. What should lead the development of smart cities? (Government, industry, private sector, citizens, etc.)				
4. Do you think "Smart City" is something that the "100+ cities" should be trying to do? If so, what would you like to see? What other smart city ideas do you have? (List 3-5)				
5. What does "community" mean to you?				
6. What are the biggest problems and the design you will do for the city?				
7. List your primary 3 desirable quality of smart city.				
8. Design your own projects that relates to your Smart City concept.				
9. Design your own projects that relates to your Smart City concept.				
10. List three of your ideas, do you think smart cities can be something to think about? (List 3-5)				
11. What apps do you regularly use to interact with the city? Do you know the smart city apps already, what do they do? (List 3-5)				
12. How does the data collected in a smart city? (Government, private sector, citizens, etc.)				

STS Design Studio



- Each student chose a team based upon a compelling topic
- Topics were explored individually and through group assignments
- Iteration between interviews, field work, course readings, scholarship, presentations and group discussion in a dynamic value-sensitive design process.
- TAs with design, architecture, and planning background support studio

Local-Global Partnership



UVA Network

- Vice Provost Office for University Outreach, Prof. Louis Nelson (Intro. to Community Engagement)
- Ellen Blackmon facilitates outreach and evaluation



Student Initiative

- Students tasked with seeking out and learning from relevant individuals
- Requires individual initiative and trust building
- + Requires teams to share insights and experiences between global and local tracks

Local+Global Community Engagement Strategy

Optimized for 100 students in a research and writing intensive course

Global/Local Tracks: UVA-Tsinghua Global Classroom



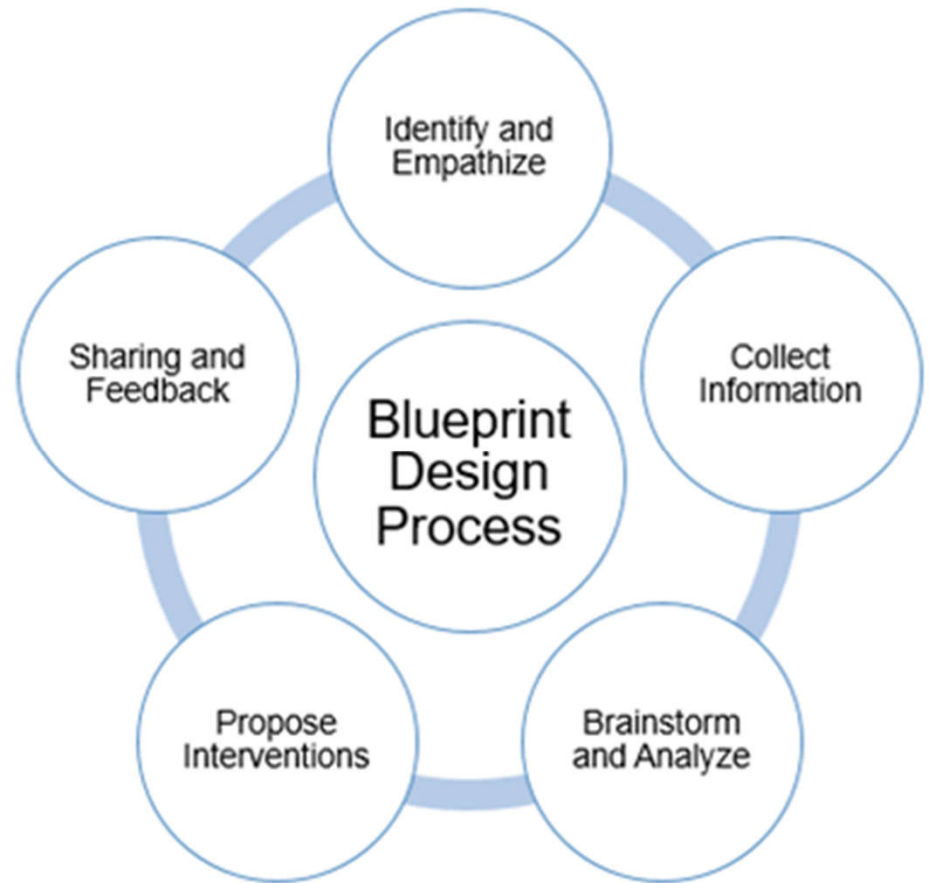
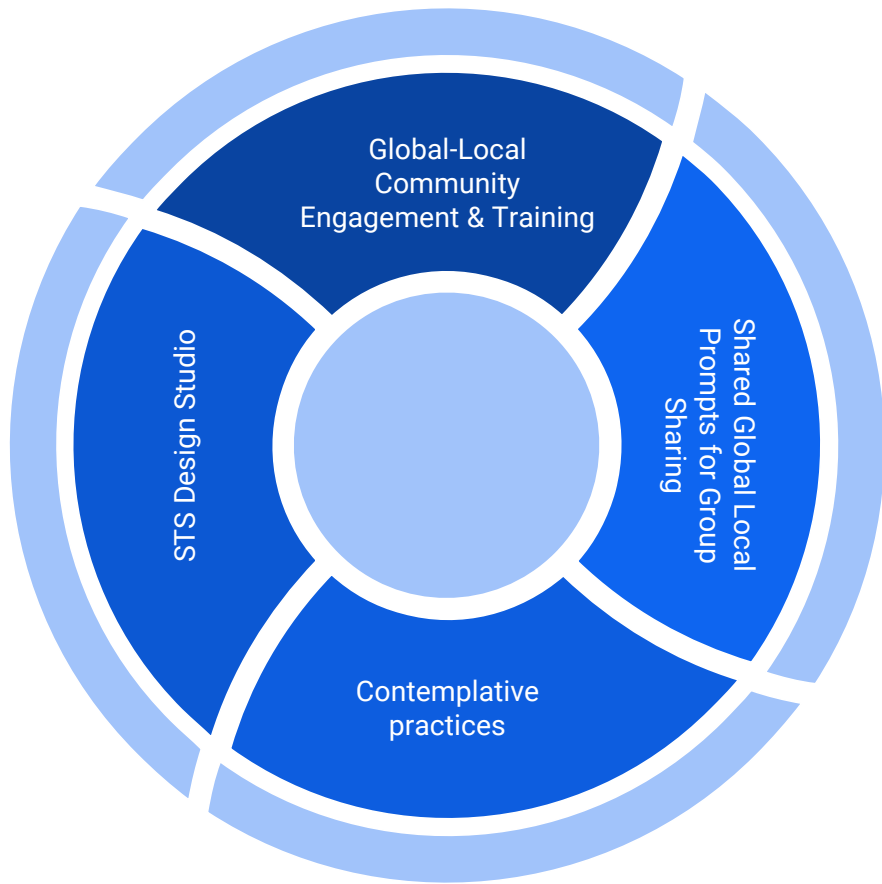
- UVA-Tsinghua
Global Track : 44
- UVA-Smart C'Ville
Local TRack: 50

	Your answer before interview .	What you think Chinese students would answer .	The actual Chinese student's response from the interview .	Your reflection . after completing the blueprint .
1. List your 3 primary characteristics for future cities and explain why
2. How do you perceive a city to be "smart"? Do you think smart city a desirable future? Why?
3. Who should lead the development of smart cities?: Government, citizens, private sectors, researcher/innovators, communities (specify it) Prioritize your choices
4. Do you think "Smart City" necessarily indicate "Sustainable City"? Why or why not? Use 3 ISO 37120 criteria to help ground your answer. What color medal would you give your city based upon your knowledge of ISO 37120?
5. What does "community" means to you?
6. What are the urgent problem and the design you will do for your city/community?
7. List your primary 3 desirable quality of future mobility
8. Design your own prompt that relates to your theme/blueprint/community
9. Design your own prompt that relates to your theme/blueprint/community
10. To what extent, if any, do you think street camera (public monitoring system) and facial recognition technology should be used in a smart city?
11. What apps do you regularly use to interact with the city? If you were the smart city apps designer, what improvement/new design would you offer for the city?
12. Who own the data collected in a smart city? Government, private sectors, citizen, or others (specify it)
13. Do you think "democracy" and civic engagement as necessary conditions for smart cities? Why or why not?
14. Do you think data privacy as basic human right? Why or why not?
15. How do you weight data convenience, privacy and security?



- 46 Chinese graduate engineering-majors
- Local communities were interviewed





Learning Outcome

Mindful Observation & City Sensing

Students took mindful walk in two city spots: Downtown mall and IX Park, noticing the power of civic art, space, and interaction with 'hidden', mundane objects. This tour initiated the context of their smart city design,



Communicating “us” vs. “them”

How UVA students view “China”



How Tsinghua students view Charlottesville

- Democratic
- Fruitful ideas
- Critical thinking
- Open-minded
- Gun violence
- Racism
- Disagreement with Chinese values

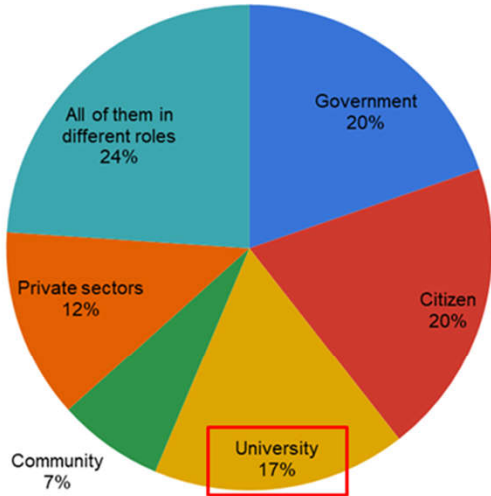
December 2019

The more perspectives you use when looking at ideas, the more diverse your ideas will be. ---UVA student

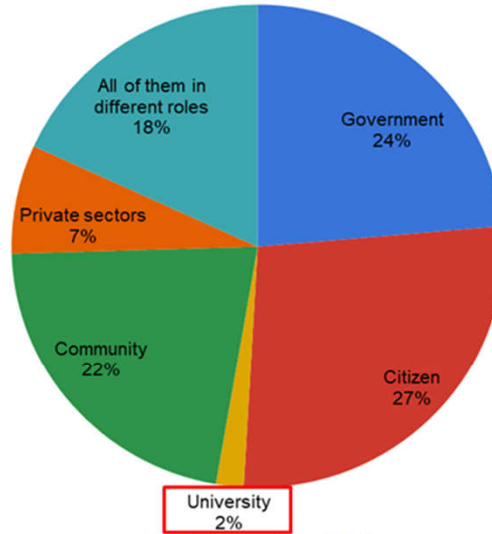
October, 2019

The culture differences between the two countries and certain smart city aspects working better with different approaches are the reasons why I believe that different countries would succeed with different strategies. ---UVA student

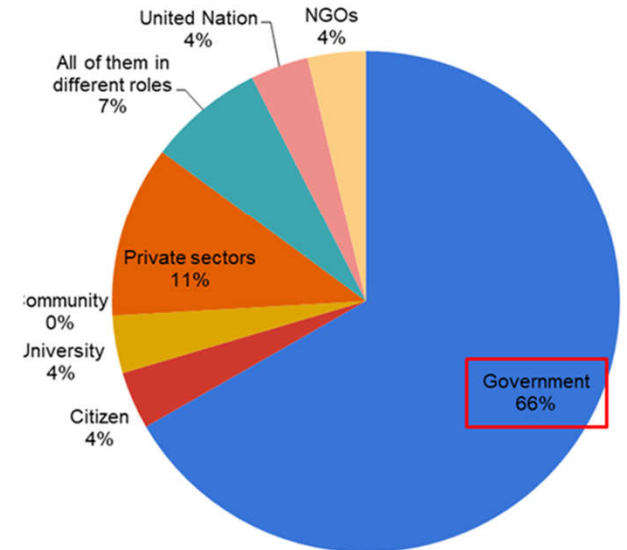
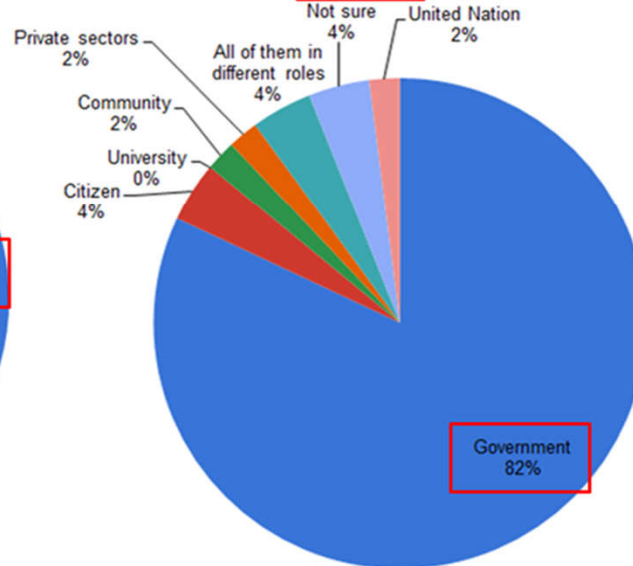
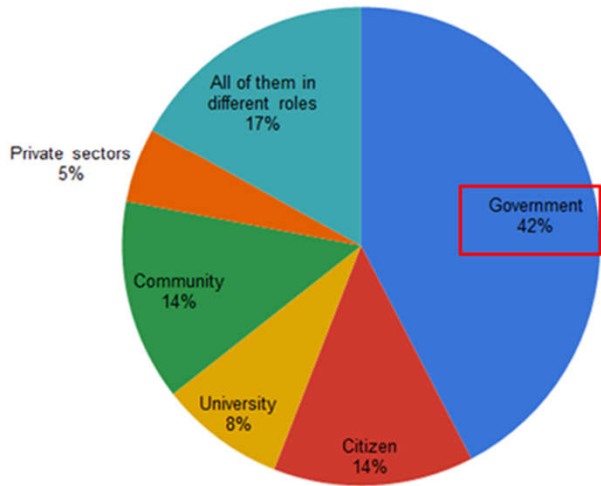
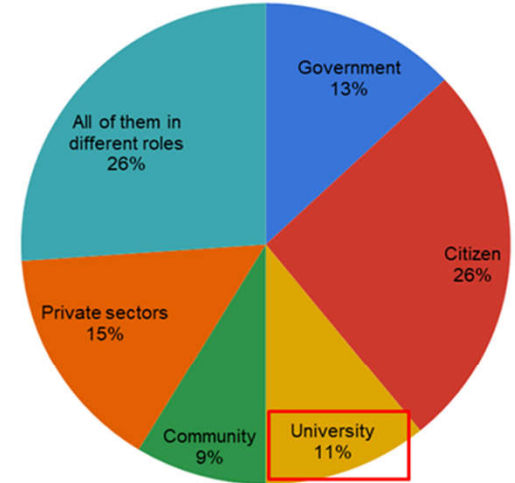
Student Response



Expected Community Response



1 Actual Community Response



Slide 13

- 1 For the sake of brevity, we might just let the poster speak to this issue. Or, we will have to be very quick in running through this so as not to take up too much time.

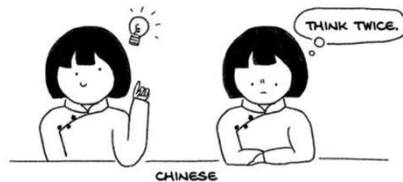
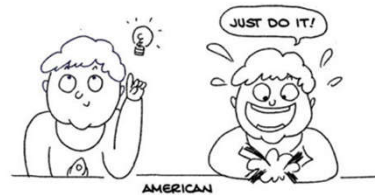
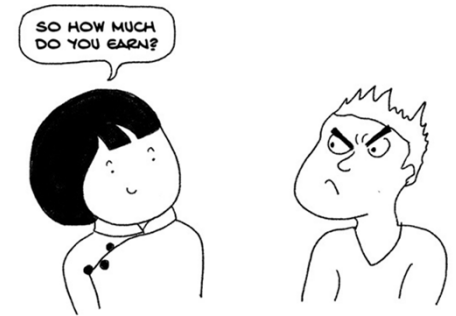
Sean Ferguson, 12/5/2019

Same terms, different meanings

- Community
- Citizen
- Government
- Accountability
- Safety
- Rights
- Sustainability
- Privacy
- Standards
- trust in technology

I think most Chinese people are not as sensitive about privacy issues as Americans. **In China, there is almost a different definition for privacy than in the US.**---UVA global track

The (implied) right to privacy is a very western idea building off Enlightenment-era philosophy. It's just how we westerners think. I mention that it is implied because from what I recall of history classes, there is no specific law / decree mandating the right to privacy in the US constitutions.---UVA global track



I am all for public security and I think that something has to be done to cut down on the mass shootings and other acts of violence that have been increasingly prevalent. At the same time, I grew up in a time where personal privacy was a huge thing....**but I have a hard time getting on board with anything that reduces privacy and individual freedoms.** ---UVA local track

Please Grab a Reviewer Sheet if You Haven't
Already

Feel free to use the Post-Its to leave questions,
notes, and request for follow-up on the Posters

Round Table Conversations at 5:30 pm to
explore University-Community Engagement
Challenges and Opportunities

University-Community Partnership in the US and China

Historical root of “community engagement” in China

Rise of the Red Engineers

*The Cultural Revolution
and the Origins
of China's New Class*

JOEL ANDREAS



CONTEMPORARY ISSUES IN ASIA AND THE PACIFIC



1960s-1970s: Cultivating “red engineers” who possess integrative technical expertise and political leadership



共青团中央文件

中青发〔2019〕5号

共青团中央印发《关于深入开展乡村振兴
青春建功行动的意见》的通知

共青团各省、自治区、直辖市委员会，中央军委政治工作部组织联络群众处，全国铁道团委，全国民航团委，中央和国家机关团委，中央金融团工委，中央企业团工委，新疆生产建设兵团团委：
现将《关于深入开展乡村振兴青春建功行动的意见》印发你们，请认真贯彻落实。

2020: National policy encourages college students to bring technology and health service to rural communities.

Lesson Learned from Local Engagement Experiences

UNST 1400: Introduction to Community Engagement

- Charlottesville's history of racial oppression and UVA's part in that
- "Help" can lead to harm
- Providing services can create dependency
- An Asset-based mindset and long-term interaction with different communities is essential
- **Integration of these two courses is too damn hard!**

STS4500: Engineering-Community Engagement in Smart Cities Design

- Moving beyond traditional classroom and textbook is time consuming
- Fear of causing harm can be paralyzing without developing agency and resilience
- Too late to do community engagement in 4th year
- Students not identify themselves as "designers".
- Breaking down boundaries between technical and social in both theories and practice is destabilizing and diverges from E-school core curriculum and school culture
- **Is "community engagement" a "requirement" for every student? whose agenda? Do we really know what we are committed to?**