

Theoretical Implications of Digital Trace Data

Insight From the Development of a
Mobile Smartphone Application

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Social Science And Digital Research: Interdisciplinary Insights Symposium

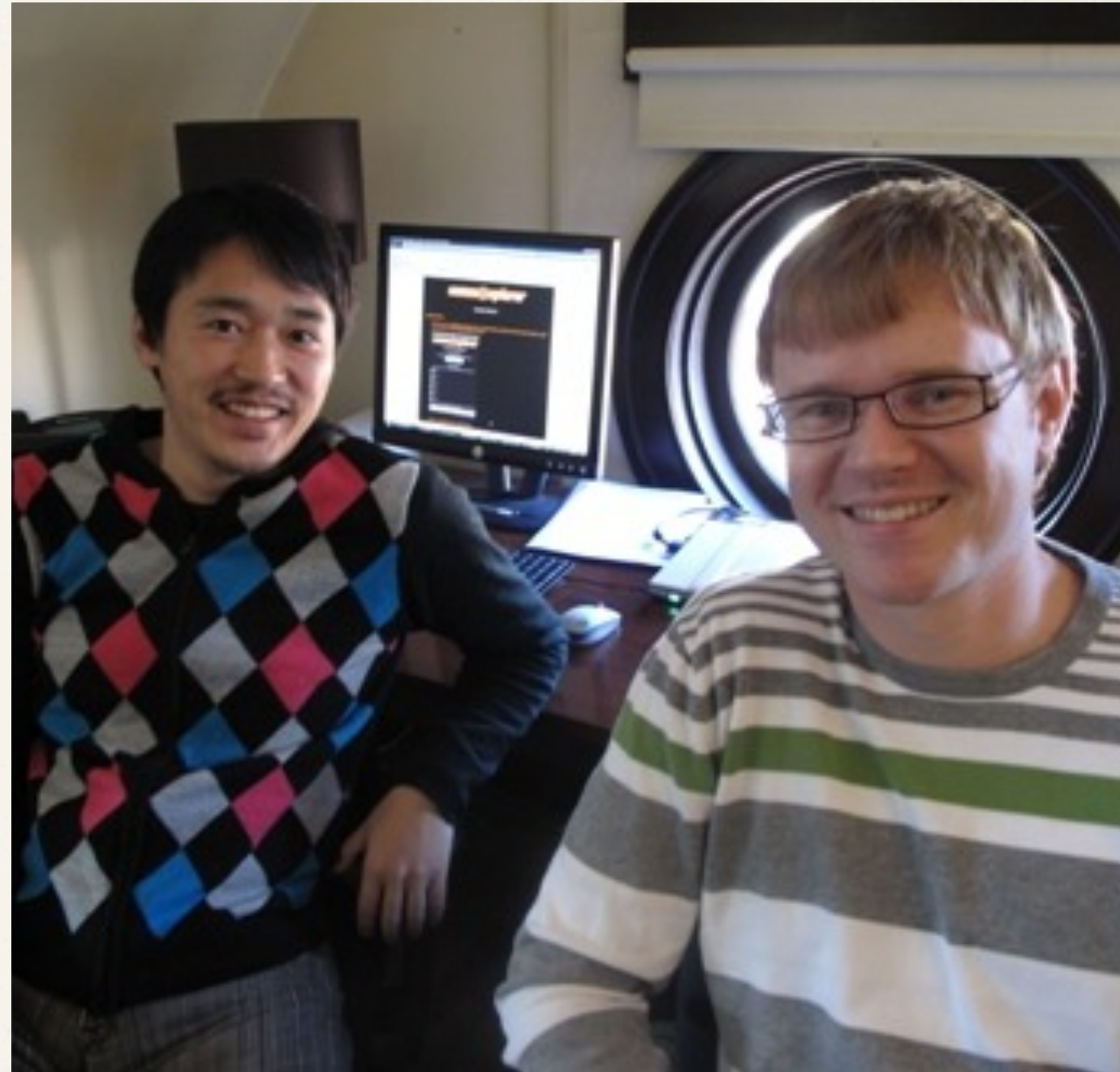
Oxford Internet Institute, March 12th, 2012

Overview

- ❖ Project Overview
- ❖ Research Questions
- ❖ Implications
- ❖ Reflections and Insights
- ❖ Conclusions

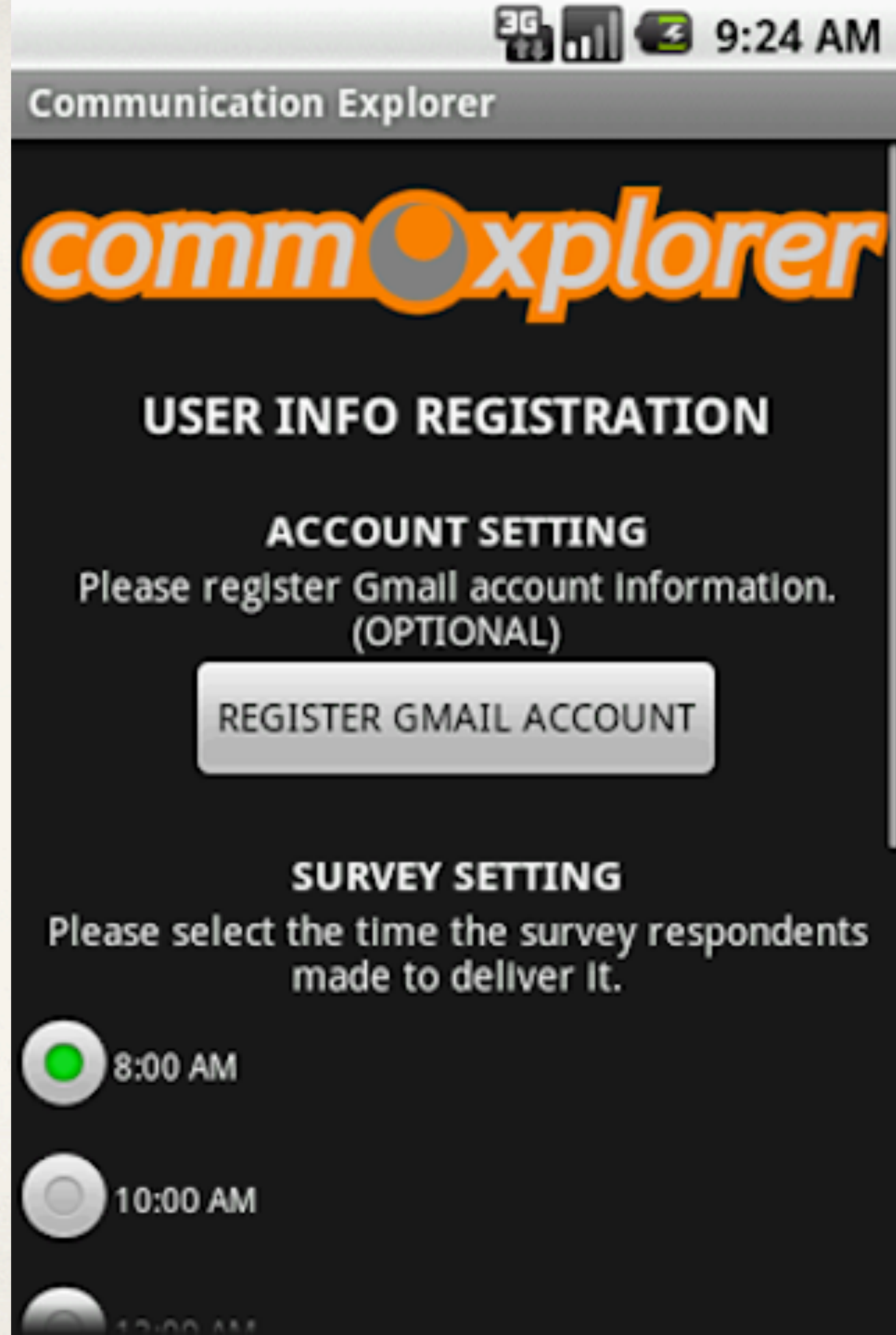
The Project

- ❖ Android app
- ❖ Anonymizes log data
- ❖ Data is encrypted and uploaded
- ❖ Onscreen surveys
- ❖ Collaboration of...
 - Computer & Info. Scientists
 - Social Psychologist
 - Communication Researcher



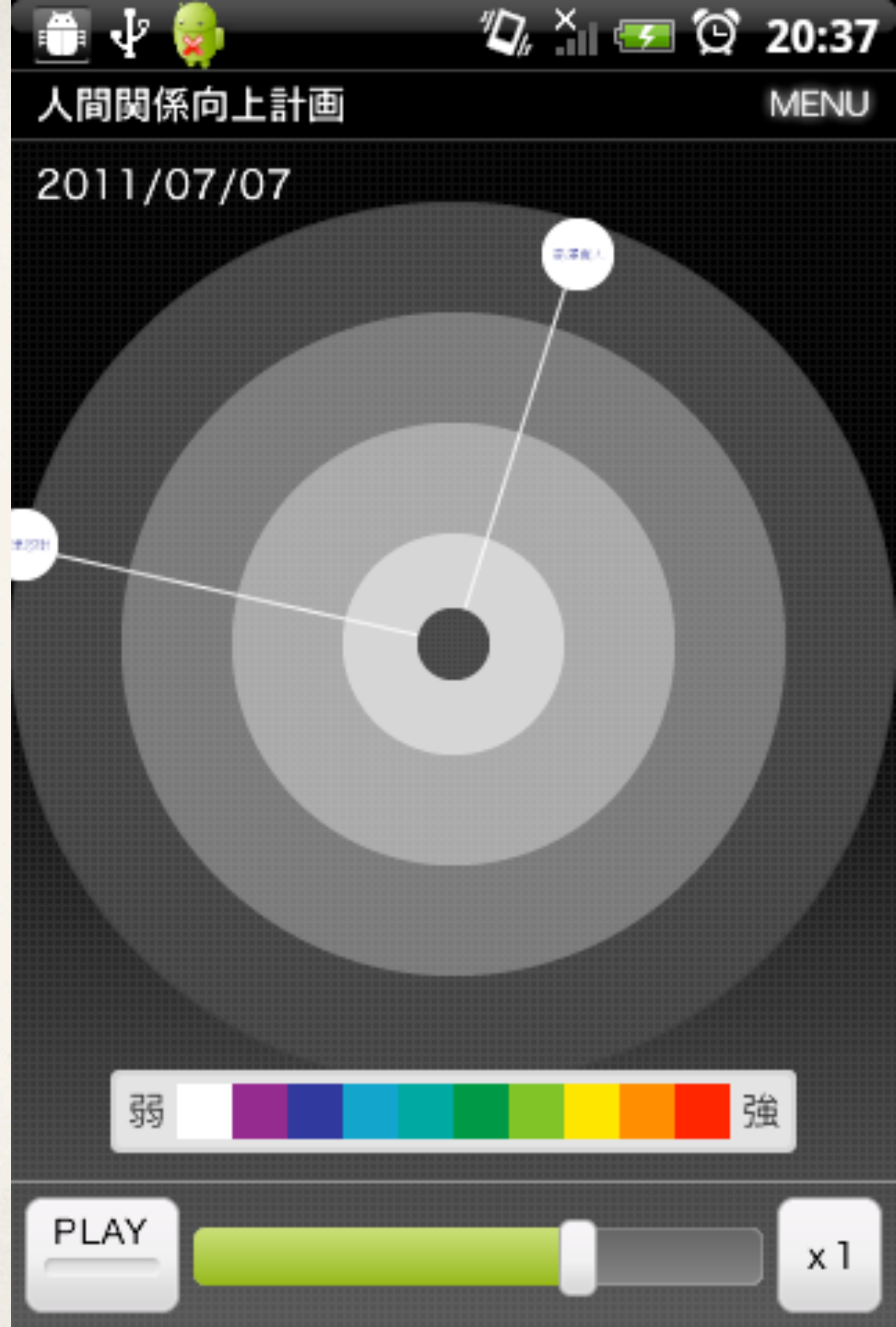
Communication Explorer

- ❖ Panel participants
 - ❖ 310 adults in Japan
 - ❖ 232 adults in the USA
- ❖ Log data
 - General survey data
 - Pop-up survey data



Relationship Improver

- ❖ Experimental design
 - ❖ 100 adults in Japan
 - ❖ 100 adults in the USA
- ❖ Also free download in app store (NHK)
- ❖ Interact with network graph
- ❖ App suggests people to contact
- ❖ Log & pop-up survey data



1	User ID	Hash ID - Respondent's Phone Number	Address Book Label	Hash ID - Alter's Phone Number	Duration in Seconds	Date & Time	Time Zone	Direction
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Phone Log Data

Methodological Questions

Self-Report vs. Log Data

- ❖ What's wrong with self-report?
- ❖ Can self-report be improved?



Immediate Implications

- ❖ Literature analysis
40% mobile comm. journal publications use these self-report measures (Boase & Ling)
- ❖ Internet researchers use similar self-report measures
- ❖ Results: non-random error
- ❖ Demographics only help identify over-reporting slightly



Larger Implications

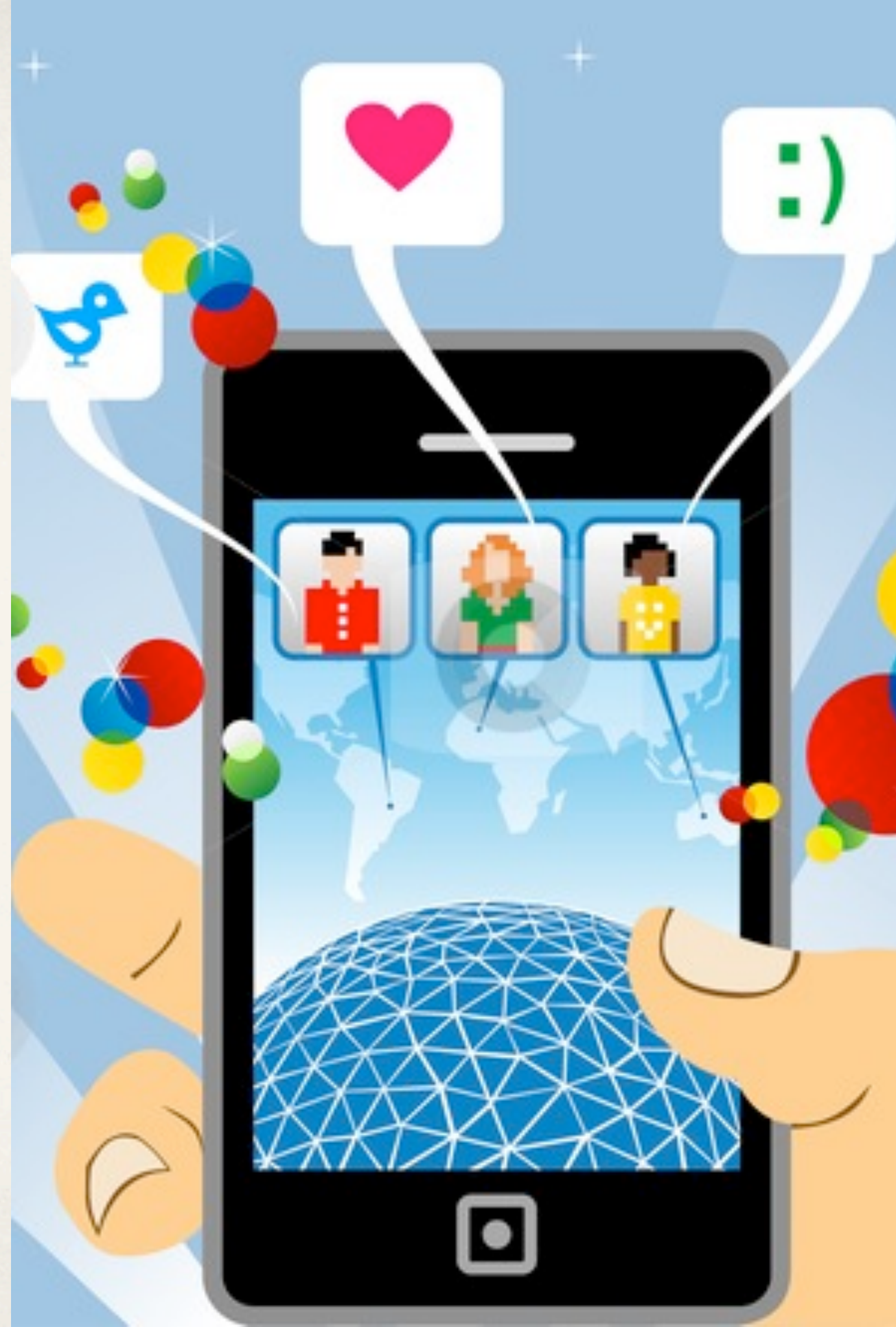
- ❖ Self-report measures are highly limiting
- ❖ Advancement of empirical quantitative research implies more connection with IS & CS



Theoretical Questions

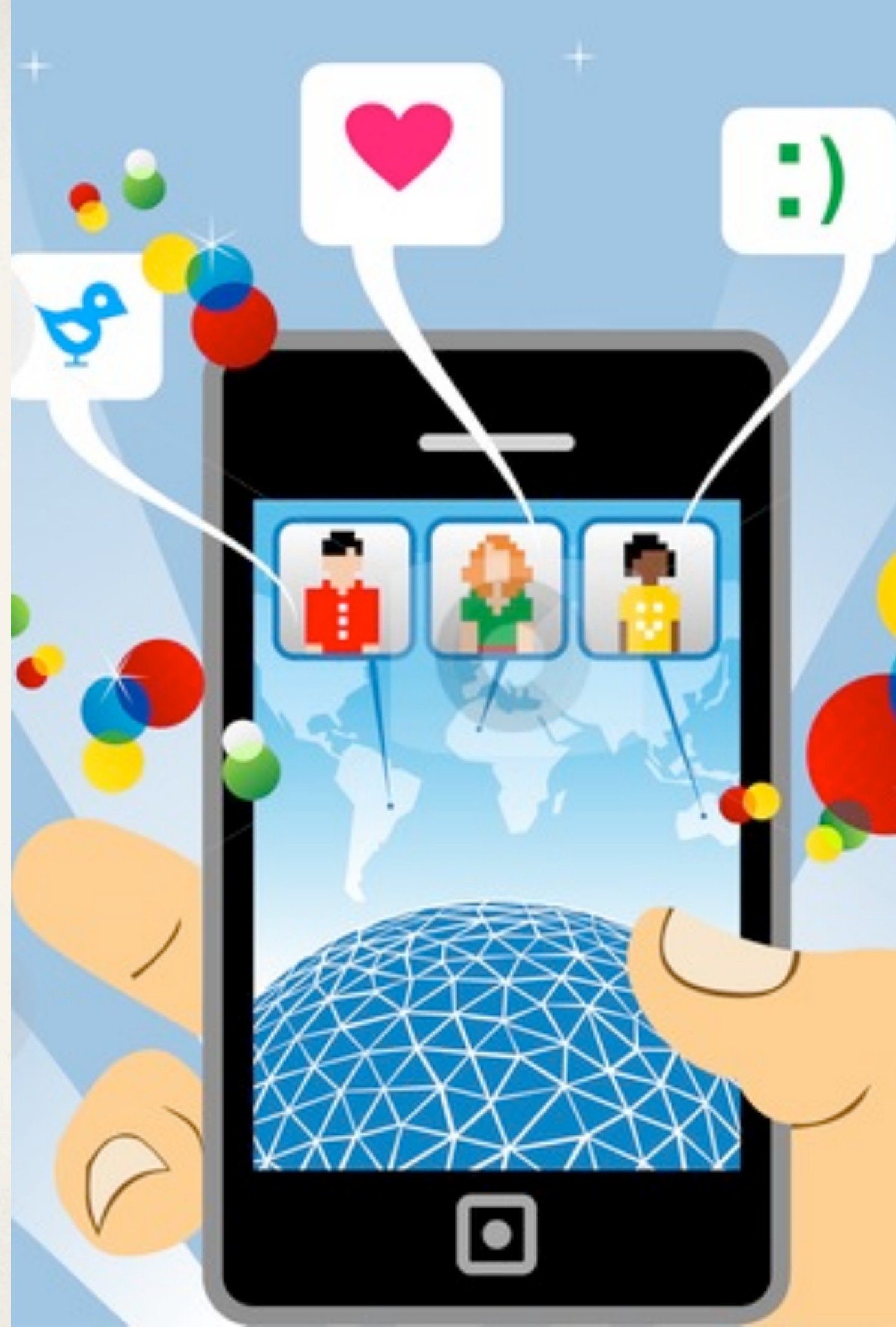
Mobile Communication Networks

- ❖ Mobile media multiplexity or a division of mobile media?
- ❖ How rhythmic are ties?
- ❖ Are findings robust across Japan and the US?



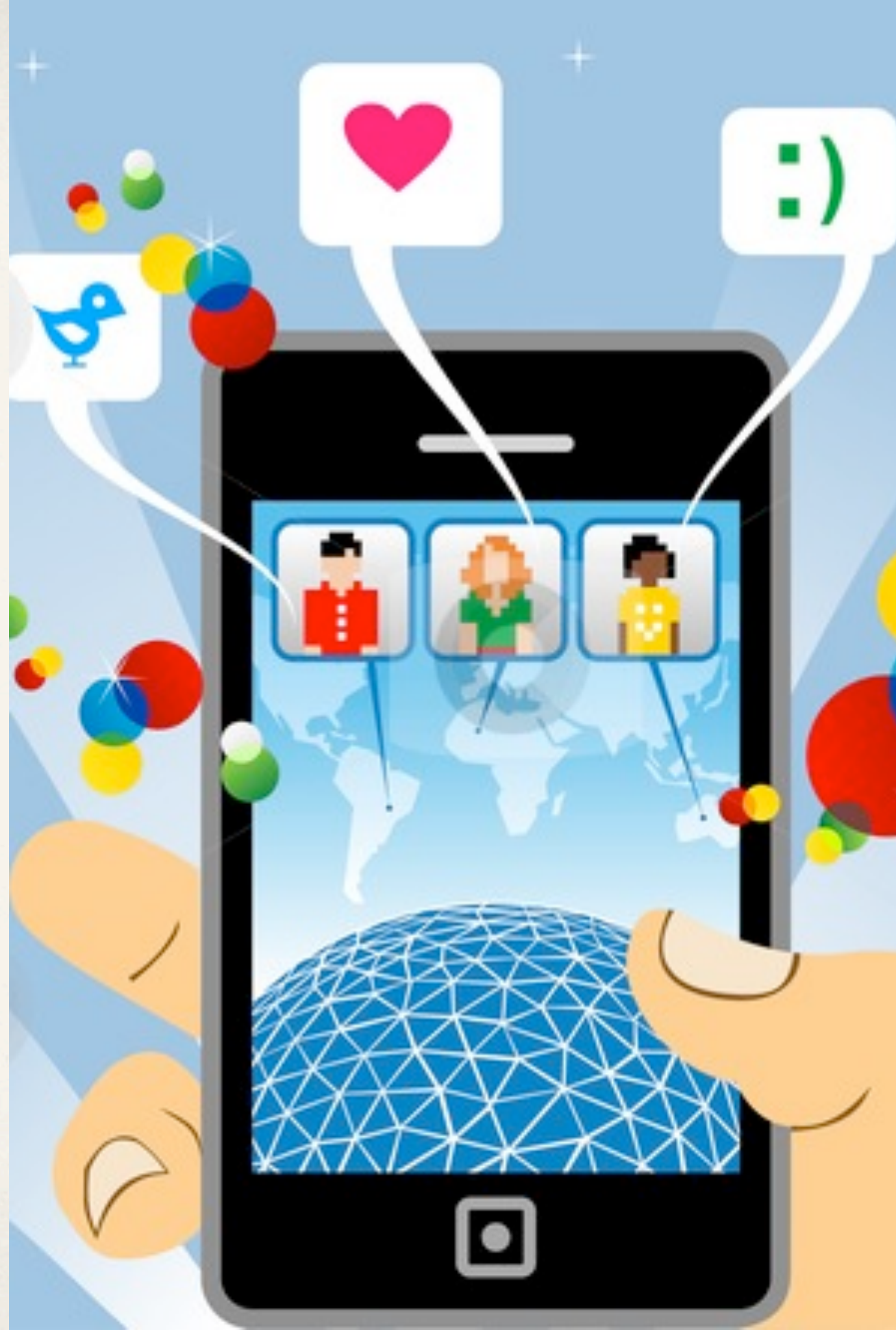
Immediate Implications

- ❖ Bonding & bridging are commonly used concepts
- ❖ But they are operationalized in a variety of ways
- ❖ We are rethinking bonding & bridging in behavioural terms
- ❖ Behaviour is a pre-condition of many outcomes



Larger Implications

- ❖ But does it make sense to operationalize existing concepts using only behaviour?
- ❖ Will theory focus more on behaviour as a result of this sort of digital research?



Conclusion

- ❖ The project highlights the weakness of self-report
- ❖ This project has led us to question and rethink core concepts in the social sciences in behavioural terms
- ❖ How this approach will be received by scholars remains to be seen