

LetsPic: Supporting In-situ Collaborative Photography over a Large Physical Space



Auk Kim
Sungjoon Kim
Uichin Lee



A collocated environment is ideal for group activities

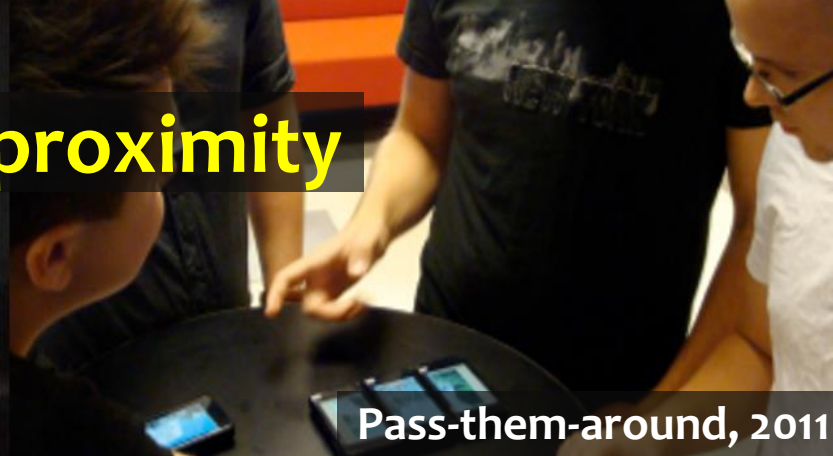
Group members are in close proximity



Personal Digital Historian, 2003



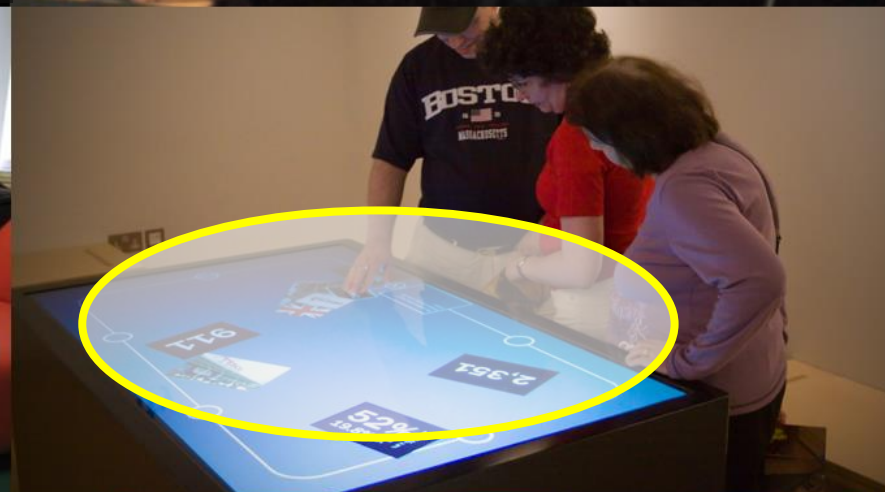
WeSpace, 2009



Pass-them-around, 2011



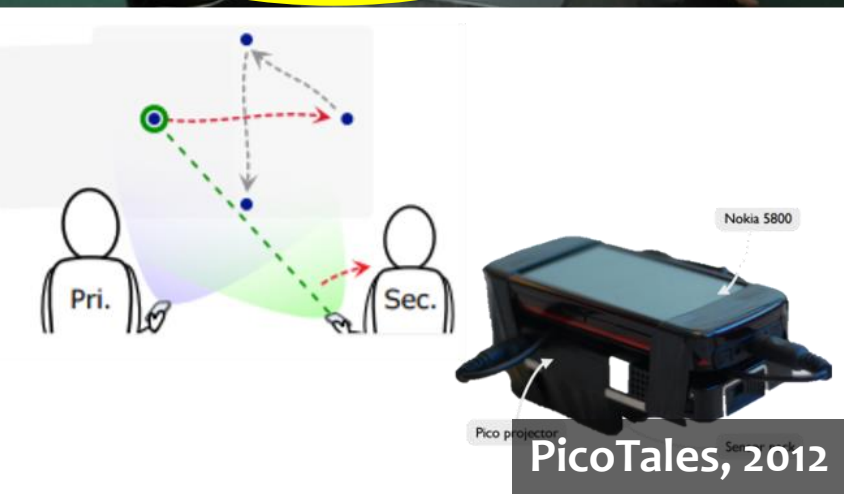
PicoTales, 2012



Mobicomics, 2012



Co-Curatoe, 2016



PicoTales, 2012



Mobicomics, 2012

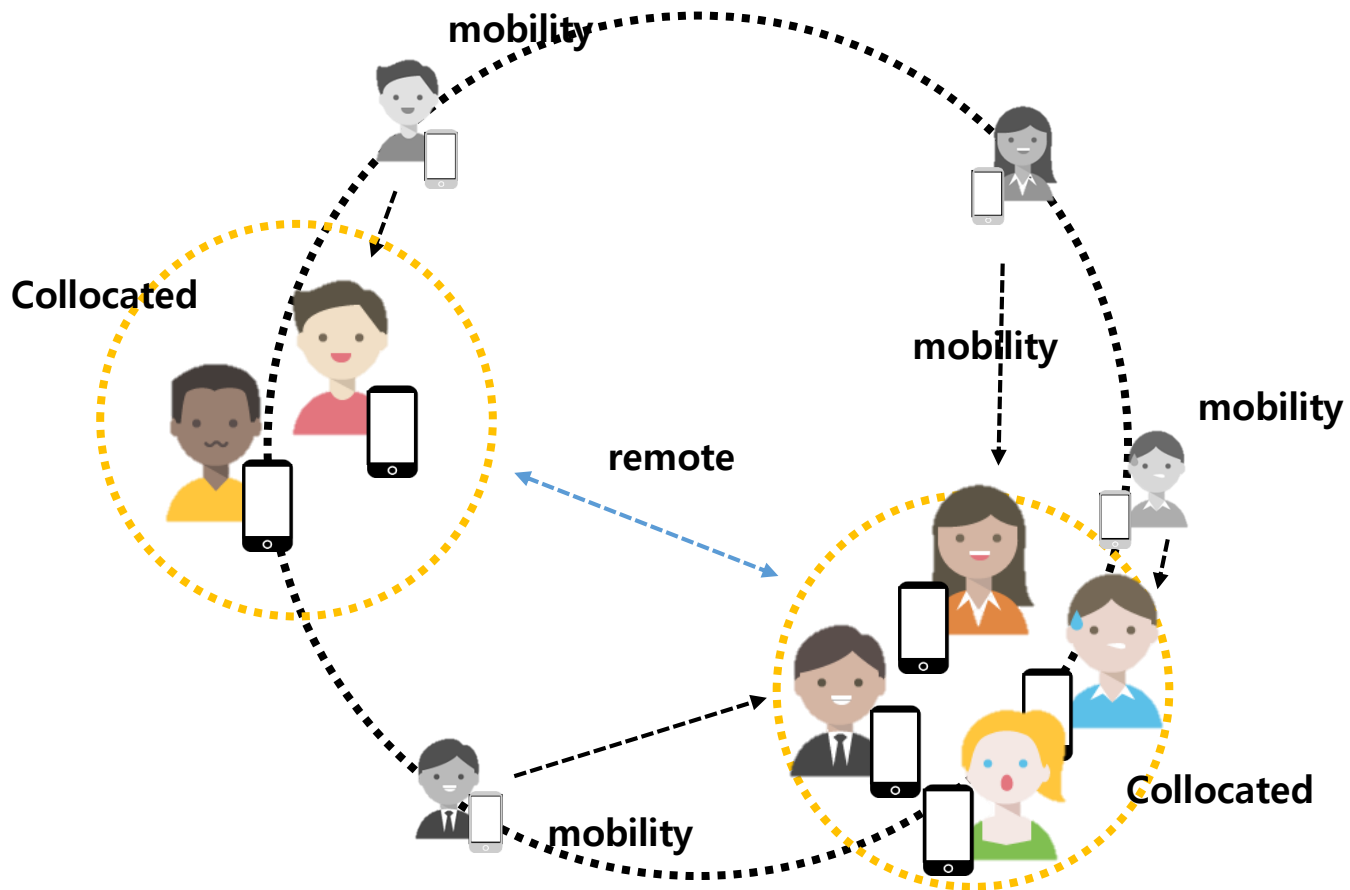


Co-Curatoe, 2016

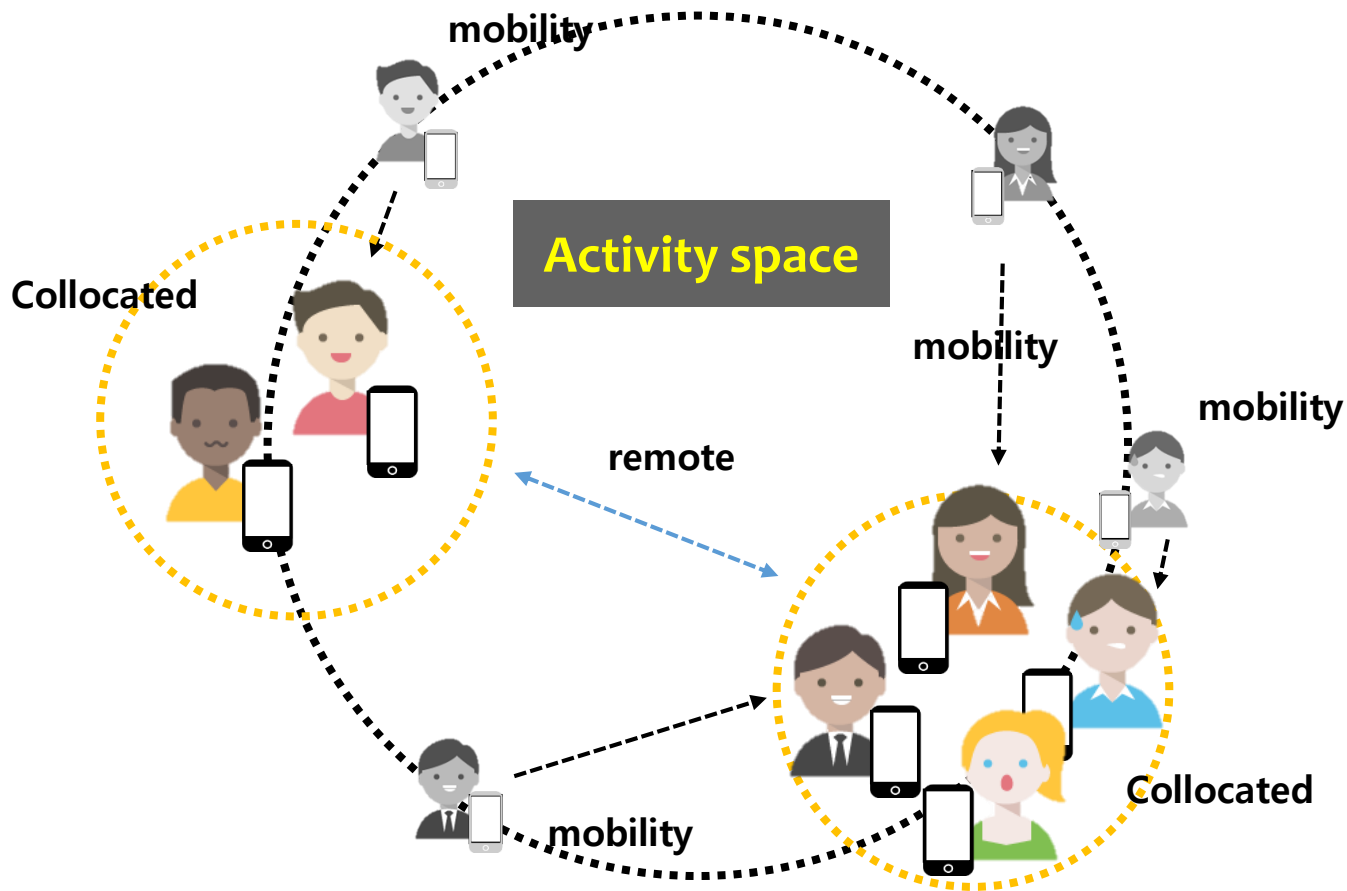


Collocated group activities over a large physical space like :

site survey
field trip
citizen science
community policing
group tour
collaborative photography
group travel
.....



In a large physical space, group interactions may include a mixture of collocated and remote interactions, because of mobility and group dynamics.



We define

- this environment as the **'activity space'** that bounds group activities.
- **'Activity-space awareness'** as the up-to-date knowledge of group members' activity, location, and interaction in an activity space.

Unique design opportunities
to support activity-space awareness for
collaborative group over a large physical space



Various group activities/works taking over a large physical space like :

site survey
field trip
citizen science
community policing
A/R games
group tour

In our study, we focus on

collaborative photography
group travel

....

**Collaborative photography is
A type of photography that
involves a group of people taking
photo together typically for
shared goals.**

Various application domains of collaborative photography

Collaborative photography in work context

- Collaborative site surveys (e.g., site reviews, construction sites, and natural habitat monitoring)
- Field trips (e.g., botanical gardens, zoos, and historical sites)
- Image-based research methodologies (e.g., geography, archaeology, and anthropology)

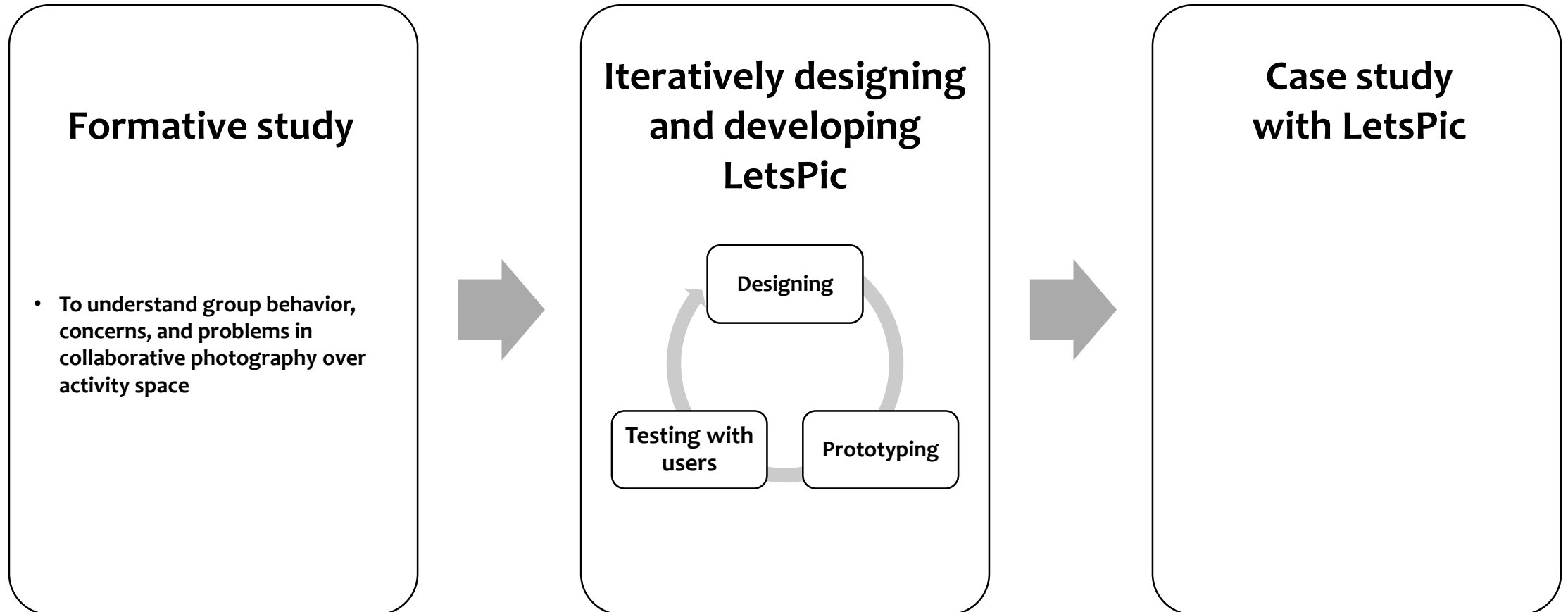
Collaborative photography in social context

- Group travel (e.g., theme park visits) and leisure/sports activities (e.g., outdoor festivals, marathons)
- Group photography tours and workshops (e.g., a visit by a camera club to scenic sites)

Main goal of our study:

How to build a system capable of supporting in-situ collaborative photography in an activity space

Procedure of our study



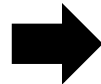
Formative study: Understanding of collaborative photography in activity space

Participants

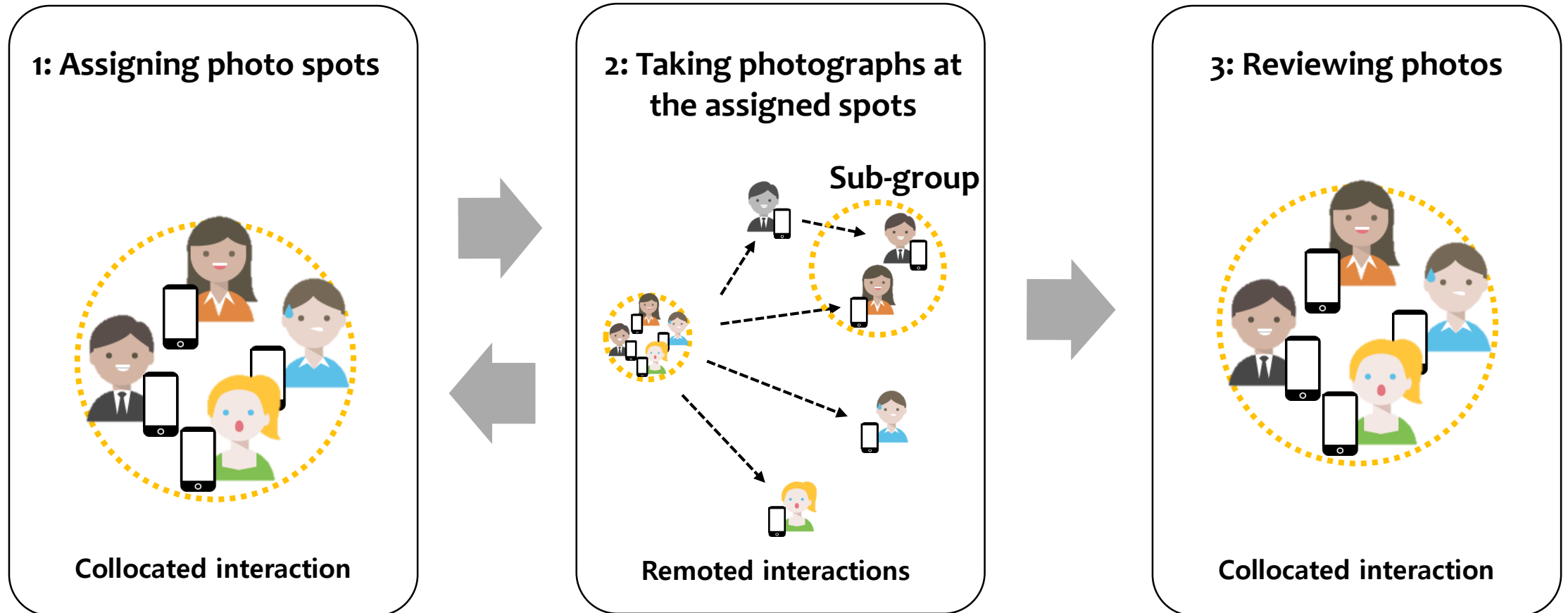
- 17 people (4 groups of four to five members; 10 females and 7 males)

Procedure

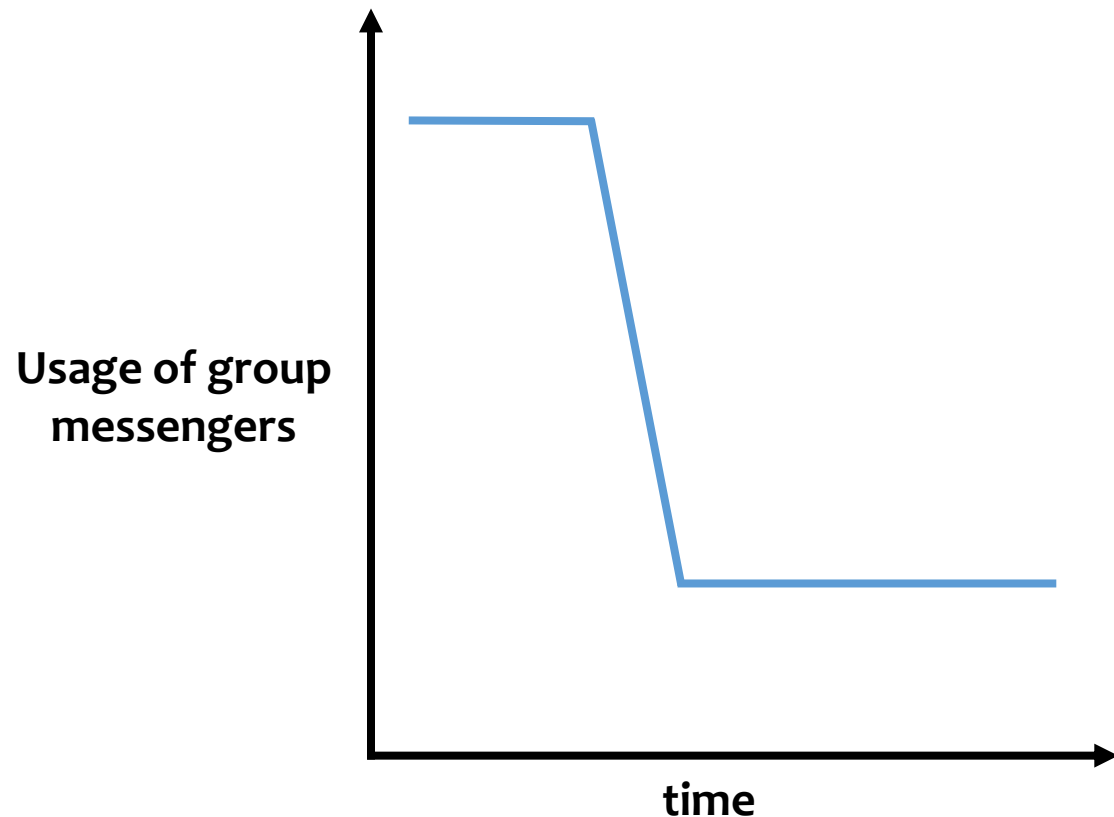
- * Site survey: collecting photos for introductory pages of three place in campus



Finding 1: Collaborative photography in activity space



Finding 2: Messenger as photoware, but it's interruptive and frustrated.



- Group messenger for sharing photos, checking progress/location, and discussing photos
- The messenger was only used often in the beginning, and was rarely used subsequently

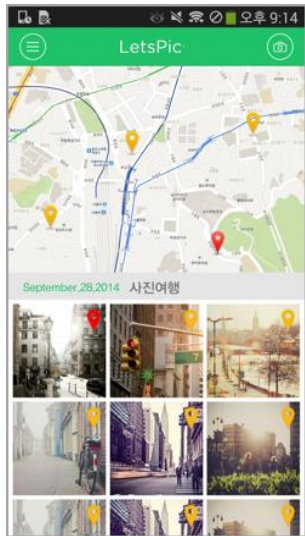
Finding 3: Evidences showing importance of activity-space awareness



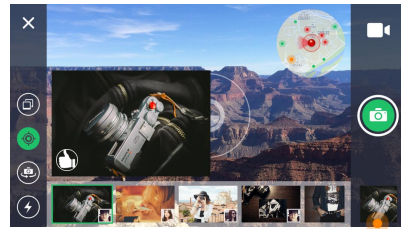
- Often revisited the same place
- Captured redundant photos
- Being not aware of other members' behavior

LetsPic, a photoware supporting activity-space awareness

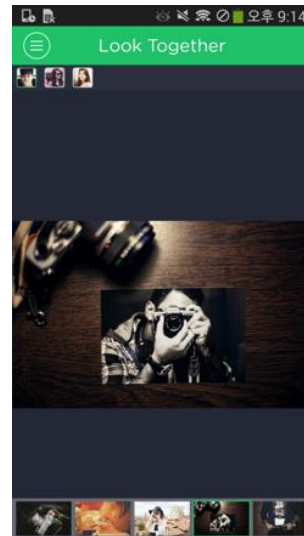
- The key design concept is to empower users with activity-space awareness to facilitate collaborative photography.



Galley Mode



Camera mode



Co-present mode

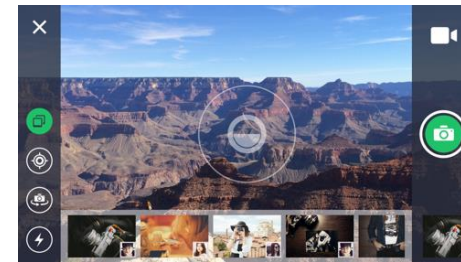
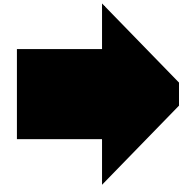
Gallery mode provide detailed activity-space awareness (e.g., overall group progress)

Location of each photo as a colored marker to help users to maintain activity-space awareness.



Galley Mode

Gallery mode as an initial landing page



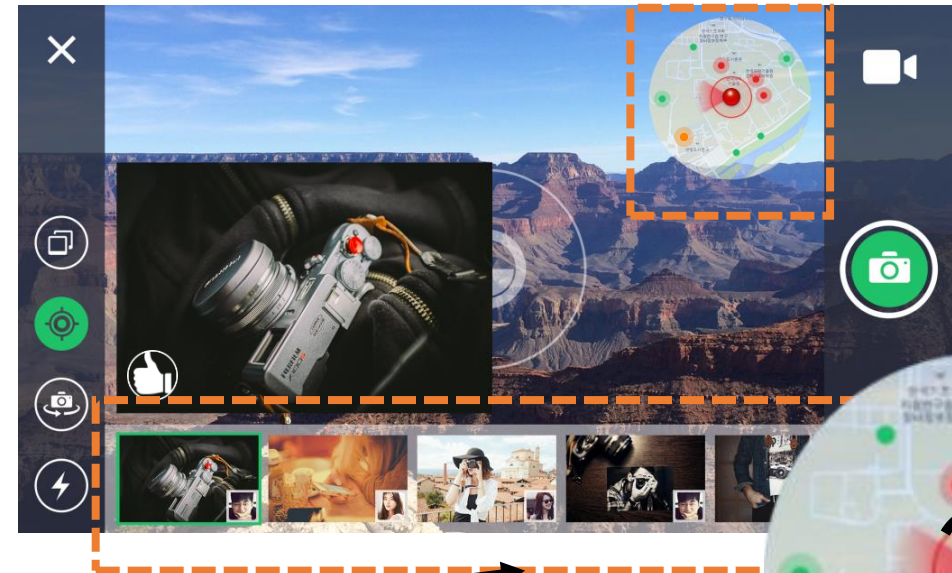
Camera mode

Camera mode allows users to take photos while providing simplified activity-space awareness

Quick galley view



Radar view



Displaying recent photos taken by group members

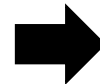
Case Study: Site survey - experience of LetsPic in work context (higher level of collaboration than case study 2, social context)

Participants:

- 31 people (12 groups of two to four members; 15 males and 9 females)

Procedure:

- * Site survey: collecting photos for introductory pages of two places in campus

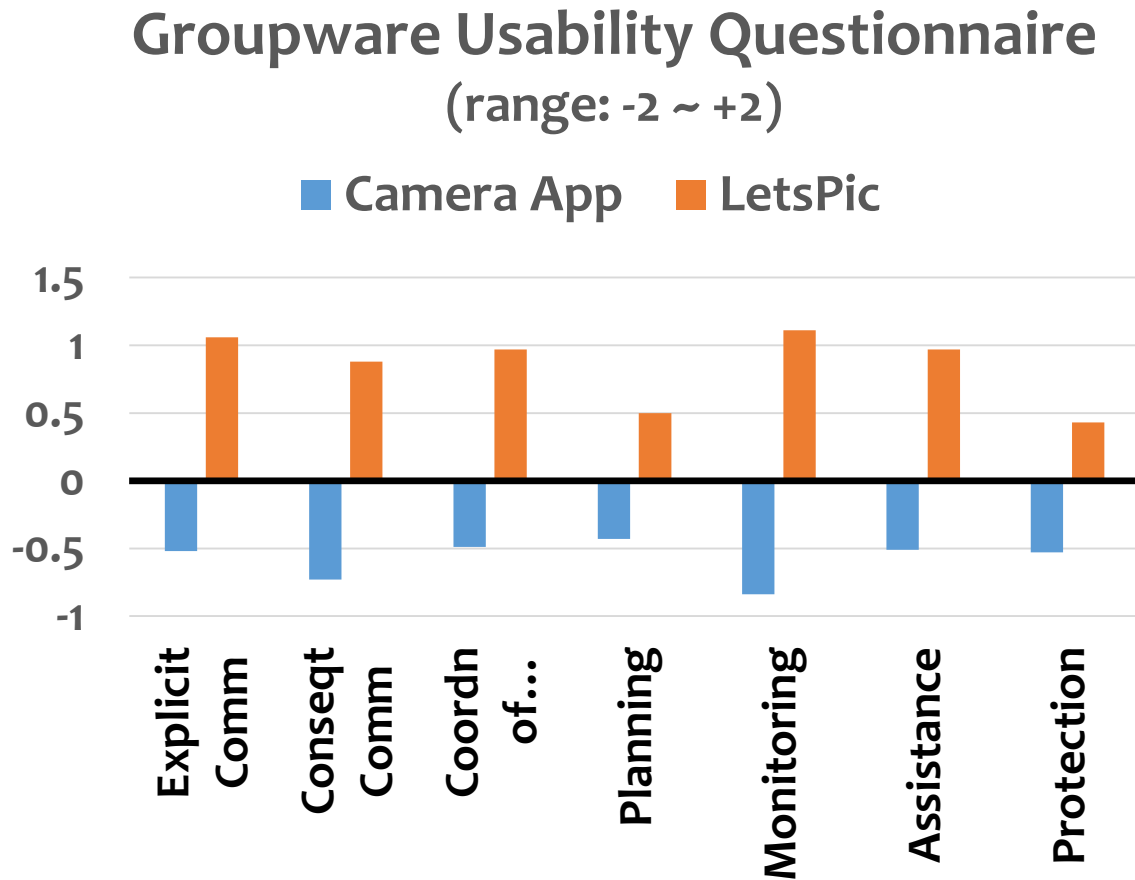


Group interview



Post-questionnaires

LetsPic increased users' awareness and was used intuitively in the way of activity-space awareness benefits users



E.g., PA4 said

“I used the gallery mode when I needed to check overall work progress [...] While taking photos, I used the radar view to check what others (collaborators) were doing if I needed to [...] To see recent activity of group members, I used the quick gallery view.”

LetsPic provided new opportunistic collaborative experiences

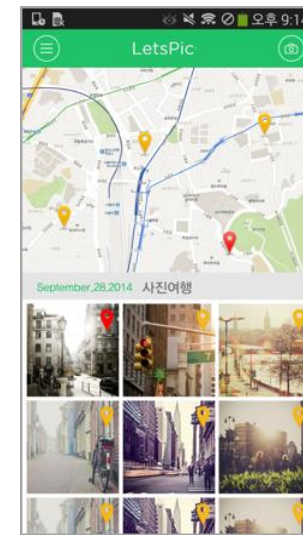
- An opportunity to capture unique photos by helping the participants navigate in the direction where members had not captured any photo yet.
- An opportunity to iteratively improve the quality of each photo in the groups' photo collections.
- An opportunity to improve the diversity in groups' photo collections.

Conclusion

- Unlike to the traditional collocated environment, mobile-collocated interactions in a large physical space (activity space) includes a mixture of both collocated and remote interaction
- In activity space, mobility of group members and group dynamic make maintenance of awareness very challenging.
- Thus, awareness must be supported for group activities over a activity space.

Thank You! Questions?

- Introduction of unique design space
- Characterization of activity-space awareness
 - Hierarchy in awareness
 - Benefits of awareness
- LetsPic supporting two level of activity space awareness



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