

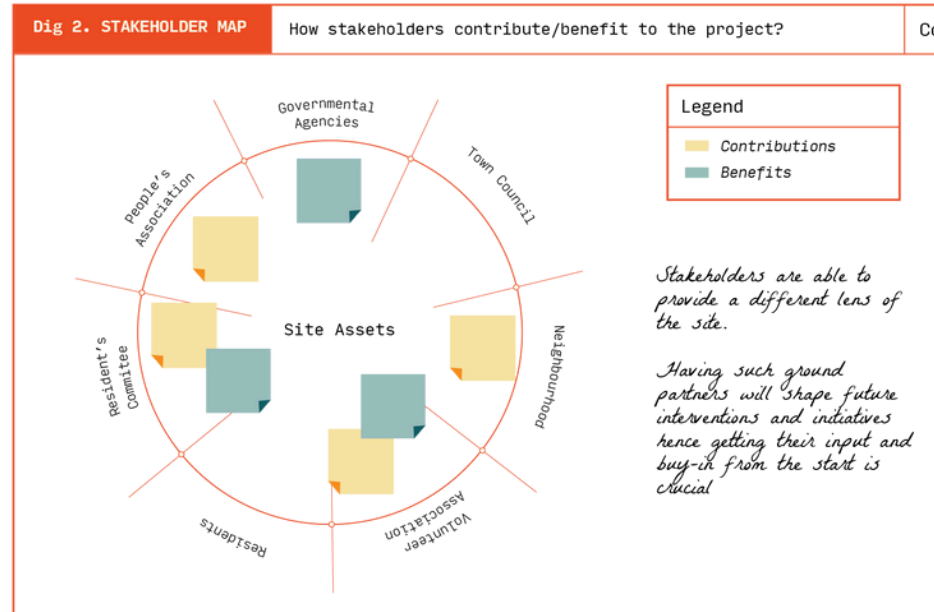
## Mapping out facilities and programmes within a place

A process of collecting information on existing physical and programmatic features found in a built environment, in order to understand current amenities available to users and visualise their relationships between each other. Observation and recording of existing locational features can form useful insights to inform future site-specific design interventions.

**Online Audits** | Using open source platforms, multiple researchers to collaboratively gather online data of all identifiable facilities (e.g. housing, precinct facilities, sport facilities, eating places, community centres, green spaces, transportation nodes) and programs (e.g. regular activities offered by grassroots and social welfare organisations). Useful data to be collected include type, quantity and accessibility.

**Physical Audits** | In-person mapping on location to validate online data. Further validation can be carried out with the local community through interviews or focus groups.

Data-driven mapping has been used to aid SWOT analysis to offer a more visual understanding of a place, and to facilitate urban planning and urban design process. Data collected can be represented in the form of maps and tables, supplemented by photo records.



Data-driven mapping has been used to aid SWOT analysis to offer a more visual understanding of a place, and to facilitate urban planning and urban design process. Data collected can be represented in the form of maps and tables, supplemented by photo records

☒ Quantitative      ☒ Qualitative

☒ Collaborative      ☐ Individual

- SAMPLE SIZE



NA

Community Members can participate as

co-researchers

## OFFLINE

Fieldwork  
Interviews  
Focus Groups

## ONLINE

QQIS  
Google Maps  
OpenStreetMap  
MapHub

## NOTES

Focus on collecting data most relevant to the subject matter

## REFERENCES



# Social Behavioural Mapping

## PURPOSE

Observing human activity in space

## QUICK READ

Document user activities at a specific location in a systematic manner, to understand usage level and user behaviour in space. It reveals insights on whether a space is being used for its intended purpose, well-used or otherwise

## PROCEDURE

Set a timeframe for observations onsite e.g. morning, afternoon, night, weekdays or weekends. Significant characteristics for observation include number of people, gender, age group, time spent, activities they engage in, etc.

**Recording by hand:** Record observed characteristics with respect to time by means of tables or charts, and if needed, also with respect to space by using location map or architectural plan, complemented by photos taken in interval.

**Recording by equipment:** Set up sensors e.g. people counter, sound, pressure, wifi sensor, or video recording on site for specific timeframe. Note: to seek local authority's permission prior to setting-up.

## ORIGINS

William Ittelson, Leanne Rivlin, and Harold Proshansky of the City University of New York first introduced behavioral mapping to environmental psychology (1)

Dig 5. BEHAVOIRAL MAPPING

Site:

Date:

Re

Time slot

8am - 12pm

12 - 4pm

4 - 8pm

Weekend / weekday-

Design Elements	Reading Writing	Exercise	Talking	People Watching	Using Gadgets	Playing	Caregiving	
							Elderly	Children
Pathway				$E^m$			$A^f$	
Grass Patch	$A^m$					$C^f C^m$		$A^f$
Potted Plants		$E^f$						
Round Table			$E^f E^f$					
Benches				$A^m A^m$				
Pond		$E^m$						

Demographic coding

Children 0-10 yrs

C<sup>f</sup>

C<sup>m</sup>

Youth 11-20 yrs

Y<sup>f</sup>

Y<sup>m</sup>

Adult 21-60 yrs

A<sup>f</sup>

A<sup>m</sup>

Elderly 61-90 yrs

E<sup>f</sup>

E<sup>m</sup>

Dig 6. STATIC SKETCH

Site:

Date:

Re

Time slot

8am - 12pm

12 - 4pm

4 - 8pm

Weekend / weekday

BLK 208

$E^f E^f$

$A^m$

$A^m$

$E^f$

$A^f$

$E^m$

$A^f$

$C^f C^m$

$A^m$

Initial site visits and understanding will frame design elements and behaviours to track

Legend

/

Reading Writing

⊗

Excercise

○

Talking / Interacting

□

People Watching

△

Using Gadgets

‡

Playing

<

Caregiving - Elderly

>

Caregiving - Children

## REFERENCES

1 Cheuk Fan Ng. (2016) Behavioral Mapping and Tracking. Research Methods for Environmental Psychology, 29-51. <https://doi:10.1002/9781119162124.ch3>

## COMPARISON TABLE

### APPLICATION

Early applications involved behavioural study of adult patients in psychiatric wards (Ittelson et al., 1970), and children in open classrooms (Rivlin & Rothenberg, 1976).

Also used in various research settings such as playground and schoolyard, classroom, library, long-term care facilities, urban neighborhood, retail setting, aquarium and museums, public squares, and university plaza (2) .

### A - DATA TYPE

☒ Quantitative

☒ Qualitative

### B - ASSESSMENT TYPE

☐ Collaborative

☐ Individual

☒ Observational

☐ Group

### C - PARTICIPANTS

#### ● SAMPLE SIZE

⊗

SmallMediumLargeOthers

NA

#### ● SAMPLE TYPE

General Public

### D - METHOD VARIABLES

#### OFFLINE

Fieldwork

Video / Photos

#### ONLINE

Excel Sheets

Google Maps

### NOTES

Observe a wide time range e.g. 8 hrs, to assess peak and lull periods of the day. Peak periods will inform of the main activities taking place

Q- Methodology

PURPOSE

Measuring and uncovering people’s diverse viewpoint

QUICK READ

A research method to study complex issues of human subjectivity (1), i.e. how people think differently about a topic. By combining quantitative and qualitative components, it allows the researcher to conduct a structured and reproducible analysis to understand collective views on a topic while offering an appreciation of the subtle, often hidden and sometimes divisive, differences in opinions (2)

PROCEDURE

**Q set:** A set of statements, usually printed individually on cards and represent varying opinions on the topic, to be provided to each participant

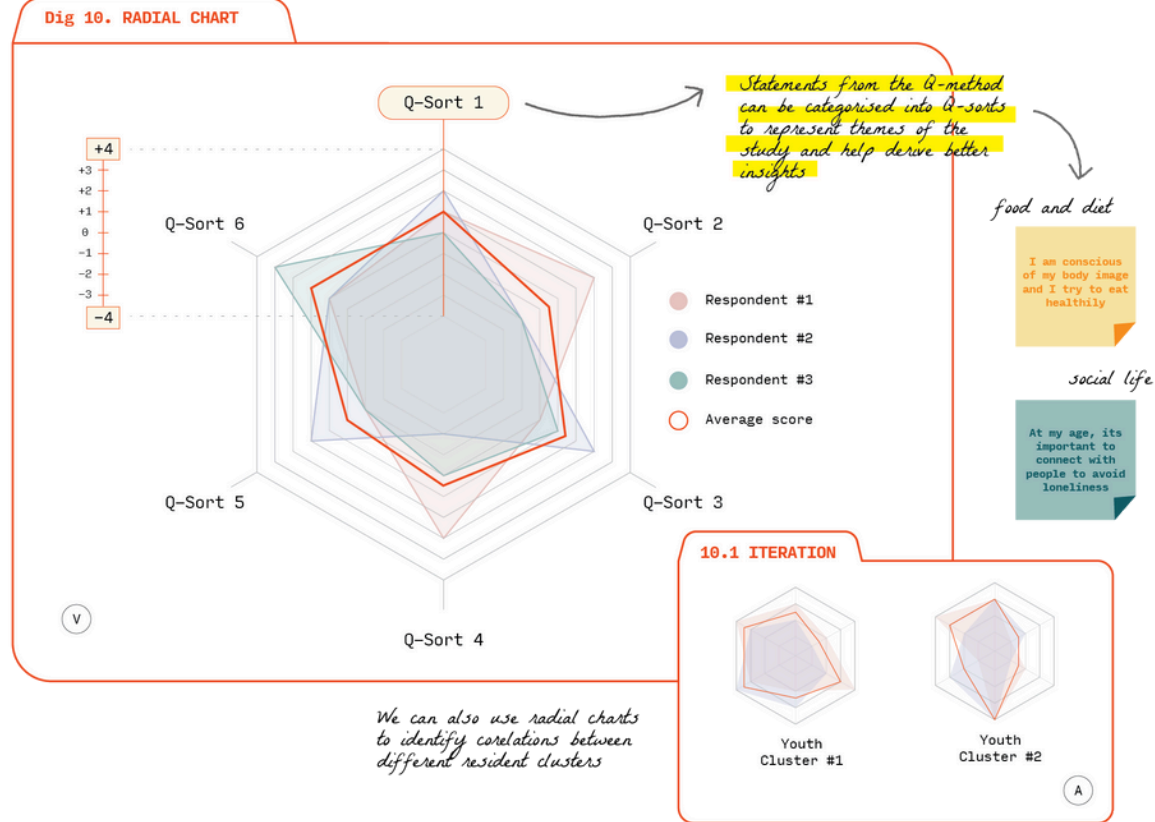
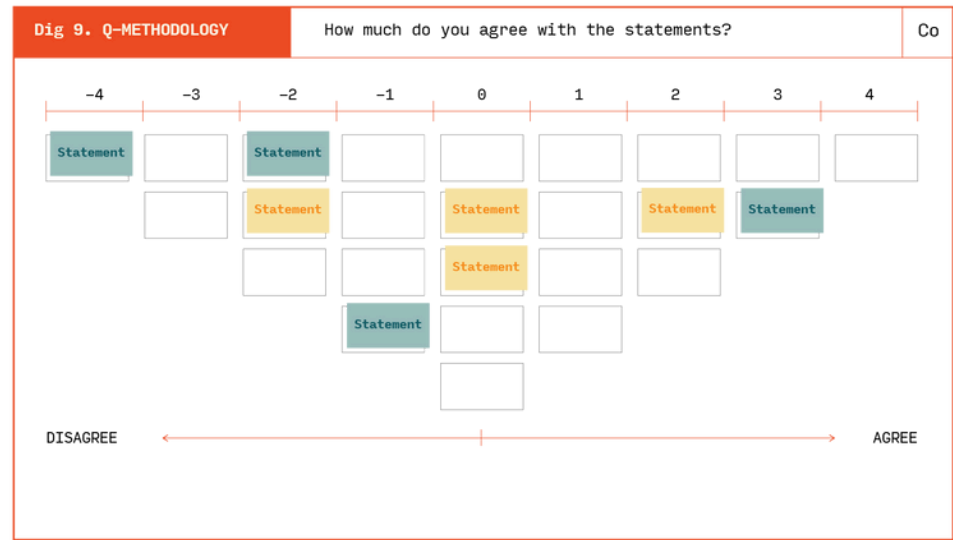
**Q sort:** Participants to rank these statements onto a numbered pyramidal grid, from “most like how I think” (positive columns) to “least like how I think” (negative columns), with neutral in the central column

**Factor analysis:** Cluster and reduce the many viewpoints of the participants down to a few factors

**Interpretation of factors:** Derive narrative based on the placement of statements in the Q-sort for each factor. Further analysis can be conducted to interpret underlying motivations (see COM-B)

ORIGINS

Developed by physicist and and psychologist William Stephenson in 1935.



COMPARISON TABLE

APPLICATION

Derived from the field of psychology and used across a wide range of disciplines such as political sciences and perception of healthcare (3). It can be applied in many fields including education, management, and urban planning, whereby the nuanced perspectives and lived experiences of participants play a significant role in deciphering behavioural pattern

A - DATA TYPE

☒ Quantitative ☐ Qualitative

B - ASSESSMENT TYPE

☐ Collaborative ☒ Individual  
☐ Observational ☐ Group

C - PARTICIPANTS

● SAMPLE SIZE

Small Medium Large Others

● SAMPLE TYPE

Community Members from diverse backgrounds

D - METHOD VARIABLES

OFFLINE

Roadshow  
Workshop  
Survey

ONLINE

Miro  
Qualtrics  
Zoom

NOTES

Facilitator may be needed to guide participant's interpretation of Q-statements

REFERENCES

1 Churrua, K., Ludlow, K., Wu, W. et al. A scoping review of Q-methodology in healthcare research. BMC Med Res Methodol 21, 125 (2021). <https://doi.org/10.1186/s12874-021-01309-7>  
2 Duncan Millar J, Mason H, Kidd L. What is Q methodology? Evid Based Nurs. 2022 Jul;25(3):77-78. <https://doi.org/10.1136/ebnurs-2022-103568>. Epub 2022 May 24. PMID: 35609957  
3 Brown SR. Q Methodology and Qualitative Research. Qualitative Health Research. 1996;6(4):561-567. <https://doi.org/10.1177/104973239600600408>



Time-geog Chart

PURPOSE

Charting out an individual’s daily routine

QUICK READ

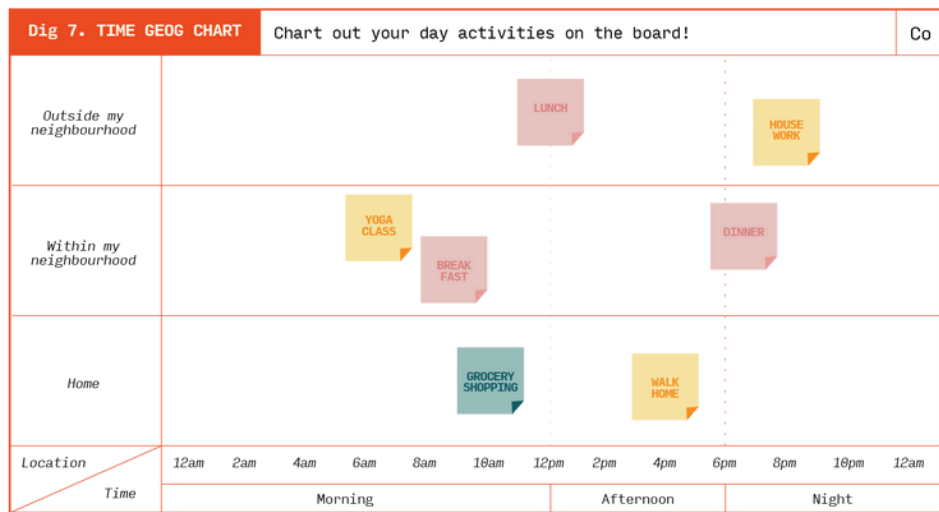
Map participants’ daily activities with respect to time and space. With adequate samples, patterns and connections between events, situations and environments occurring in people’s life can be identified

PROCEDURE

Participants to sort out a set of cards printed with daily activities according to their lifestyle, and place each card on a chart that consists of 2 main axes - location (e.g. home, within neighbourhood, outside neighbourhood) and time (24-hour or specific period of interest). Each participant to produce two charts as weekday and weekend routine can be different.

ORIGINS

A visual presentation derived from the concept of time geography (1) created by Swedish geographer Torsten Hägerstrand in the mid-1960s, based on his studies on human migration



COMPARISON TABLE

APPLICATION

Initially developed as a way to track human movement, Time-Geog life charting has been a dominant method in the field of transportation. In recent years, it has been transdisciplinary and useful in the sociological study of human routines in space, such as the organisation of production of work2, or understanding patients’ medical histories in healthcare settings (3)

A - DATA TYPE

☒ Quantitative ☐ Qualitative

B - ASSESSMENT TYPE

☐ Collaborative ☒ Individual  
☐ Observational ☐ Group

C - PARTICIPANTS

● SAMPLE SIZE

○ ———— ✕ ———— ✕ ———— ○  
Small Medium Large Others

● SAMPLE TYPE

Community Members from diverse backgrounds

D - METHOD VARIABLES

OFFLINE

Roadshow  
Workshop  
Survey

ONLINE

Miro  
Qualtrics  
Zoom

NOTES

Follow-up questions can be asked to understand specific details of daily routines e.g. exact activities carried out for work, leisure

REFERENCES

1 Hägerstraand, Torsten. (1970) “What about People in Regional Science?” Papers in regional science Vol.24 (1), p.7-24. <https://doi.org/10.1111/j.1435-5597.1970.tb01464.x>  
2 Ellegård, K. (2018). Thinking Time Geography: Concepts, Methods and Applications (1st ed.). Routledge. <https://doi.org/10.4324/9780203701386> 3 Sunnqvist C, Råmgård M, Örmön K. Time Geography, a Method in Psychiatric Nursing Care. Issues Ment Health Nurs. 2020 Nov;41(11):1004-1010. <https://doi: 10.1080/01612840.2020.1757795>. Epub 2020 Jun 25. PMID: 32585121.



# Accompanied Walk

## PURPOSE

Experiencing and documenting individual’s journey across space

## QUICK READ

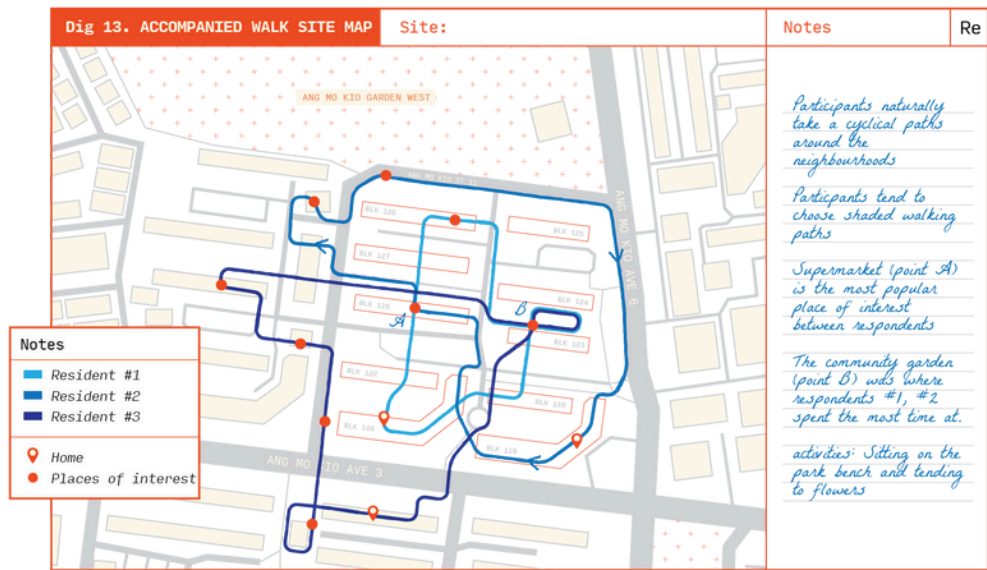
Walking with participants around the neighbourhood, with the aim of identifying positive experiences or difficulties they may have, as they navigate around their built environment. The walking component allows unbridled connection between a person and his surroundings, yielding results or observations that are direct and spontaneous.

## PROCEDURE

Together with researchers, and a fellow companion if required, the participant to embark on a frequented route. Researcher to map the walking route (on paper or digitally), and to record the participant’s responses to the environment. Can be complemented with other environmental audit tool (EAT), or sit-down interview about the participant’s experience.

## ORIGINS

Derived from “walking interviews”, “go-along”, and “mobile interviewing”.



Dig 14. ENVIRONMENT AUDIT TEMPLATE			Respondent:		Hypothesis theme : Familiar			Re
0- Disagree 1- Partially agree	General	Exit from Home	Route to Destination	Around Destination	Route back home	Entry to Home	Comments	
Respondent is familiar with route	2						Regular route for participant pre-covid	
Respondent is able to walk with confidence and without hesitation	2						Participant greets many residents during walk	
Respondent knows people in the neighbourhood		1	2	1	2	2	Participant walks confidently and briskly	
Respondent believes that the neighbourhood has not changed much		1	2	0	2	1		

## REFERENCES

1 Barbara E. A. Piga, Daniel Siret, Jean-Paul Thibaud. (2021) Experiential Walks for Urban Design, Revealing, Representing, and Activating the Sensory Environment, Springer Cham. <https://doi.org/10.1007/978-3-030-76694-8>

## COMPARISON TABLE

### APPLICATION

Early applications involved behavioural study of adult patients in psychiatric wards (Ittelson et al., 1970), and children in open classrooms (Rivlin & Rothenberg, 1976).

Also used in various research settings such as playground and schoolyard, classroom, library, long-term care facilities, urban neighborhood, retail setting, aquarium and museums, public squares, and university plaza (2) .

### A - DATA TYPE

- ☒ Quantitative
- ☒ Qualitative

### B - ASSESSMENT TYPE

- ☐ Collaborative
- ☒ Individual
- ☐ Observational
- ☐ Group

### C - PARTICIPANTS

#### ● SAMPLE SIZE



#### ● SAMPLE TYPE

Community Members from diverse backgrounds

### D - METHOD VARIABLES

- OFFLINE**  
Face to face Interview
- ONLINE**  
Virtual Reality

### NOTES

To go with an open mind, and embrace the spontaneity of the method



# Jigsaw Moodboard

## PURPOSE

Using puzzle game to initiate conversations

## QUICK READ

Resembling a jigsaw puzzle, the Jigsaw Moodboard helps to initiate conversations with participants in order to understand their needs and thinking. The pictorial game facilitates communication when design knowledge or the use of words are limited (e.g. interacting with Persons Living With Dementia or children), giving participants an alternative ‘voice’ to express intangible perceptions through a light-hearted, visual and tactile experience.

## PROCEDURE

Based on a simple goal (e.g. my favourite place), participants to pick jigsaw pictures about their surroundings according to their preference, and fit them together to create a mood board.

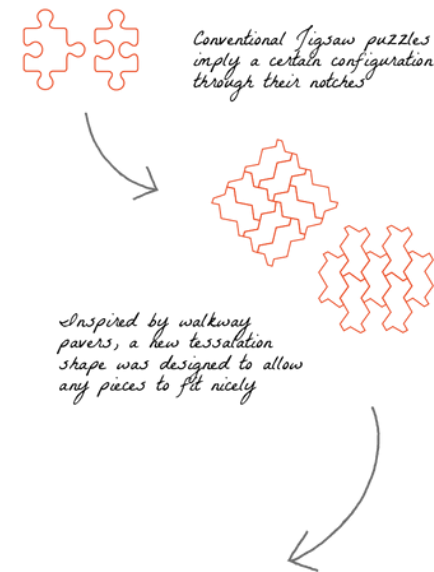
Participants or their caregivers to share instances and stories regarding the jigsaw pictures selected.

Data is sorted according to specific themes pertaining to the research, such as positive or negative associations of a place with regards to its accessibility, purpose, sensorial experience, which can be further analysed.

## ORIGINS

Developed by Singapore-based design practice COLOURS.

DIG 11. JIGSAW THEMES					
	THEMES	ITEMS			
1	Neighbourhood Amenities	Market	Playgrounds	Pavilions	Childcare
		Neighbourhood Mall	Exercise Corners	Resident's Corner	Senior Activity Centre
		Mama Shop	Community Centres	Park Connector	Train Station
2	Circulation and Common spaces	Sheltered Linkways	Informal Crossings	Cycling Path	Void Decks
		Uncovered Linkways	Traffic Crossings	Carparks	Bus Stops
3	Neighbourhood Elements	Trees	Drains/Curbs	Vehicles	Neighbourhood murals
		Benches & Tables	Railings	Stairs	Seats



DIG 12. JIGSAW PUZZLE PIECES	
Neighbourhood Amenities Prompt Questions: What are some places that you frequent around your neighbourhood?	
Circulation and Common spaces Prompt Questions: How do you get to these places?	
Neighbourhood Elements Prompt Questions: What do you like/dislike about your neighbourhood?	

## COMPARISON TABLE

### APPLICATION

The game has been used in COLOURS’ participatory design workshops and dialogues with the community as a bridging tool, particularly with children, seniors or people with special needs, to help them visualise their ideal neighborhood, care setting, or school environment.

### A - DATA TYPE

☐ Quantitative ☒ Qualitative

### B - ASSESSMENT TYPE

☐ Collaborative ☒ Individual  
☐ Observational ☐ Group

### C - PARTICIPANTS

#### SAMPLE SIZE

☒ Small ☐ Medium ☐ Large ☐ Others

#### SAMPLE TYPE

Community Members from diverse backgrounds

### D - METHOD VARIABLES

#### OFFLINE

Face to face Interview

#### ONLINE

Miro

### NOTES

Give participants ample time to look, think, choose and change their minds

## REFERENCES



# Community Asset Mapping

## PURPOSE

Discovering community’s strengths and resources

## QUICK READ

A strength-based approach that is able to identify and harness available resources within a place, in order to develop solutions for specific issues. By focusing on the positive aspects of a place instead of its needs and challenges, every individual, association, institution, physical characteristics and local history and culture is perceived as valuable asset to be built upon which can contribute meaningfully to a community.

## PROCEDURE

**Open method | Charts / Questionnaires:** Participants to fill in components of the study area which they view as beneficial, or dear to them (e.g. places they enjoy frequenting, helpful residents they meet, or activities they often partake in)

**Predefined method | Photos:** Participants are shown images of selected amenities / facilities / programs in the study area to provide feedback (e.g. frequency of use)

**Accompanied Walk:** Researcher to follow participants onsite to map out amenities / landmarks / routes that have special meanings to them

Note: Post-interviews can be conducted to better understand the significance of an asset and the specific role it plays in the community.

## ORIGINS

Asset-Based Community Development (ABCD) (1) developed by John L. McKnight and John P. Kretzmann at the Center for Urban Affairs at Northwestern University, USA.



## COMPARISON TABLE

### APPLICATION

Community Assets Mapping is often used as a participatory design method in placemaking, to engage and empower the local communities and stakeholders as part of the revitalisation (sometimes also conservation) of a place or an organisation.

### A - DATA TYPE

- ☒ Quantitative ☒ Qualitative

### B - ASSESSMENT TYPE

- ☐ Collaborative ☒ Individual  
☐ Observational ☒ Group

### C - PARTICIPANTS

- SAMPLE SIZE**
- Small Medium Large Others
- SAMPLE TYPE**
- Community Members from diverse backgrounds

### D - METHOD VARIABLES

- | OFFLINE                        | ONLINE                    |
|--------------------------------|---------------------------|
| Roadshow<br>Workshop<br>Survey | Miro<br>Qualtrics<br>Zoom |

### NOTES

Can be combined with Walking interviews

## REFERENCES

- 1 John P. Kretzmann, John L. McKnight. (1993) Building Communities from the Inside Out: A Path Toward Finding and Mobilizing a Community's Assets.The Asset-Based Community Development Institute



PURPOSE

Uncovering underlying factors influencing behaviours

QUICK READ	A model citing capability (C), opportunity (O), and motivation (M) as key components responsible for human behaviour (B). The model is useful in identifying the portion of behaviour thats needs to be modified in order for an intervention to be successful.
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PROCEDURE

Participants’ perceptions can be mined from surveys, interviews, or Q-method, with questions relating to the studied subject, on the following 3 components:

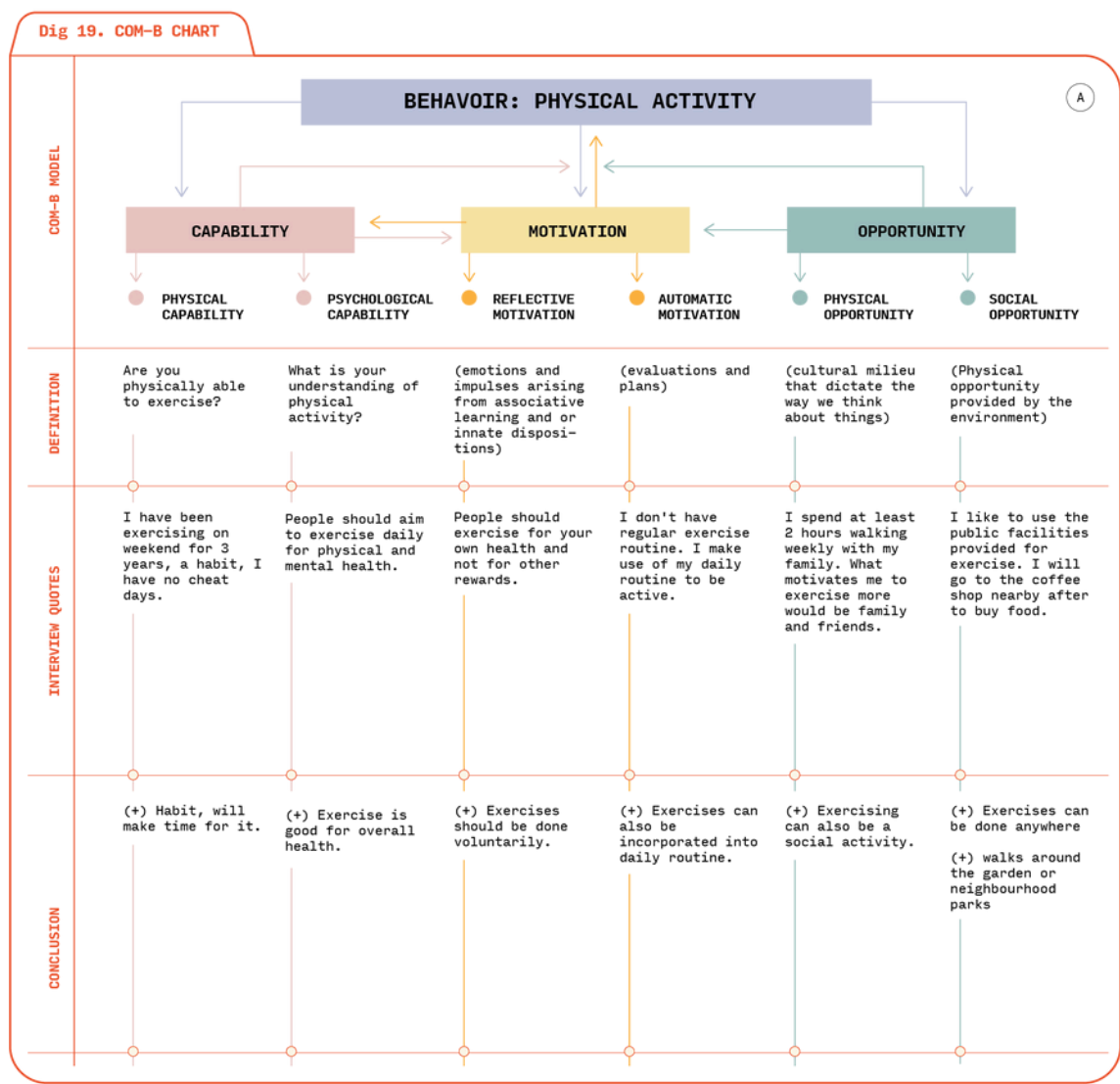
**Capability** - an individual’s psychological (e.g. knowledge or skills) and physical ability (e.g. strength or stamina) participate in an activity

**Opportunity** - external factors (e.g. availability of time, cost, or social opportunities) that make a behaviour possible

**Motivation** - the conscious and unconscious cognitive processes that direct and inspire behaviour.

ORIGINS

Developed by Susan Michie, Maartje van Stralen, and Robert West in 2011 (1)



COMPARISON TABLE

APPLICATION

Improving the implementation of evidence-based practice and public health depends on behavioural change. COM-B is useful in such health-related practices, where human actions and lifestyles play a crucial role in health outcomes. For example, the framework has been tested in areas of tobacco control and obesity reduction (1)

A - DATA TYPE

☐ Quantitative ☒ Qualitative

B - ASSESSMENT TYPE

☐ Collaborative ☒ Individual  
☐ Observational ☒ Group

C - PARTICIPANTS

SAMPLE SIZE

☒ Small ☒ Medium ☐ Large ☐ Others

SAMPLE TYPE

Targeted group of study interest with similar behaviours

D - METHOD VARIABLES

OFFLINE  
Interview  
Focus Group  
Workshop

ONLINE  
XLSTAT Excel

NOTES

-

REFERENCES

1 Michie, S., Van Stralen, M. M., & West, R. (2011). The behaviour change wheel: A new method for characterising and designing behaviour change interventions. Implementation Science, 6(1).<https://doi.org/10.1186/1748-5908-6-42>



# Social Network Analysis

## PURPOSE

Studying connections between people or organisations

### QUICK READ

Map relationship between individuals or organisations in a social network, with the aim of uncovering influential parties as well as significant interactions and ties within. The mapping allows strong or weak links within an organisation or group to be identified and subsequently addressed.

## PROCEDURE

**Stakeholder Analysis:** Through focus group discussion or interviews, participants who are knowledgeable on the study subject are to uncover significant role-playing stakeholders in the studied context, followed by categorising these personnels into themes crucial to the study, such as influence level or support level

**Social Network Analysis:** Stakeholders or individual ‘actors’ can be connected via differentiating arrows, based on their type and level of relationship with each other to form a social network map

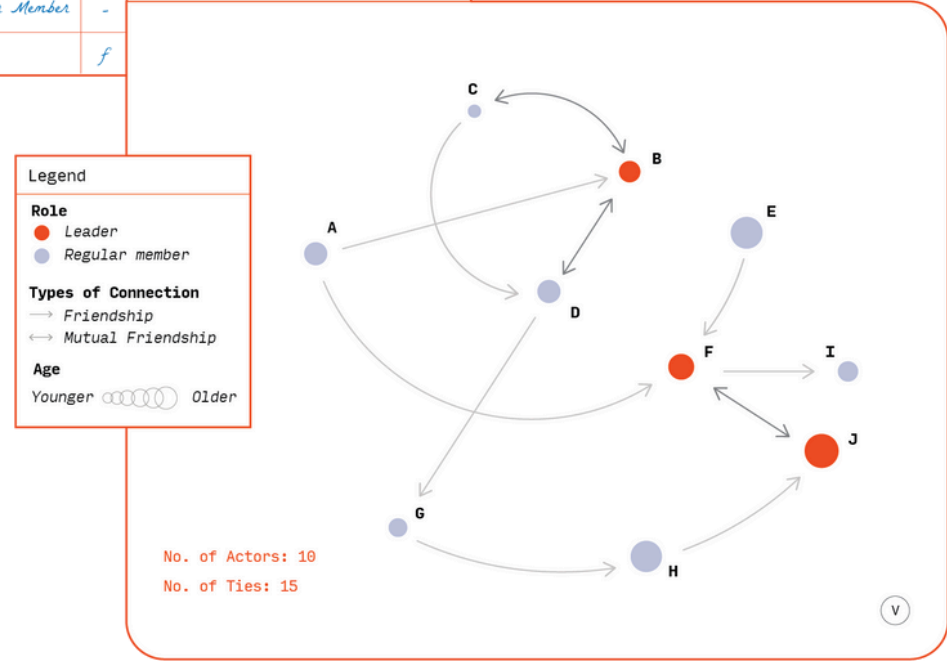
**Map generation:** Alternatively, the map can also be generated digitally by inputting data in software such as R.

## ORIGINS

Sociologists Emile Durkheim and Ferdinand Tönnies, first introduced the concept that social groups are formed by linked individuals sharing common values which could result in certain social phenomenons in 1800s. By 1930s, Sociometry Method was created by social psychologist Jacob Levy Moreno, pioneering systematic recording and analysis of social interaction in small groups (1)

Dig 15. ACTOR’S CHARACTERISTICS				Re
ACTOR	AGE	ROLE	FRIENDSHIP TIES	
A	30	Regular Member	b and f	
B	25	Leader	c, d and f	
C	22	Regular Member	b and d	
D	29	Regular Member	b and g	
E	35	Regular Member	f	
F	28	Leader	a and e	
G	24	Regular Member	h	
H	31	Regular Member	j	
I	27	Regular Member	-	
J	32	Leader	f	

Dig 16. SOCIAL NETWORK GRAPH: FRIENDSHIP



## COMPARISON TABLE

### APPLICATION

The methods can be used on any group or organisation, to break down roles individuals play, to comprehend and address decision-making problems, as seen from the case example of industrial land redevelopment in China<sup>1</sup>, where the applied methods are applied to advocate fair and equal participation among stakeholders (1)

### A - DATA TYPE

- ☒ Quantitative
- ☒ Qualitative

### B - ASSESSMENT TYPE

- ☐ Collaborative
- ☒ Individual
- ☐ Observational
- ☒ Group

### C - PARTICIPANTS

#### SAMPLE SIZE



#### SAMPLE TYPE

Selected community members with project knowledge

### D - METHOD VARIABLES

- OFFLINE**  
Workshops  
Focus Groups  
Surveys
- ONLINE**  
R

### NOTES

Recommended to select participants with a wide range of knowledge on the project, from hands-on to managerial level

## REFERENCES

<sup>1</sup> Wu, Wendong, Fang He, Taozhi Zhuang, and Yuan Yi. (2020) Stakeholder Analysis and Social Network Analysis in the Decision-Making of Industrial Land Redevelopment in China: The Case of Shanghai, International Journal of Environmental Research and Public Health 17, no. 24: 9206. <https://doi.org/10.3390/ijerph17249206>

10

Participatory Analysis

PURPOSE

Empowering participants through interpreting data and making plans

QUICK READ

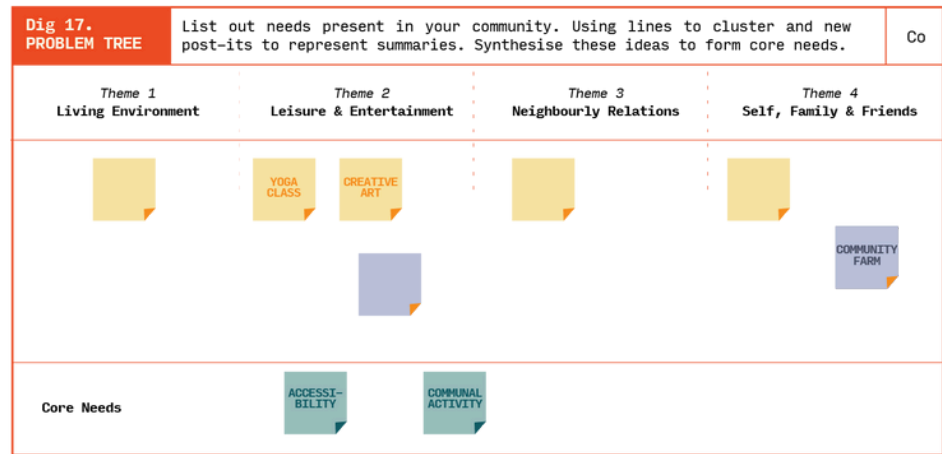
A participatory approach which brings involved stakeholders into the data interpretation and decision-making process. The approach is advantageous in mining various perspectives from concerned stakeholders, empowering them by being actively involved in improving causes closest to their beliefs.

PROCEDURE

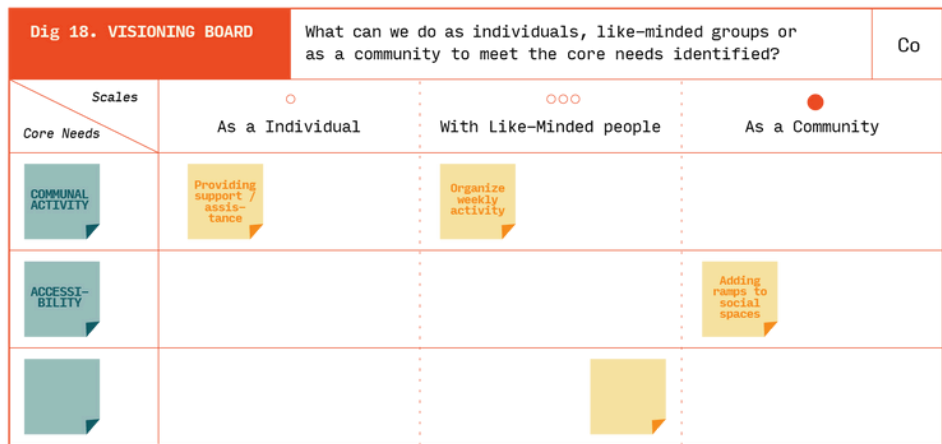
Participants begin by perusing collected data prepared by researchers in advance, before they are engaged in brainstorming and solutioning processes. A facilitator guides the session with questions and themes for exploration, gathering valuable insights from the participants. The process may take place in the form of a group workshop or individual interviews.

ORIGINS

In 1944, psychologist Kevin Lewin conceived the notion of ‘action research’ (1). He believed the cyclic approach of reviewing, evaluating and solutioning by involved personnels can contribute greatly to the cause of a project in a more collaborative and engaging perspective.



Prompting respondents to think through different scales of solutioning will help achieve holistic Solutions



Using terms like “needs” instead of “issues” communicates the goal of community visioning

COMPARISON TABLE

APPLICATION

The methods can be used on any group or organisation, to break down roles individuals play, to comprehend and address decision-making problems, as seen from the case example of industrial land redevelopment in China1, where the applied methods are applied to advocate fair and equal participation among stakeholders (1)

A - DATA TYPE

☒ Quantitative

☒ Qualitative

B - ASSESSMENT TYPE

☐ Collaborative

☐ Individual

☐ Observational

☒ Group

C - PARTICIPANTS

● SAMPLE SIZE

☒ 

SmallMediumLargeOthers

● SAMPLE TYPE

Community Members with diverse background

D - METHOD VARIABLES

OFFLINE

Workshops

Focus Groups

ONLINE

AHASlides

NOTES

Beneficial to give participants sufficient time to peruse data beforehand

REFERENCES

1 Lewin, Kurt. (1946) Action Research and Minority Problems, Journal of Social Issues, Vol 2, Issue 4, Pg 34-46. <https://doi.org/10.1111/j.1540-4560.1946.tb02295.x> 2 Liebenberg, L., Jamal, A., & Ikeda, J. (2020). Extending Youth Voices in a Participatory Thematic Analysis Approach. International Journal of Qualitative Methods, 19. <https://doi.org/10.1177/1609406920934614>