Learning about everyday life from diaries
the time-geographic approach, concepts and methodology

Everyday life in the study of persons learning
Doctoral Course
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Part I
Introduction

- Theoretical background of using diaries – time-geography
- Basic concepts
- The time-geographic notation system
Time-geography was founded by Torsten Hägerstrand – a short biography

- Born in 1916, in Torps Bruk, Moheda, Småland, Sweden
- Son of a school teacher
- University studies in ethnography, archeology, history of fine arts and more
- Introduced quantitative methods in human geography
- Professor in Human Geography, Lund
- Developed Time-geography, presented it in late 1960’s
- Died 2004

.... when actively writing on his last book: *Tillvaroväven*, published in 2009
Sources of inspiration

• Hembygdskunskap – how things co-exist (and struggle) to stay on the scene over a time period
  Son of a school teacher

• The music notation system – description of sequences without using word.
  As a child he turned the pages for his older brother who way playing the organ in the church
Interrelations and interdisciplinarity

Pestalozzi inspired the new subject ”Hembygdsunskap” in the Swedish school reform in the 1920’s, (i.e. combinations of learning about birdwatch, agriculture, economy, archeology, botanics etc)

Things, humans, plants and animals exist side-by-side (Ritter and Ratzel on ”The earth crust filled with things”)

Starting close to the child: draw maps of the classroom, the schoolyard, the parish in order to understand the world

Against this background Torsten became very disappointed with the specialised university subjects

Specilisation is good – but not enough. Since events interrelate, interdisciplinary approaches are as important
Scientists from various disciplines studying the earth.

But nobody sees the world as a whole, the complex combination of varieties.

The time-geographic approach is about finding what is in-between, and putting phenomena taken for granted to the fore.

Learning from what is hidden by habits and not reflected over.
Studies of migration in one parish – the base for a theoretical approach

Torsten was sent out by his professor into the field to study a parish “after the great emigration”
Prevailing idea: an empty house is left by emigrants
By thorough empirical work, undertaken together with his wife Britt, Torsten detronised the established idea. They followed the life paths of individuals and households in the parish books and revealed another pattern:

The conclusions from their empirical work: there is a chain of movements in the population caused by the (relatively) richer peoples’ emigration.
Then, it is important to follow what happens to the inhabitants of a place over time.
Concepts in Time-geography

- Time (continuity, sequence)
- Place (space)
- Individual (human and other)
- Population (of human or other individuals)
- Path (trajectory)
- Elementary events
- Prism (possibilities in future)

- Project (organisational project; individual project)
- Constraints/restrictions (capacity, coupling, steering)
- Pocket of local order
Planning for buying food

Walking to the shop

Doing the shopping

Walking home (heavy loaded, takes more time than walking to the shop)

Unpacking the food

The individual path of Mr Svensson
Planning for buying food

Walking to the shop

Doing the shopping

Walking home

Unpacking the food

The **individual path** of Mr Svensson
The individual paths of Mr Svensson and the shop assistant

Separating

Being side by side, together

Coming together, joining

Elementary events

Time

Place

Homes

Grocery shop
The **individual path** of Mr Svensson when the shop for some reason is closed

---

- Planning for buying food
- Walking to the shop
- Knocking the door, the shop is closed
- Walking rapidly home in anger
- Making other plans...

---

**Diagram:**

- **time** axis
- **place** axis
- Homes
- Grocery shop
Three individual paths showing social events (work and recreation) in two different pockets of local order (shop and cinema).
Time

Future

Must be back again

Space of opportunities

Not accessible

Past

Not accessible

Now

Not accessible

Not accessible
New shape of the space of opportunities
Using the space of opportunities:
Activity a is impossible
Activity b is possible
The sequence of c and d is possible

Observe: the same individual can be at only one place at a time
Auden wrote:

”Facing in four directions,
Outwards and inwards in Space,
Observing and reflecting,
Backwards and forwards through Time
Recalling and forecasting”

Subjective, individual worlds

"now-zone"

Space of intentions

Registered material events and paths

Space of opportunities
Restricted by location in time and place

future

now (clock time)

past

Inner world

Outer world

Auden’s poem expressed by time geographic notation.....
The shop assistant does not care for the poor pigs.

Subjective, individual worlds

Registered material events and trajectories

Space of intentions

I will not go there once again!!

“now-zone”

Party time at home!

..and there is no time to go to shop 2.....

Lacking a key ingredient!!

Time

now (clock time)

future

past

Space of opportunities
Restricted by location in time and place

home

shop 1

shop 2
Part II

What time-geography is used for?

- Some doctoral theses
- Levels of description and analysis
- Using VISUAL-TimePACtxS: two examples
Recent (2009) doctoral theses


- *Student som alle andre. En studie av hverdagslivet til studenter med nedsatt funktionsevne* by Eva Magnus, Occupational therapy, NTNU, Trondheim. Time-diaries for several days written by students.


- *Learning, doing, becoming self sufficient. Mediation of assistive computer technologies for children who are blind or partially sighted. From prescription to everyday use in school and at home* by Eva Åström, technology and social change, Linköping University (in Swedish). Time-diaries from children as one source of data.
Some examples of earlier theses

• *Kvinnors hälsa – en fråga om medvetenhet, möjligheter och makt: att öka förståelsen för människors livssammanhang med tidsgeografisk analys* by Kersti Nordell, Human Geography, Göteborg University 2002 (in Swedish). Time-diaries from women for two periods, interviews and group discussions.

• *Informal livelihoods – women’s biographies and reflections about everyday life: a time-geographic analysis in urban Colombia* by Åsa Westermark, Human Geography, Göteborg University 2003. Time-diaries and reflective diaries from 2 women over a 4 year period. Interviews, discussions.

• *101 women’s patterns of daily life occupations: characteristics and relationships to health and wellbeing* by Lena-Karin Erlandsson, Occupational Therapy, Lund University. Time-diaries and interviews.
Levels of description and analysis

• Individual
• Household – human individuals in the household are interrelated and coupled to each other. Division of labour in households.
• Group – a number of individuals with certain properties in common
• Population – individuals in a human population are interrelated and depend on each other at a societal level. Therefore the population’s activity patterns are interesting.
Individuals

may be of different kinds

- humans
- animals
- plants
- things

Human individuals use individuals from other populations as resources for the fulfilling of projects.
Individuals

may be of different kinds

- humans
- animals
- plants
- things

Human individuals use individuals from other populations as resources for the fulfilling of projects.
Projects

• Individual projects: aims at fulfilling a goal set up by the individual him/herself by his/her performing various kinds of activities in daily life.

• Organizational projects: aims at fulfilling a goal for an organization, set up by the manager or management group.

Informal (i.e. families) and formal organizations (i.e. firms) have different kinds of driving forces to encourage the performance of activities that must be performed for reaching the goals.
Relations between the two different kinds of projects

**Individual project**
- One goal of an individual is to earn an income to live a good life
- The project is to be active in working life

**Organizational project**
- The organization’s goal is to make profits from producing and selling goods
- The employees are hired to perform work activities (in their individual project) to realize the organization’s goal

Strains and conflicts as well as support may arise when people perform activities (as parts of their individual project) in organizational projects. Suh effects may appear both in formal and informal organizations.
So far I have shown the individual path in its time-space shape. Now I will introduce the activity oriented individual path.

The original time-geographical “space-time path”, “trajectory” or “individual path” representing an individual’s movement in space over time.

An “activity oriented individual path” or “individual activity path” is an extension of the time geographical concept and is used to represent an individual’s performed activities over time.
If more than one or two individual paths are to be displayed at a time, it is difficult to read them if they are not arranged in a simple way.

Therefore, we have introduced a front view approach.
Using the activity oriented individual paths with a front view perspective.

The individual starts the day sleeping, performs other activities during daytime and then ends the day sleeping, and this is the dominating basic structure of human daily life activity patterns.
Visualisation principle applied on a group

When many individuals are put in a diagram together variations in the basic time structure appear.
Here a group of 27 individuals.
VISUAL-TimePAcTS

- is a computer program with 3D-representation for analysing time diaries. Developed by Katerina Vrotsou, Matt Cooper and Kajsa Ellegård, Linköping University

- builds upon the activity categorization scheme with its 7 main activity categories and 5 levels of detail - about 600 activities (development ongoing since 1989...)

- VISUAL = visualization

- PAcTS stands for
  
P= place,
  
  Ac= Activity,
  
  T= technologies used,
  
  S= social companionship
The principle used in the visualization of groups

Individuals are arranged side by side, ordered by sex and age. The activity oriented individual paths should be read in the course of time, from the bottom and upwards.
Activity pattern of a population (463 ind), weekdays (1996)
Activity pattern of a population (463 ind), weekend days (1996)
Two examples of using VISUAL-TimePAcTS

1) Analysing morning activity patterns of adults in young families

2) Analysing activity sequences in a population of men and women
Using VISUAL-TimePAcTS I:

1) Analysing morning activity patterns of adults in young families
I will use time-geographic visualizations to show the collective activity pattern in morning hours (05.00 to 10.00) of a group of young, employed adults with children.
Data

Collected by Statistics Sweden in a pilot study
Adults in families with children
Employed
Age: 20-36 years
Diaries from weekdays
Data from 1996
There are 69 individuals, 30 men and 39 women

The aim is to show how their space of opportunities – the time-space prism – in everyday life has been filled with activities, with focus on in the morning hours.
Basic structuring activities in the activity pattern of an individual:

- Sleep
- Work
- Other activities

Time:

- 00:00
- 12:00
- 24:00

Place:

- Home
- Work place

Evening prism:

- Sleep
- Other activities

Morning prism:

- Sleep
- Other activities
Basic structuring activities in the activity pattern of an individual
What activities are squeezed into the morning prism as revealed by the activities performed at aggregate level by the adults in young families?
The activity pattern of the population, weekdays
Their pattern of sleep and work, weekdays

Daily activity rhythm, its time-space prisms
The morning activity patterns of the adults in the families....
Activity pattern in the group between 0500 and 1000 in the morning...

Care for oneself activities
   eating
   hygiene
   sleep
   ...

Care for oneself activities

Men

Women
Activity pattern in the group between 0500 and 1000 in the morning...

Care for others activities
feeding
help with hygiene
wake up
dress
drive to day care/school
leave at day care/school
....
Activity pattern in the group between 0500 and 1000 in the morning...

Household care
make the bed
pick up and in order
laundry
clean up
....
Activity pattern in the group between 0500 and 1000 in the morning...

Reflection/recreation
read newspaper
talk
phone

....
Activity pattern in the group between 0500 and 1000 in the morning...

Transportation
- walk
- bike
- car
- public transport

....
Activity pattern in the group between 0500 and 1000 in the morning...

Transportation and care for others all activities of the two kinds

Men

Women

Sequences of Transportation and care for others (mostly leave at day care)

at least 3 activities in direct sequence (8 men, 14 women)
Activity pattern in the group between 0500 and 1000 in the morning...

Procure and prepare food
cook
lay the table
wash the dishes
....
Activities from the activity categories fill most of what was the prism.
The structuring activities, sleep and work, run over the edge of the chosen time intervall (05:00-10:00)
The morning time-space prism of individuals is limited by sleeping and by working hours.

Men start work earlier than women.
Women perform more care for others and household care activities in the morning hours.

It does not seem as people get up early to widen the prism in order:
- to increase the opportunities to perform activities slowly
- to do more reflection/recreation activities

It seems as if people rely heavily on transports of relatively short duration:
- to leave children to day care
- children are let off at different places, day care, school
- this create chains of transportation -> care for others -> transportation
  -> care for others
Using VISUAL-TimePAcTS II:

2) Analysing activity sequences of individuals in a population of men and women
I will show how the program VISUAL-TimePAcTS can be used to find activity patterns at a collective level, that is activities and activity sequences that appear in the everyday lives of individuals in a population.
The collective overall activity pattern of the population 20-64 years, men (left) women (right). The individuals’ activity paths are drawn side by side, viewed from the front. (weekdays in 1996, 289 ind)
Are there differences in the structure of the daily life among men and women?

Yes of course, we know by experience that there are.

But the kind of differences are difficult to reveal from statistical averages on time use.

Can any important differences be discovered by using the pattern search function of VISUAL-Time PAcTS?

Does the program give any information we do not already have?
Pattern search can be done in several ways.

Here we look for patterns of activities following each other sequentially.

The sequences can be searched for as *uninterrupted* (activity A, followed by B etc) i.e. without gaps,

or *interrupted* (activity A is followed by activity B with one or more activities squeezed in between), i.e. with gaps
Activity sequences without and with gaps. Examples from two individuals on a weekday.

The activity sequence

**cook dinner** > **eat dinner** > **wash dishes**
without gaps

The activity sequence

**cook dinner** > **eat dinner** > **wash dishes** with a gap
(here gap = 1 activity interrupting the activities of the chosen activity sequence)
There are activities that men and women perform more or less to the same extent. We have looked closer at 4 of them:

- have breakfast

- read newspaper

- go by car

- work
have breakfast
have breakfast

read newspaper
have breakfast
read newspaper
go by car
have breakfast
read newspaper
go by car
work
How is the sequence of the 4 activities

have breakfast > read newspaper > go by car > work

distributed among men and women aged 20 to 64?
You guessed that it should look like this, didn’t you?
(13 men and 2 women)
But - what happens if we just ask for 3 of the activities in the sequence?
This is the result of the exercise when the sequence comprise the following 3 activities: 

**have breakfast > read newspaper > go by car**...

(15 men and 3 women)
This is the result of the exercise when the sequence comprise the following 3 activities:

have breakfast > read newspaper > go by car...

(15 men and 3 women)

...and this is the result when the sequence comprise the following 3 activities:

read newspaper > go by car > work

(13 men and 3 women)
...no big differences.

Then, what happens if we introduce gaps?

We allow up to 4 activities to interrupt the activity sequence (have breakfast $>$ read newspaper $>$ go by car $>$ work)
Activity sequence with gaps: have breakfast > read newspaper > go by car > work

Now we can see that women also perform the activity sequence. (27 men and 11 women)
- We have seen that men and women perform the same activities in the sequences when looked upon one by one

- We have seen that men and women perform the same sequences, but while
  
  men’s activities are performed one after the other in a flow,

  the same activity sequences performed by women are interrupted by other activities.

To find solutions to the "interruptivity" of women’s activity pattern is one argument for analysing the complexity of everyday life – and visualization is a fruitful way of starting doing it.
conclusion

Research based on time diaries and analysed with VISUAL-Time PAcTS can give new insights about the complexity of the time use of populations.

* The method can also be used to show patterns on individual and household level and is used for that purpose by occupational therapists and for research on energy use in households.
Part III:

- About the Daily Life 2008 program
- Categorization and codes
- Start using the program Daily Life 2008

...and this is what we will work with in the afternoon....
Thank you!

Population activity pattern on weekend days

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Part III:

- About the Daily Life 2008 program
- Categorization and codes
- Start using the program Daily Life 2008
What is a time diary like?

<table>
<thead>
<tr>
<th>Time</th>
<th>What I do</th>
<th>Where I am</th>
<th>Together with</th>
<th>Tools used</th>
<th>Mood</th>
<th>Physical abilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>0600</td>
<td>Wake up</td>
<td>At home</td>
<td>Mate</td>
<td></td>
<td>Tired</td>
<td></td>
</tr>
<tr>
<td>0615</td>
<td>Take a shower</td>
<td>Alone</td>
<td></td>
<td>Shower, soap...</td>
<td>Fine</td>
<td></td>
</tr>
<tr>
<td>0645</td>
<td>Eat breakfast</td>
<td>Mate</td>
<td></td>
<td></td>
<td>Initially hungry</td>
<td></td>
</tr>
<tr>
<td>0705</td>
<td>Dress</td>
<td>Alone</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0715</td>
<td>Go to the busstop</td>
<td>On the road</td>
<td>Alone</td>
<td></td>
<td>A bit stressed</td>
<td></td>
</tr>
</tbody>
</table>

..and so on
How to code the time diary (1)

- The **activity** categories and the activity code scheme is created from diary data
- written by the adults in about 10 households
- who wrote time diaries for one summer week and one winter week
- that generated thousands of activity entries.
- The activity code scheme has 7 main categories
- in which about 600 activity codes are ordered
- and with 5 levels of detail.
- The activity codes are numerical.
How to code the time diary (2)

- The codes for **places** are created from the same diary data.
- There are codes for about 25 different kinds of places.
- The codes for means of **transportation** are the same as the codes for transportation in the activity code scheme.
- The place and transportation codes are numerical.
How to code the time diary (3)

• The codes for other **persons, tools, mood, physical abilities** etc must be created from the specific diary data you work with.

• There are ”empty” codes for persons, tools, mood, physical abilities etc

• The codes for persons, tools, mood, physical abilities etc are letters (a-z)
Main activity categories
- with a common aim: to live one’s life

• Care for oneself – eat, sleep, personal hygiene
• Care for others – help other people
• Household care – keep house and things in order
• Reflection/recreation – relax, get inspiration, socialize
• Transportation – move from one place to another
• Procure and prepare food - grow, hunt, cook, preserve
• Employed work/education – work, school activities
The seven main categories grounds for a hierarchical code scheme with 5 levels of detail
Procedure for using the program

- Code the diary according to the code schemes (activities, places, means of transportation, persons, tool, mood, physical abilities etc)
- Start the program Daily life 2008
- Feed the diary codes into the program according to the handbook

...(there will be a lot of difficulties in the beginning, but it will work after a while if you do not give up)
An individual’s activity path drawn for a day from a time diary, weekday (work activity in red) in VISUAL-TimePACTS

Until now this is the format for visualizing the diary.

The front view is not used in Daily Life 2008, and all activities have the same colour.
An individual’s activity path drawn for a day from a time diary, weekday (work activity in red)
Questions to the diary

• Which individual projects are there?
• What division of labour can (indirectly) be identified from the diary?
• What are the restrictions for the timing of activities?
• Who is responsible for driving the projects?
• What important activity sequences are there?
• Is there any competition between household members to perform any activities?