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Using a time-geographical diary method

**Using a Time-geographical diary method in order to facilitate
reflections on changes in patterns of daily occupations**

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Abstract

Objective and methods: Time-use methodologies have been proposed to be established research techniques when exploring aspects of daily occupations. In this study, two graphs illustrating the time arrangement of occupations as they appear in a continuous sequence, were used in order to encourage individuals to reflect on their everyday life. The aim was to investigate the usefulness of a time-geographical diary method (using illustrative graphs) in combination with stimulated-recall interviews, to facilitate reflections on how patterns of daily occupations change over time and the causes that lie behind these changes. The study had a qualitative design. The participants were two working, married mothers; *i.e.* individuals considered to have highly complex patterns of daily occupations. The data analysis was performed by using thematic content analysis.

Results: The results showed that the stimulated-recall interviews, based on the graphs, facilitated new insights that came to light concerning the scope of the participant's daily life. The method enabled the participants to reflect on their patterns of daily occupations and become aware of changes relevant to explain the causes for engaging in occupations the way they did. *Conclusion:* The method thus seems useful in research and practice for occupational therapists working with individuals with a need to change lifestyle.

Keywords: everyday life, lifestyle change, qualitative content analysis, stimulated recall interview, time-geographical diaries,

Introduction

Everyday life is a process that is constantly developing and being created in time and space. At first glance, everyday life seems simple, but when taking a closer look, the complexity of it is overwhelming (1). Even if there is an increasing awareness about the complexity of everyday life (2-4), there is a need to further improve the understanding of how individual patterns of daily occupations develop and of circumstances preceding occupational performance. This knowledge is crucial when designing supportive means for individuals who have a desire to change their lifestyle and their daily occupations. It is, however, a methodological challenge to be able to visualize these patterns and to facilitate individuals' reflections on how time and space are used as they move through their everyday lives, and there is a vital need for methodological developments in this area.

To be purposefully occupied is to use and to seize control of time and space (5). Time is fundamental, and the one and only resource that is evenly spread among all individuals in all populations (6). Occupations are always performed in the course of time, forming a pattern, unique for each individual (7, 8). Regardless of gender, age, and contextual factors, the pattern of occupations differs with the particular stage in life and, for example, with the presence of children in the family (9, 10). A starting point for understanding human occupation is to describe the variety of occupations that comprise everyday life. Such description might consider the complexity of occupation in relation to time and space. Erlandsson (11) has defined the term pattern of daily occupations as “... *a pattern built up of building blocks in the shape of all occupations performed by one individual during one day and one night, in a 24-hour cycle...*” (p. 17). Patterns of daily occupations are often complex phenomena, and simultaneous multitasking is occurring when more than one task is being performed at the same time, this is also described as enfolded occupations (12). Thus, a pattern of daily occupations is built up of different sequences of actions related to different occupations (8), and the full complexity is therefore not easy to grasp.

Using a time-geographical diary method

Most people choose a familiar path by managing time and space in daily life, so that they go through the same routine again and again. Dunn (13) even proposed that certain habits and routines may be necessary for well-being. Furthermore, people most often structure their daily occupations in such a way that a balance between work, meals, leisure, self-care, and rest is maintained during the 24-hour daily cycle (4). Korvela (14) studied the occupations of family members during a normal day at home and found that one day could be divided into four to six sequences: the morning chores for leaving home; coming back home and settling down; doing something together; and retiring for sleep is the basic structure of one day in family life. Depending on the parents' need to work at home after the children gone to bed, there will be two more sequences added to the basic structure; working or studying and adults retiring for sleep. To some extent, the patterns of daily occupations seem predictable depending on the routines and habits of individuals and within social groups. This leads to the assumptions that if routines and habits are identified and become visible, it may enable individuals to reflect on their patterns of daily occupations and encourage them to make some changes in order to, for example, to create more balance in everyday life.

Time-use methodology is often used to gather data related to what people do (occupation), where the occupation occurs (place), and who else is involved (social networks) (15). In most European countries, time-use surveys are undertaken on a regular basis (16). However, the amount of time spent in different occupations is not enough to explore *how* and *why* people use their time in a specific way. An alternative approach to understanding and learning about what people do, has originated from researchers interested in people's doings in relation to place and location. One such approach is the time-geographical methodology that incorporates a time-use component but also includes the dimensions of physical space and social networks embedded in everyday life. The time-geographical approach investigates how people use their resources, personal choices and constraints in order to perform occupations (6). The opportunity available to an individual to perform occupations depends on, for instance, earlier decisions and social obligations. In the time-geographical approach, daily occupations are grouped according to the life project to which they are connected. When different activities of a particular

Using a time-geographical diary method

person are related to each other by aiming at the same goal, they become a project (6). Time-geography has been used in occupational therapy and occupational science research, for example, with a view to examining the relationship between time, place, and social networks in everyday school routines (17, 18), to describe the everyday life of adolescents with poor vision (19), to study women's efforts to take control of their everyday life (20), to develop understanding of occupational patterns (8, 21, 22) and to describe time use among people with persistent mental illness (23-25). In order to make well-informed empirically grounded descriptions and analyses of everyday life, the visualization method has been developed further (1) and an activity path (graph) that illustrates the sequences of activities performed (when, where, and with whom) over 24 hours has been shown to be useful for recognition of the complexities in patterns of daily occupations (16, 20, 21). However, questions concerning how and why must also be answered (26) to get a more complete picture of these patterns. This in turn challenge the individual to reflect on his/her daily occupations, and there is currently a shortage of well evaluated methods to facilitate this process.

The aim of this study was to investigate the usefulness of a time-geographical diary method combined with stimulated-recall interviews, in order to facilitate reflections on how patterns of daily occupations change over time and to determine the causes that lie behind these changes.

Material and methods

The time-geographical diary method was used in two steps to describe and gain an understanding of whether it is possible to facilitate reflections on when, where, how, and why patterns of daily occupations develop over time. In the data collection, two time-geographical diaries were complemented with open interviews, using a stimulated-recall interview technique (27) and a graph constructed from the participants' diaries.

Participants and selection procedure

Using a time-geographical diary method

In order to capture highly complex patterns of daily occupations described by Erlandsson (28), the inclusion criteria for participants in the study were women aged 30–50, living in two-parent families, working more than half time and having at least one child aged 2–6 years. A convenience sampling method was used (29). Through colleagues and friends, women who matched the criteria and who had no relation to any of the authors were asked to participate in the study. The first two women who agreed to participate were chosen. Demographic information on the two women are described below and for the sake of anonymity, the participants are called Mary and Nancy.

Mary is 35 years old; she and her husband have university degrees and they both work 40 hours a week. Mary has regular working hours; her office is located in a nearby city. Her husband works abroad and travels frequently on business trips. Their two children are two and five years of age. When the parents work, the children attend pre-school full time. The family lives in a private home with a garden.

Nancy is 47 years old; she has a university degree and works part time (30 hours a week). Her husband has a university education and works 40 hours or more each week. Nancy works sometimes in the evenings, even her husband's job often involves evening work. They have four children, six, nine, 20 and 23 years of age. The six-year-old has recently started school and the older children attend different levels of the school system. The parents and the two youngest children live in an apartment in a city area.

Data collection and procedure

Time-geographical diary. The participants were asked to keep a 24-hour diary for a typical weekday (Monday-Thursday), twice, with an interval of 10 weeks between. Time-geographical diaries as described by Ellegård (6) were used. The diary was given to the women in advance and was used as a self-report instrument, in which to make notes about all occupations engaged in over 24 hours. The participants wrote their first diary in May and the second in the last week of August. In order to capture the participants' own perspective of what they were doing, the time-geographical diaries was open format (6, 20), except for headings regarding: what time it was (when changing occupation), what occupation was being performed, where the person was, and together with whom, and

Using a time-geographical diary method

also comments on their state of mind during the occupation. The time-geographical diaries, which were small paperback booklets that were easy to carry in a pocket or a handbag, included a page with short instructions for writing the diary. The instructions highlighted the importance of trying to note every time the diary writer changed to a new occupation (subjective), and then filling in all the columns regarding time, occupation, where, with whom, and (optional) comments on their state of mind. To ensure the validity of the data collected, the participants rated on a five-point scale (graded from 5 = very well to 1 = not at all) how well the day documented represented an average day in their current daily life. Both of the participants rated their recorded diaries as being very well representative of their current daily life. After completing the diaries, the participants sent them by post to the first author.

Transformation of diaries to graphs. The time-geographical diary data collected were coded and converted into graphs illustrating the sequences of occupations performed by the participants. The graphs were constructed by means of the software program DAILY LIFE version 2008 (30). The program includes a categorization scheme and a coding system of 600 general types of activities through which the diaries are converted to computerized illustrations (6, 16). The graphs are illustrating how occupations, places, social networks and state of mind are intertwined in the course of 24 hours.

Stimulated-recall interview. In order to grasp the participants' reflections on how and why they engaged in occupations to different extents and in certain ways, the time-geographical diaries were complemented with an open interview within 2–5 days after the second day recorded in the diary. This approach was inspired by the stimulated-recall interview technique, used in educational research (27, 31). Bloom (32) first described the stimulated-recall technique as being crucial to stimulate and enable a subject to re-live an original situation with vividness and accuracy. The participants were first asked, when looking at the graph, to recall the second day recorded, and to use their own words when describing it. The graph was used as a visual support to recall memory and to provide the setting to facilitate the reflective process. Guidelines for how to conduct a stimulated-

Using a time-geographical diary method

recall interview, presented by O'Brien (27) was followed. The participants were encouraged to reflect on their occupations during that day, and to describe what they had done and how they had done it. Since self reporting was essential, complementary questions were only used in order to clarify and deepen the understanding of the participant's reflections during the interview. Examples of probing questions asked were as follows. How did you come to participate in different occupations during the 24-hour period in the way you did? Were there any main projects going on during the day, and if so how visible is that project in the graph?

Thereafter, the participants were asked to look at the graph emanating from the first time-geographical diary written ten weeks earlier. Probing was used to request clarification and confirmation whether the informants were able to reflect over and recognize similarities and differences between the two days reported. The data collection procedure is illustrated in Figure 1.

Figure 1 here

A room at the university was used for the interviews, and demographic data (presented previously in the paragraph describing participants and selection procedure) were gathered at the same time. The interviews lasted 60–80 minutes and were recorded in full as MP3 files. The recorded interviews were transcribed verbatim by the first author. The study was performed in accordance with the principles of Swedish research ethics (33). Informed consent was obtained both verbally and in writing before the start of the study. The participants were informed that they could discontinue the study at any time and that recorded and written information from the interviews would be treated confidentially and stored securely during and after the research process. To maintain confidentiality, pseudonyms have been used.

Data analysis

In this study, the data analysis was inspired by qualitative thematic content analysis as described by Burnard (34). The information from the graphs and the interviews were

Using a time-geographical diary method

integrated and viewed as a single set of information. The transcripts were read several times by the first (KO) and the third author (LKE) to obtain an impression of the whole. Notes on different content areas that appeared to be important for the aim of the study were made. Thereafter the text was divided into meaning units, related to the aim. These meaning units were then condensed and coded. Codes with similar content were then grouped into subcategories. This was made by the first and the third author separately and performed as a constant movement between the text, the codes and the emerging categories. In order to ensure various aspects of trustworthiness the second author (AKE), who is experienced in qualitative content analysis, did not participate in the preceding steps to avoid researcher bias and became involved in the very last phase of analysis when agreements on subcategories and categories were made. Finally, the theme was identified. An example of a meaning unit, condensed meaning unit, code, subcategory, category, and the theme revealed from the content analysis is illustrated in Table I. Quotes that exemplified the subcategories are used in the result section to illustrate the categories.

Table I here

Results

During the analysis, the theme “*New insights came to light concerning the scope of patterns of daily occupation*” emerged. This theme derived from the analysis that resulted in four categories illustrating how the participants reflected on their patterns of daily occupations and the changes that became visible when viewing and comparing the graphs. The categories were named: “*realizing the complexity of daily occupations*”; “*identifying changes in daily routines and habits*”; “*becoming aware of sudden opportunities*”; and “*recognizing support from the social network*”. The result of the analysis is presented in Table II.

Table II here

Using a time-geographical diary method

Realizing the complexity of daily occupations

This category consisted of two subcategories: “*Unexpected occupations*” and “*Enfolded occupations*”. The experiences and reflections forming these subcategories were considered by the participants when they looked at their graphs during the interview. When reflecting on the graphs illustrating two days with ten weeks between, it became obvious to the participants that daily occupations is always in a stage of change. They suddenly realized how quickly their children had developed new skills and changed their behavior. Things were not as they used to be; there were new challenges and different needs.

Unexpected occupations. When shown the graph from the first diary (written 10 weeks earlier), the participants immediately focused on situations that involved many occupations going on at the same time, and they also realized how often they were interrupted in the middle of something: “*I now remember how she woke up many times every night and early in the morning. I had almost forgotten how many things we did during the morning hours*” (Mary).

When comparing the first graph with the last (see Figure 2), Mary realized how complex her morning routines were. She described the current morning as being even more complicated than the first day reported, since many things had to be done in a shorter time, since the children now slept longer. She usually prioritized the children’s needs before her own in order to get in time to pre-school and work in time: “*This morning, there was no time for my breakfast because we played with dolls and looked at photos. When her sister came, I fixed some breakfast for her. Suddenly it was time to get dressed, to brush our teeth, to feed the cat, to organize the kitchen, and to leave the house*”(Mary). Mary also described a situation in the evening in which the children expected to have a favorite dish for dinner and she had made something else, from leftovers. The children’s disappointment in this quickly changed her dinner plans and she tried to make the best of it, but they ended up with milk and cookies and she was left with a feeling of insufficiency. She said: “*At this time, everything was a mess. It was difficult to have a plan and stick to it.*”

Using a time-geographical diary method

Unexpected occupations was also present in the interview of Nancy, for example she realized when she viewed her graph how often she was interrupted by the mobile phone when she was in the middle of something, and how she was calling friends, family, and her workplace to communicate and interact to adjust the schedule i.e. change plans and make new plans as the day went by: *“I now realize how the telephone calls interrupt me, and how it makes me feel stressed”* (Nancy).

Enfolded occupations. The participants reflected on situations in the graphs where they were performing and organizing many occupations at the same time. Some of the occupations were described as belonging to different projects. When looking at the graphs, the women became aware of how they performed occupations simultaneously and how they often moved from one occupation to another, without having finished the first one. However, even if the enfolded occupations, performed simultaneously, sometimes were described (in the diary) as stressful they were also identified (during the interview) as purposeful and necessary. For example, both participants were frequently using their mobile phones, to arrange forthcoming projects. Mary described how access to her mobile phone enabled planning when conducting other projects and socializing with friends: *“I can see now how small details such as calling someone to arrange things in advance help me to be organized, but on the other hand the telephone calls take up a lot of time. Today, I was on the phone the whole lunch hour because I had so many decisions about the renovation project to make”* (Mary).

Nancy identified a habit that she had not thought of before, to always call while driving from pre-school: *“I tend to call from my mobile when I drive from pre-school, it is a habit that I had not been aware of previously. I always do that, there is a small quiet road so I am thinking; now I'll take this opportunity to call”* (Nancy).

When reflecting over the graphs, both participants realized how it was more common that they were enfolded occupations rather than doing them one at a time. Even if they were by themselves, they were performing more than one occupation at the same time. For

Using a time-geographical diary method

example, Nancy described how she was getting dressed and checking train timetables on internet at the same time. Mary expressed enfolded occupations when caring for the children: *“I can be walking with the baby carriage around the house 15 times; meanwhile, I am getting rid of some weeds...It makes me feel a little bit useful”* (Mary).

Identifying changes in daily routines and habits

This category consisted of two subcategories: *“Daily routines change as time passes”* and *“managing daily routines now and in the future”*. Reflections related to this category mostly took place when the participants compared the two graphs with the interval of 10 weeks between. Their insights became clearer regarding changes that they were not aware of before.

Daily routines change as time passes. When looking at the graphs and reflecting on the days, one of the participants became aware of the changes in daily routines that occurred when her son moved from the pre-school environment to first grade in school. Social networks, transportation, and timetables were suddenly new; the parents and child needed to adapt to a new context. Even though it seemed as if these were small changes, Nancy identified the occasions in the graphs (see Figure 3) and described them thoroughly: *“I can see how I have changed our morning routines. I used to have breakfast before having a shower and getting dressed. I have now realized that it is more convenient if I am ready to coordinate the morning chores”* (Nancy).

Figure 3 here

The participants identified how their children were dependent in many self-care needs. They had reached increased independence in some occupations, but this was not necessary less time consuming for the parents. They identified certain situations in the graphs and realized that routines had changed concerning how they were managing daily occupations, both when they were caring for their children and when they were maintaining the household. Nancy also described how she had changed her pattern of

Using a time-geographical diary method

occupations by moving household tasks and chores around in time: *“I used to read the newspaper in the mornings, but nowadays I can only do that at the weekend as there is so much to do...”* (Nancy).

Managing daily routines now and in the future. New insights came to light when the participants viewed the graphs and when certain routines were identified. Some routines could be traced back to childhood; for example, bedtime routines and family traditions. Both participants described how some routines had impact from their values and experiences from their own childhood. They described how they had developed their own unique routines and habits, but some of them came from the family they grew up in. While identifying bedtime routines, for example Nancy also remembers the bedtime routines from her childhood: *“To read storybooks is a bedtime routine we always had. We used to lie in bed and read for the older children. I remember my parents came to me and my sister, and we use to say our prayers at bedtime”* (Nancy).

The participants also reflected on how they had incorporated conveniences into some of the daily routines, on the other hand they still strived to keep routines they valued as being the right way to do it: *“My mother always served a home-cooked dinner in the evenings; I really want to keep that routine. I do my best but it is not easy...”* (Mary).

It was clear how the participants, when looking at the graphs, identified bedtime routines and routines for meals as being strong factors for having daily structure. The participants described their attempts to keep daily routines as also being an area that evoked feelings about their own effectiveness. They reflected on how they usually did things and how they would like things to be done, but it was not always possible and they described how they needed to be flexible: *“The bedtime routine is important for us. We usually read story books...but this evening we watched TV, and she fell asleep on my lap”* (Mary).

The participants also emphasized how regular working hours and school routines provided structure in daily life. However routines in the morning, when coming home, for

Using a time-geographical diary method

meals and bedtime seemed to be even more important and useful for the mothers. Both participants identified routines and habits that can be related back to biological factors such as the need to sleep, having meals. Drinking tea and coffee was a routine both of the participants described in different situations during the day. It was a routine that occurred, for example, in the mornings, on arrival at work, on coming home, and when settling down in the evenings: *“I always have a cup of coffee first thing when I come home; I hadn’t realized it before”* (Nancy).

Becoming aware of sudden opportunities

This category consisted of one subcategory: *“When time and space are available at the same time”*. When the participants reflected on what had happened during the two particular days that they had reported and the differences between occupations performed during those two days, they also became aware of the presence of sudden opportunities they had not expected. Even if occupations recorded were only small parts of daily events, it was possible for the participants to see a structure in different projects. The participants could recognize reasons and meanings in certain choices they had made during the day. They also became aware of different opportunities that suddenly arose. Their motivation and other conditions around them influenced what choices they made. The women described how their physical and social environment, together with temporal context, determined how much they could fit in to the time available. The participants discovered “opportunity windows” when time and space were available at the same time: *“I suddenly felt that it was possible to arrange, because I had some extra time since my husband picked up the kids that day”* (Mary).

Sudden possibilities of doing things they had been thinking of doing when there was time for it, or just the opportunity to do something they felt like at the moment, were described by the participants. For instance, to sit down and listening to music while waiting for the bus or as Nancy illustrated it, to stay and talk to the pre-school teacher because it appeared that she was available: *“When I came to pick up my son, all the children played*

Using a time-geographical diary method

together outside in the good weather. One of the teachers asked if I would like some coffee. We sat in the sun and had a nice chat for a long time” (Nancy).

One of the participants also described “sudden opportunities” as not being the best choices, but for the moment she felt that it was an opportunity: *“On the way home I had a meeting at my mother-in-law’s apartment. It went really quickly, so I had a time space of a few minutes. I then did some shopping but I was so concerned and stressed that I would get a parking fine...” (Mary).*

Recognizing support from the social network

This category consisted of one subcategory: *“Occupation-sharing strategies”*. Many competing demands were experienced by the participants. From the graphs, they could identify their projects; some of them were conducted by themselves and some were coordinated together with others. They described how they felt that some occupations were put on a waiting list because of there being too many demands in the time available. Even so, the participants reported having satisfactory control of what occupations they performed. In looking at the graphs, they perceived a balance in managing household work together with other family members, and felt that there was good support in the occupation-sharing strategies. They also described how they had time for leisure occupations together with friends. Participation in leisure and support from their social network were recognized and highly valued in the families. Both of the participants recognized that their effort to synchronize their own agenda with their husband’s agenda was something they were usually responsible for: *“I always check my plans with my husband’s agenda. We try to share the workload; both of us share the responsibility for our children and for the daily routines” (Mary).*

When looking at the graph, Nancy described how she and her son had spent the afternoon together because she did not have to arrange dinner in the evening. She described how they had had dinner together with another family once a week for many years. They took turns to arrange the dinner, which gave at least one of the families (as she said) *“some rest that day”*. Mary identified similar occasions in her graph, describing occupation-

Using a time-geographical diary method

sharing strategies: *“Even though everything was in chaos and I was stressed, I felt fortunate because my husband had fixed the dinner. It turned out to be a relaxed evening anyway”* (Mary).

Both participants recognized the support they received from the social networks and described this as an important part of daily life and a prerequisite for maintaining their control.

Discussion

The purpose of this study was to investigate the usefulness of time-geographical diaries in combination with interviews, to facilitate reflections on how patterns of daily occupations changes over time and the causes that lie behind these changes. Previous researchers have provided insights into what people do in everyday life and what individual patterns of daily occupations look like (e.g. 8, 28). However, there is still a lack of scientific approaches with the aim of making it easier for people to reflect on their patterns of daily occupations and how their occupational performance is influenced by the physical and social environment. The findings in this study indicate that time-geographical diaries (converted into graphs) used together with stimulated-recall interviews did enable the individuals involved to reflect on their patterns of daily occupations. Furthermore, when comparing two reported days, the participants identified changes in daily routines that they did not expect in such a short time. When they recognized certain changes and described what had influenced them, they mentioned for example time-saving strategies such as frequently using the mobile phone and dynamic adaptive strategies such as changes in morning routines aimed at maintaining well-being in the family as a whole. Thus, to use graphs illustrating pattern of daily occupations in order to stimulate reflections in an interview situation seems useful for illuminating hidden aspects of pattern of daily occupations and what impact there is on changes over time.

Using time-geographical diaries (converted into graphs) in combination with stimulated-recall interviews made it possible to describe and analyze the reasons for the rhythmic patterns of individuals' different locations and occupations in daily projects. A previous

Using a time-geographical diary method

study performed in Sweden, indicated that women who are dual workers and who have the responsibility for household and family experience a complex pattern of daily occupations (28). Similar European findings have suggested that performing occupations located at different places makes patterns of occupations increasingly complex (35). Presumably, this complexity is not at all related to whether parents share the responsibility or not. According to Bloom (32), it is surprising how little attention is given to collection and analysis of data with recognition of how individuals interact with their environment, since if the effort is to bring change in the individual or groups, the environment is essential. More recent scientists have considered these ideas and emphasized the effect of the environment on both stability and change (5). This complexity is seldom captured in time use studies but in using the diaries in combination with interview it was evident that when the women looked at the graph they directly identified some occupations as being enfolded and gave descriptions of the events illuminated in the graphs.

Interestingly, the participants' reflections during the interviews revealed dimensions of doings that were closely connected to their individual occupational history from childhood. Some aspects of the meaning of performing certain occupations were mentioned, and linked to family traditions and their roles as mothers. Everyday occupations are linked to identities (36, 37), and individual's personal narrative meaning-making processes are a basis for occupational choices. Since occupational patterns appear to be influenced by multi-contextual factors in daily life, it is crucial to have the individual's viewpoint of what meanings are behind choices in occupational patterns. In the diary-writing process, the mothers became aware of their main occupations during the days reported. In accordance with previous studies (8, 28), hidden occupations and unexpected occupations were then identified during the stimulated-recall interviews. The visualization technique used enabled new considerations to arise, which most certainly increased the participants' general understanding of their patterns of daily occupations.

The combined method facilitated reflections that might not had emerged in traditional interviews. For example, the women reflected on the fact that they had a great deal of responsibility, both in their work and household. At the same time, they mentioned that

Using a time-geographical diary method

they experienced control in their everyday patterns of occupations. Access to and their use of communication technology, e.g. mobile phones and the internet, enabled them to interact with other important people in their network. They both reported that their use of technology helped them to become organized, at the same time as leaving a feeling of stress when frequently being interrupted by other people's need for support and communication.

To conclude, the combined data collection method using diaries transformed into graphs to facilitate reflections in an interview may contribute to rich descriptions of what actually happens in patterns of daily occupations. Previous researchers have suggested (6, 21, 38) that a time-geographical approach is useful in client centered intervention. In this study, the use of two graphs from two different occasions to compare and to reflect on stimulated the diary writer to think back and recall those particular days. If the aim is to improve the life situation for an individual, this might be a useful and further developed method to stimulate the individual to reflect on and identify unfavorable routines and habits. Such reflections could be a possible starting point for the individual to take steps in certain directions regarding changes in lifestyle and to identify personal goals. These conclusions may contribute to clinical use of the method.

Methodological considerations

The participants in the study were free to choose how much they wrote in the diaries and how detailed they told their story for the days reported. The aim was to investigate the usability of the method, and not to explore the participants' actual activities. The graphs, obtained using a time-geographical approach, formed the basis of the interviews. One of our intentions with the graphs was to explore whether they could stimulate the diary writer to think back and recall the day in their memory. According to Bloom (31), the use of stimulated-recall technique provides an important basis for gaining insights into "the black box". Bloom stated that it is what the individual experiences when reflecting on his or her doings that is ultimately important (32).

The selection of the participants, two working, married mothers, brought both strengths and limitations to the study. Based on previous research (28) the sample appeared to be

Using a time-geographical diary method

appropriate in order to capture highly complex patterns of daily occupations. However, this selection means a narrow perspective considering well educated working women in a Western society and the result should be interpreted with some caution. Gender, age, and cultural differences may exist and including individuals representing different groups may give a more varied result. Thus, in further studies exploring the usability of this method combination it seems relevant to use larger samples and to include for example both men and women from different backgrounds.

We collected the data during the spring and summer; if data collection had been performed during the winter months it is possible that the women would have chosen to carry out other occupations. However, there is no reason to believe that these factors affected the outcome of the study.

To enhance the trustworthiness of the analysis process, it was discussed continually and interpretations were made both individually and together by the three authors. The first and the third authors are occupational therapists with previous understanding of the complexity of daily occupations, and even though strict rules for content analysis were followed, it might have influenced the analysis process. To reduce bias, the second author with an extensive knowledge and experience of qualitative content analysis was highly involved in the second phase of the analysis, to confirm and falsify the findings by having a different perspective. This is important to achieve credibility (39), and according to Creswell (40) it is advisable to ensure reliability in several ways, e.g. by recording and transcribing the interviews verbatim and looking for agreement based on codes, categories, and themes.

Conclusion

Our findings indicate that the use of time-geographical diaries in combination with interviews is useful to illuminate how patterns of daily occupations change over time, and the causes that lie behind these changes. Many of the changes captured appear to have escaped the attention of the participants, and they became evident when they had the opportunity to look at the graph and to reflect on their daily life at that time. Occupations

Using a time-geographical diary method

performed habitually are often not recognized as main occupations, but according to time-geographical methodology all occupations that take time are of equal value. Many of the reflections were related to how new insights came to light when considering the patterns of daily occupations as a whole. This knowledge may lead to clinical use of such a time-geographical diaries used for facilitating reflections on individual's own pattern of daily occupations in relation to others. Occupational therapists, for example, working with individuals requiring changes in their lifestyle, could benefit from use of the combined method. In future studies, it would be interesting to investigate and develop the method further in areas with participants who need to change their everyday occupations in families, and as an outcome measure for intervention.

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Tables and Figures

Table I. The coding system used in the analysis process to reach the theme.

Meaning unit	Condensed meaning unit	Code	Subcategory	Category	Theme
We ate a quick breakfast. I ran back and forth, fixed with different things. At the same time, I prepared my sons lunchbox, checked the train table and got dressed	Performing many occupations at the same time during the morning hours	A lot to organize Occupations is going on simultaneously	Enfolded occupations	Realizing the complexity of daily occupations	New insights came to light concerning the scope of patterns of daily occupations

Table II. Results compiled in subcategories, categories, and theme.

Theme	Categories	Subcategories
New insights came to light concerning the scope of patterns of daily occupations	Realizing the complexity of daily occupations	Unexpected occupations Enfolded occupations
	Identifying changes in daily routines and habits	Daily routines change as time passes Managing daily routines now and in the future
	Becoming aware of sudden opportunities	When time and space are available at the same time
	Recognizing support from the social network	Occupation-sharing strategies

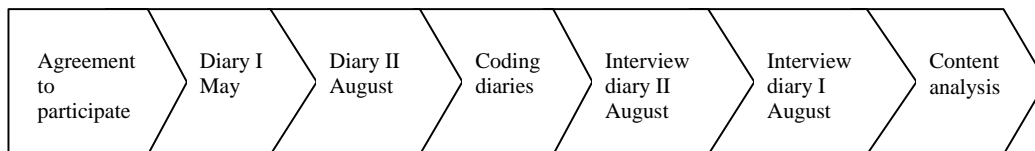


Figure 1. Illustration of the data collection procedure.

Using a time-geographical diary method

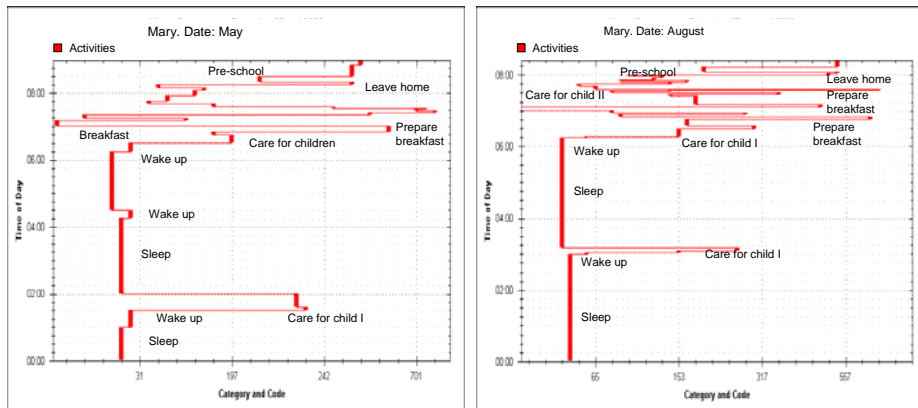


Figure 2. Parts of two diaries reported by Mary, illustrating unexpected occupations. Note: In the graphs, time is shown on the vertical axis and occupations are shown on the horizontal axis. Following the vertical path, time spent engaged in an occupation is shown and on the horizontal line changes of occupations during the day is shown. The path should be read from bottom to top.

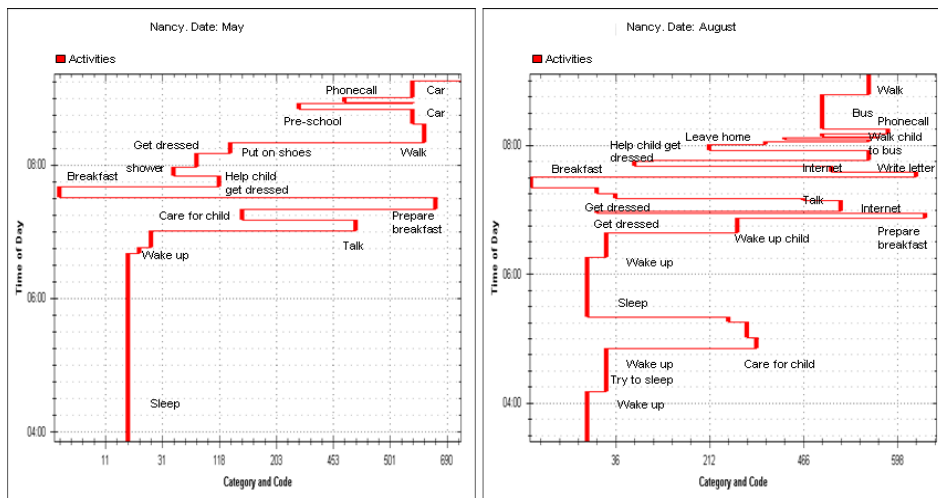


Figure 3. Parts of two diaries reported by Nancy, showing how morning routines changed during the period May–August.