Changes in the scheduling process according to observed activity-travel flexibility

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Abstract

In this work we analyze the reasons for changing pre-planned activities and travels episodes considering the type of modification observed during the scheduling process. Specifically we selected a small sample from those pre-planned episodes that are no executed at all as a pilot study. The data analyzed was collected in the first wave of a weekly activity-travel panel survey carried out in Valencia (Spain) in 2010. Each survey wave consisted on a face-to-face interview to generate a pre-planned activity agenda for the following week, an activity-travel diary implemented on mobile phones to collect activities and travels as they are executed, and in-depth telephone interviews to inquire about differences between pre-planned agenda and observed activities and travels. This methodology allowed to collect data related to how respondents pre-planned activity-travel episodes and how they re-scheduled them before execution. Observed modification types provide us with information about their spatio-temporal and social flexibility.

Open-ended records collected in the in-depth telephone interviews, were coded and provided a semi-formal segmentation and categorization of the changing process as the basis of our study. Spatio-temporal and social constraints, biological needs and resource constraints are differentiated along with facets of the activity-travel episodes and socio-demographic characteristics of respondents.

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1. Introduction

Over the past years, dynamic investigation in travel behavior has been of interest to transportation researchers due to its relevance to the congestion management effectiveness and intelligent transportation systems (Lee & McNally, 2006). In this research area, the analysis of short and medium term rescheduling decisions are of interest to resolve route choice problems. They also have an important role in the activity scheduling process. The success of policies such as tolling, congestion pricing, and travel demand management depends on how people would adjust their daily activity and travel patterns to the enforced changes in their everyday lives (Axhausen and Gärling, 1992).

Rescheduling decisions have been extensively studied using stated data following seminal work by Jones et al. (1979) (Roorda and Andre, 2007). Some approaches have directly observed the activity rescheduling decision process (Hayes-Roth and Hayes-Roth, 1979; Ettema et al., 1994; Doherty and Miller, 2000; Ruiz, 2005; Roorda and Miller, 2004; Bellemans et al., 2008; Clark and Doherty, 2009). Empirical analysis of available scheduling process data has been carried out using traditional quantitative methods. In general, changes in the activities' observed attributes and associated travels are studied to characterize the scheduling process. Using this perspective, a very incomplete picture of the reasons underlying rescheduling decisions is obtained. Qualitative methodologies can complement traditional quantitative analysis for exploring planned and observed travel behavior

This paper presents methodology and results from a qualitative exploratory study of individual activity scheduling process data. We specifically analyze the reasons underlying changes from pre-planning to execution of the activity travel agenda through the study of open-ended answers in a survey related to ongoing re-scheduling decisions over seven days. Our aim is to identify which determinants are related to high level flexibility in the activity scheduling process. Specifically we selected a small sample from those pre-planned episodes that are no executed at all (elimination decisions) as a pilot study.

The next section summarizes the literature review. Section 3 presents the theoretical framework. Section 4 includes a description of the data used. The methodology used in the study is described in Section 5. Section 6 presents a qualitative analysis of the information. And the paper ends with some Conclusions in Section 7.

2. State of the art

Some recent work has used qualitative methods to study people travel behavior. For instance, using semi-structured interviews, Gardner and Abraham (2007) explored driving decisions from the driver's perspective. They investigated relationships between instrumental or utilitarian motives and affective motives, and the related drivers' motivations to travel that demand management policy making. For those supporters of car use, the desire to minimize effort supposed a barrier for using public transportation. The notion of public transport as a more positive experience has to be promoted through public transport policy to improve reliability and journey times.

In Portugal, Beirão and Cabral (2007) analyzed with semi-structured interviews the key factors that impact mode choice, their positive and negative influences, and investigate the motivations and barriers for public transport use. To increase the usage, the service should be designed as to accommodate the service levels required by customers and so attracting potential users. Attitude is an important determinant for mode choice. Improving image and offered service levels, potential users can be attracted to public transport

Hannes, Janssens and Wets. (2008) aimed to obtain a better understanding of the role of spatial cognitive factors within the general travel choice process taking into account the context of daily activity patterns. To achieve their purpose they conducted a one-week activity travel survey on twenty respondents. Specific findings with regard to travel decisions showed that in daily activity travel, destination choice, activity and travel mode choice are mainly fixed, triggered simultaneously without much deliberation. For most of the daily activity travel, strong default settings for mode and destination choices are routines. Accessibility plays an important role.

To investigate the influencing factors of transport mode choice for short distance travel to various destinations in older adolescents, Simons et al (2013) designed a questionnaire followed by focus group discussions. The discussion was focused on which factors determine adolescents' transport mode choice to school and other nearby destinations, whether and why their transport mode choice had changed in the last three years, and the advantages and disadvantages of the different means of transportation for short distance travel ($\leq$ 8 km). They found that transportation mode choice was not only determined by a single factor, but by a combination of interacting factors.

Cycling had the most advantages for the respondents because it was faster and offered more freedom. They found that walking was only practical for very short distances. By contrast, respondents thought that public transportation had a lot of disadvantages such as a long travel time and little freedom and flexibility.

Schneider (2013) proposed an operational theory for mode choice decision process as a guide to understanding the choice process and identifying the actions that may yield more potential to increase walking and cycling in their local social and geographical contexts. The theory suggests that mode choices depend on individual attitudes towards available modes and social influences, habits, and facilitating conditions (Galdames, Tudela, & Carrasco, 2011). The interviews, conducted in the San Francisco Bay Area, emphasized the need for a comprehensive approach to shift routine automobile travel to other modes. Technicians should implement strategies to make walking and cycling more attractive at all stages of the mode choice decision process.

Carreira et al. (2013) developed a qualitative holistic study for a more comprehensive understanding of the bus travel experience. Mid-distance bus trips in two different situations, touristic and utilitarian services, were analyzed. Travel experience factors and components were considered. The results revealed that travel experience is more complex than traditional transit service quality. They identified various components, which are interdependent and go beyond cognitive assessments to also include sensorial and emotional components associated with the intricate customer experience process. In addition to traditional customer cognitive satisfaction, passenger experience is also formed through positive emotions and pleasant sensorial feelings.

Lo et al (2013) analyzed individual and organizational determinants in work-related travel behavior among office workers as well as the interactions among them in The Netherlands. Attitudes and beliefs towards car and train usage varied substantially, despite the fact that time and comfort played a decisive role for most employees. The potential for teleworking and teleconferencing was perceived as relatively high. Related to the interactions, organizational financial incentives did not have uniform effects on employee choices, frequency was negatively related to their attitude towards business trips and social norms and managerial control was more important in determining business travel frequency and mode choice than commuting travel mode choice.

Qualitative approaches to study the activity rescheduling decision process are almost nonexistent. Only Clark and Doherty (2010) applied a qualitative content analysis to answers provided to four open questions related to changes between the preplanned schedule described in the initial interview and the executed schedule. They classified causes to add/delete/modify activities into several groups, including: interpersonal factors, conflict/scheduling issues, personal need, personal choice, flexibility, outside factors and convenience.

In general, qualitative studies on travel behavior lack of any explanation of the process followed to establish neither the codification used nor any justification of the selected qualitative methodological approach.

3. Theoretical framework

Most theoretical frameworks developed and applied to the problem of short and medium-term rescheduling travel decisions are based on the activity-based approach: travel is a derived demand; resulting from the need to pursue activities distributed in space. The original work providing the foundation of the activity-based approach can be dated back to Hägerstrand (1970) and his colleagues. He drew attention to the fact that people's choices may be strongly affected by various types of constraints. In particular, he differentiated among capacity, coupling and authority constraints. Capacity constraints have a biological or instrumental origin. For example, sleeping, eating and drinking occur in regular rhythms and intervals. Bus schedules define limits to the possible execution of activities. Coupling constraints stem from the fact that activities often are conducted jointly with others. Consequently, the timing and the location where the activity takes place need to be synchronized. Finally, authority constraints such as possession of a driver's license and opening hours constrain when and where someone can conduct a particular activity.

Theory of Planned Behavior (Ajzen, 1991) stresses the importance of situational constraints. For example, when forming an intention to use car or bus, people do not only take into account their attitudes toward these two travel means but they also weight the difficulty in using them. This is referred to as perceived behavioral control.

The theory of planned behavior postulates three conceptually independent determinants of intention. The first is the attitude toward the behavior and refers to the degree in which a person has a favorable or unfavorable evaluation of the behavior in question. The second determinant is a social factor termed subjective norm; it refers to the

perceived social pressure to perform or not to perform the behavior. The third antecedent of intention is the degree of perceived behavioral control which, as we saw earlier, refers to the perceived ease of performing the behavior and it is assumed to reflect past experience as well as anticipated impediments and obstacles. As a general rule, the more favorable the attitude and subjective norm with respect to a behavior, the greater the perceived behavioral control and the stronger the individual's intention to perform the behavior under consideration should be.

The norm-activation theory (Schwartz, 1977) aimed at explaining pro-social behavior was later developed into value-belief-norm theory (Stern, 2000) to specifically account for pro-environmental values, attitudes, and behavior. A personal norm is defined as the felt obligation to bring one person's own behavior in line with important internalized self-standards (e.g. Biel and Thøgersen, 2007). The formation and activation of personal norms result from an interplay of cognitive, emotional, and social factors. Problem awareness and perceived responsibility are cognitive preconditions for its development (Schwartz, 1977).

Many other behavioral theories exist (Anable et al. 2006), but they do not provide sufficient tools for the construction of a solid framework for determinants that directly affect activity rescheduling behavior. Therefore, ee consider qualitative research a good method to complete and expand on those theories.

4. Data description

A two wave activity/travel panel survey was conducted over a period of two years in the city of Valencia (Spain). The main purposes of this panel survey were to achieve a better acknowledge of the travel mode choice in urban areas and to study the potential effect of Travel Behavior Change Programs (TBCP) on scheduling process decisions. First and second wave took place in autumn 2010 and autumn 2011 respectively. Part of the respondents received a set of TBCP between both waves.

Both survey waves followed three phases: First phase was a preliminary face-to-face interview to generate a pre-planned activity–travel agenda for the following week, starting the day after the interview. Respondents should define all activities and travels already planned, providing as much details as possible. Demographic and socioeconomic information was collected as well. Before finishing this interview, respondents received a mobile phone with the activity-travel diary implemented and a cash incentive (30 euro). Second phase was carried out during the research week, since respondents had to complete the activity-travel diary by collecting the characteristics (initial time, duration, location, etc.) of the activities and travels as they were executed. Information was sent in real time to the research group, who compared pre-planned agenda and observed activities and travels. Third phase consisted on an in-depth telephone interview (CATI) to inquire about the differences found between pre-planned and executed schedules.

For the first wave, car users were recruited at parking slots located throughout the city of Valencia (Spain). Those who admitted using car for most of their journeys and accepted to participate in the study were subsequently interviewed face-to-face on their home or at another place agreed on. So willing to change was not a criterion to accept their participation. A total of 165 respondents successfully completed the first panel wave.

Between both waves, 47 respondents were discarded due to change of residence to another outside the study area, transfers abroad for work or just decisions to not continue participating in the survey. In order to increase sample size in the second wave, remaining respondents were asked to inform about friends, family and colleagues who would be interested in participating. New respondents were as similar as possible, in terms of demographic and socioeconomic characteristics to those who dropped out.

Therefore, those who participated in both survey waves were 118 individuals. Finally, in the second wave there were 166 respondents who carry out the activity-travel scheduling process survey. New respondents allowed analyzing panel effects. Demographics and socioeconomics in both waves were similar (Table 1).

The data analyzed in this paper were collected during the in-depth CATI survey. In particular, we focus on answers to the following open-ended question that was included in that survey: "Why did you decide not to carry out/modify/realize that activity/travel?" This question was formulated to deletion decisions (pre-planned activities and travel episodes that were not carried out), modification decisions (pre-planned episodes that were executed including some modification in their attributes) and addition decisions (episodes executed that were not included in the pre-planned agenda) (Table 2). We collected 7,169 open-ended answers to that question related to episodes

added to the agenda, 5,144 open-ended answers related to episodes modified, and 2,827 open-ended answers related to episodes deleted from the pre-planned agenda.

A small sub-sample of data related to deletion decisions is studied. Only 135 responses from participants older than 50 years old and activities pre-planned to be executed in a place different from home or work/study site were considered.

Table 1. Sample Demographic and Socioeconomic Distribution

	1st wave	2nd wave	Panelists
Women	49.1%	51.2%	48.7%
Men	50.9%	48.8%	51.3%
Employed	69.8%	65.7%	70.1%
Students	24.6%	23.5%	20.5%
Other	5.6%	10.8%	9.4%
Aged <30	37.4%	40,0%	37,2%
Aged 30-39	32.4%	33,9%	34,9%
Aged 40-49	17.9%	18,2%	17,4%
Aged 50-59	10.6%	7,9%	10,5%
Aged 60+	1.7%	0,0%	0,0%

Table 2. Total scheduling process decisions in wave 1.

	Pre-plan	Deletion	Addition	Modification	Execution
Activities	10,758	1,874	4,393	3,941	13,277
Travels	3,752	955	2,097	1,180	4,894
Total	14,510	2,829	6,490	5,121	18,171

5. Methodology

Broadly speaking, there are two groups of qualitative methods: descriptive and interpretative studies (Taylor and Bogdan, 1990). Descriptive studies are aimed to present results of the research including almost no interpretation or conceptualization. Conclusions and generalizations are left to the reader. On the other hand, interpretative studies use data to illustrate theories and concepts. Content Analysis (Berelson, 1952) is a set of methods based on studying words, text meaning or context, which can be used in both descriptive and interpretative studies. The Grounded Theory (Glaser & Strauss, 1967) generates concepts and hypothesis using inductive analysis. On the other hand, Analytic Induction (Znaniecki, 1934) uses empirical data to check existing theories, and the data is used to expand and generalized the results found. This method was further refined by other authors, Taylor and Bogdan (1984) among them, who proposed several steps to define hypothesis and to recognize themes during the qualitative analysis. We have adapted their proposal to our research case.

The first step consisted on discovering themes and formulating hypotheses. The information was examined in as many ways as possible in order to understand the general significance of the setting. Open-ended responses were read repeatedly to discover the outlined words and themes. As a result, words as son, buy, work, study, exams, meeting or father are identified to be associated to concepts related to the reasons for the rescheduling decision under study. Taking into account these ideas, wider items can be formulated into typologies as follows: familiar, resources, work and study aspects.

The second step was to play down the data to be analyzed within the context in which were collected. People answered accurately to the why question, but sometimes it was referred to an activity or travel carried out previously. In these cases, 126 responses were out of study because it had been already done.

The information was obtained through telephone calls every two days. Researchers transcribed the answers taking into account the qualitative framework in which this study was performed. The observer influence when typing the responses was strength due to the analysis criteria were considered from the beginning of the process. The theory achieved is not universal, but it is completely coherent within the framework used in all the analysis.

The third step was coding. The objective was to group and analyze the dataset related to certain categories, themes, ideas or concepts. This part of the analysis involved how to differentiate and combine the data retrieved and reflect the information (Milles & Huberman, 1994). Triangulation procedures were undertaken. This would support the principle in case study research that the phenomena are viewed and explored from multiple perspectives (Baxter & Jack, 2008). Two researchers coded the same dataset and discussed the difficulties. According to the framework codes selected were: Temporal, Social, Familiar, Labour, Spatial, Weather, Health and Resources determinants. Considering these categories, each piece of data was systematically read and classified into the category or categories more convenient. When both sortings were compared, disagreements showed that the definition was not clear and had to be amended. The collection and comparison of this data enhanced data quality based on the principles of idea convergence and the confirmation of findings (Knafl & Breitmayer, 1989). It was found that some answers could not be sorted in any group. i.e. "*Because I went to the hairdresser from work*", did not really match in any current category. Code revision was needed in order to better adjust to the available responses.

So new codes were proposed: Social, Familiar, Work, Study, Leisure, Resources, Health, Beauty, Weather, Meals determinants, Posterior Activity, and Previous Activity. It was noticed that differentiating between activity and travel elimination was needed to clarify the categories. Moreover two new codes were included in the travel elimination: Location determinant and Activity Suppression. Despite the changes made in the classification, it still did not work perfectly and divergences occurred. Finally the researchers reached an agreement considering the following categories.

1. Travel elimination codes:
    a) Location determinant: the reason for not travelling is that the person remains in the same place after finishing the previous activity (a change in the place where the associated activity is performed).
    b) Activity suppression: the reason for not travelling is that the anterior or posterior pre-planned activity has been discarded, so there is no need to any travel.
2. Activity elimination codes: reasons claimed by respondents related to the influence of other people, weather or characteristics of the activities themselves.
    a) Social determinant: the decision is related to the influence of other people. Depending on the type of relation with such people:
        i. Household determinant: when some household member is involved in the elimination decision (son/daughter, parents, spouse...).
        ii. Non-household determinant: when some friend or acquaintance is involved in the elimination decision.
    b) Weather determinant: the decision is weather related.
    c) Mandatory activity determinant: the decision is related to a mandatory activity (work or study).
    d) Discretionary activity determinant: the decision is related to an activity that can be performed at the discretion of the household or its members (recreational, social, games, community/civic activities, volunteer, beauty...).
    e) Maintenance activities determinant: are those required for the maintenance of the household (shopping, banking, laundry, household and personal chores, appointments, meals, sleeping, pick-up/drop-off activities…).
    f) Resources determinant: the decision is related to income, availability of cars...
        i. Own resources: the individual has complete control over the resources that influence the decision
        ii. External resources: the individual has not control over the resources that influence the decision
    g) Activity timing/duration determinant: the decision is related to delays in anterior or posterior activities.

3. Multiple codification: As mentioned earlier, multiple codification is allowed. If the decision is a travel elimination, the first code should be location determinant or activity suppression. Otherwise, the first code should be related to the first reason provided by the respondent in his/her answer. In both travel and activity elimination decisions, other codes related to activity types involved, etc., can be included, if they are explicitly mentioned by respondents.

The data management group met regularly to determine where to code any transcript variations that occurred due to question format. Once the coding structure was finalized, inter-coder reliability was determined by percentage agreement of passages coded to the appropriate nodes. Percentage agreement (Auld, Diker, & Bock, 2007) is defined as:

$$Percentage\ agreement = \frac{agreements}{agreements + disagreements}$$

In the comparison, some nodes had less than 50% of agreement. A new revision took place and both researchers refined the criteria. The main difference was that one person considered the respondent's parents in a social-household node, whilst the other classified the same response as social-non-household. The divergence was considering o not the parents' home the same as the interviewee's. Another discrepancy was taking into account different amount of information. For example, in the sentence "*Her son had to prepare some exams and he didn't assist to School so she didn't have to take him there*", the fist encoder classified it just as a social-household condition because the reason for eliminating the activity was her son, and the second codifier considered as well a mandatory activity determinant, considering that the study information was relevant. Finally, this sentence was coded as a social-household determinant because this was the ultimate reason why she had changed her plans.

Before this review, it was recalculated the percentage agreement, and the result was between 0.52 to 1. To Landis and Koch (Landis & Koch, 1977) values <0 indicate no agreement, 0–0.20 as slight, 0.21–0.40 as fair, 0.41–0.60 as moderate, 0.61–0.80 as substantial, and 0.81–1 as almost perfect agreement; to Fleiss (Fleiss, 1981) characterize kappas over 0.75 as excellent, 0.40 to 0.75 as fair to good, and below 0.40 as poor. So the coding was considered acceptable.

6. Analysis

As mentioned earlier, we present an analysis of a small sub-sample of data related to deletion decisions. Only 126 responses from participants older than 50 years old and activities pre-planned to be executed in a place different from home or work/study site were considered. Due to space limitation, we only include a brief Content Analysis of a representative selection of responses.

6.1. Eliminated travels

Travels were firstly classified into location or activity suppression categories according to whether the elimination was due to a change on where the anterior or posterior activity was realized, or because the associated activity was truly removed. The second code was associated with the travel related activity, choosing one or more categories between the following determinants: social (household or non-household), weather, mandatory, discretionary or maintenance activity, resources (own or external) and timing-duration depending on the reasons given by the respondents about their planning change.

The total amount of travels was 75, meanwhile 53 travels were classified as activity suppression (that were the main cause in the scheme modification) the other 22 responses were coded as location.

6.1.1. Location.
For men, discretionary determinant was the main reason for a travel deletion, whereas for women were maintenance determinants the most important.

> "*Because I decided not to go to the bar for breakfast*". Male, Location, Discretionary determinant.
> "*I didn't visit my father because I decided to go to the beach*". Female, location, Maintenance determinant.

Considering the weekday, there were some more responses belonging to the weekend (13 out of 22) than concerning to working days.

> *"Because we decided to have dinner at home".* Male, Location, Saturday.

Considering the start time the majority of travel deletions due to location were those related to both morning and afternoon activities (7 and 8 out of 21, respectively).

> *"I didn't travel because I ate at my job"*. Female, Location, Afternoon.

Considering the duration, most of the travel eliminations due to location belong also to those that last less than 30 minutes (16 out of 21).

> *"I ate at my job place".* Female, Location, less than 30 minutes.

6.1.2. Activity suppression.

For men, shopping was one of the most recurrent reasons to eliminate a travel, and the next one was the deletion of some activity with a relative. For women, the main reasons for a travel deletion were clearly social. Furthermore, most of them involved close relatives.

> *"I didn't need to go shopping".* Male, Activity suppression.
>
> *"I didn't go home but met my wife somewhere else".* Male, Activity suppression.
>
> *"My son had to prepare some exams and he didn't assist to School so I didn't have to take him there".* Female, Activity suppression.

Considering the weekday, almost all the responses belong to working days (46 out of 53).

> *"Because I didn't go to do sports that day".* Female, Activity suppression, Wednesday

Considering the start time the majority of travel deletions because of activity suppression were those related to afternoon activities (22 out of 50) followed by evening activities (16 out of 50).

> *"I didn't go because I went to study".* Male, Activity suppression, Afternoon.

Considering the duration, most of the travel than 30 minutes (34 out of 46)

> *"There was no need to go shopping".* Male, Activity suppression, less than 30 minutes.

6.2. Eliminated activities

6.2.1. Social determinant

The main reasons claimed by respondents (males and females) in our sample were related to social determinants (24 out of 60 responses) specifically involving close relatives (social household determinant).

> *"My son didn't go to basketball that day".* Male, Social determinant, Household determinant.
>
> *"Because my husband did the shopping".* Female, Social determinant, Household determinant.

Almost in all the cases these reasons pertain to work days (23 out of 24 responses). And relative to the start time, the greatest quantity of responses belongs to an afternoon time slot (12 out of 24) followed by evening time (9 out of 24). Finally, considering the duration, most of the responses belong to less than 30 minutes activities (10 out of 24).

> *"We went to visit some friends and later went to have dinner".* Male, Social determinant, Monday, Evening, more than 120 minutes.
>
> *"Some friends couldn't meet us that day and we changed the date".* Female, Social Determinant, Wednesday Afternoon, more than 120 minutes.

6.2.2. Weather determinant

Only one response was classified in this category. It belongs to a male on a work day during the morning, and lasting less than 30 minutes.

> *"It had rained".* Male, Weather determinant, Friday, Morning, Less than 30 minutes

6.2.3. Mandatory activity determinant

Only 5 out of 60 activity deletions belong to mandatory activity determinant (3 pertaining to males and 2 to females). Attending to the time slot, all of them belong to afternoon time on a working day, and with duration of more than 120 minutes.

"I did not move to the university because they cancelled the classes". Female, Mandatory activity determinant, Afternoon, Tuesday, more than 120 minutes.

6.2.4. Discretionary activity determinant

8 out of 60 responses about activity deletion belong to discretionary activity determinant, 6 of them pertain to males, and most of them appear on work days (5 out of 8).

"I didn't go for a walk because I stayed at home watching the Soccer World Championship on TV" Male, Discretionary activity determinant, Monday, Evening, 30-120 min.

6.2.5. Maintenance activity determinant

17 out of 60 responses pertain to maintenance activity determinant eliminated (11 belong to males), and most of them happened from Monday to Friday (13 out of 17), more frequently in the afternoon and at evening slots.

"It wasn't necessary to do the shopping". Male, Maintenance activity determinant, Saturday, Afternoon, less than 30 min.

6.2.6. Resources determinant

Only two responses have been categorized into this factor.

"Because I had to leave my car in the garage to be fixed". Male, Resources activity determinant, Tuesday, Morning, less than 30 min.

6.2.7. Activity timing/duration determinant

4 out to 60 responses pertain to this factor (2 from males and 2 for females). All of them took place on work days and in the morning.

"I stayed longer taking care of my mother". Female, Activity timing/duration determinant, Wednesday, Evening, 30-120 min.

6.2.8. Main activity type

The discretionary pre-planned activities were the most eliminated, which is reasonable because they were the less compulsory. The main eliminated activities were household obligations and leisure. Household obligations were mostly eliminated clearly due to a social determinant, but also for mandatory, maintenance and discretionary determinants. Leisure activities were eliminated in the same number of responses for social and maintenance determinants followed by discretionary and timing determinants. In contrast, basic needs were the less eliminated activities.

"We were tired and didn't go out". Male, Leisure changed for maintenance determinants.
"I went with a friend". Male, Household obligations changed for social determinants.
"My son didn't go to practice basketball that day". Male, Leisure changed for social determinants.

7. Conclusions

We have analyzed a small sample of data related to the reasons underlying elimination decisions (pre-planned episodes that are no executed at all) during the activity scheduling process. Open-ended answers were studied using a qualitative method based on Content Analysis. Considering the subjective nature of this approach, we have detailed the process followed to establish the codification and a justification of the selected qualitative methodological approach.

Following Analytic Induction methodology, we defined a successful codification which has allowed us to categorize all data, which facilitated the understanding of rescheduling reasons. Most determinants are related to Haggensträd, Ajzen and Schwartz theories. In particular, the dependent natures of travels, the influence of other maintenance activities and of other people, are in line with those theories. Other determinants introduce new insights to understand elimination decisions, like the nature of some activities that affects the change, the influence of personal and household resources and the weather.

This pilot study is a first step towards the comprehensive analysis of the complete available dataset. Open-ended

responses about elimination, modification and addition decisions during the activity scheduling process will be studied using a qualitative approach. Differences and similarities underlying those rescheduling decisions will be identified.

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