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Analysing the effect of trip satisfaction on satisfaction with the leisure activity at the destination of the trip, in relationship with life satisfaction

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Abstract Previous studies have indicated that positive (or negative) experiences of activity episodes are likely to correlate with positive (or negative) evaluations of a persons' life. An accumulation of short-term experiences can positively or negatively affect life satisfaction, while it is also plausible that this long-term satisfaction affects emotions experienced during an activity. In this study we analyse how (1) satisfaction with a trip towards the most recent leisure activity, (2) satisfaction with that activity and (3) life satisfaction are correlated with each other, by executing a structural equation modelling approach. Results of this study—using data from a cross-sectional survey of 1213 respondents residing in the city of Ghent (Belgium)—suggest that life satisfaction has an important effect on both travel satisfaction and activity satisfaction. On the other hand, there seems to be a stronger effect from activity satisfaction on life satisfaction than from travel satisfaction on life satisfaction, suggesting that travel satisfaction mainly has an indirect effect on life satisfaction, through participation in—and satisfaction with—leisure activities.

Keywords Travel satisfaction · Activity satisfaction · Life satisfaction · Leisure activities · Travel behaviour · Subjective well-being

Introduction

In recent years, subjective well-being (SWB) has attracted increased attention across multiple disciplines, as objective elements (such as income and health status) are not able to capture all aspects of quality of life (Ryan and Deci 2001; Helliwell and Putnam 2004;

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Kahneman and Krueger 2006; Diener 2009).[1] Diener and colleagues state that SWB consists of three components: the presence of positive feelings, the absence of negative feelings and overall satisfaction with life. The first two components, often referred to as affective components, tend to pertain to shorter time frames; they detect self-reported feelings or emotions during an interval or activity episode and can also be referred to as a person's mood. Satisfaction with life is a cognitive evaluation and pertains to a longer-term period (Diener 2009; Diener et al. 1985; Pavot and Diener 1993). SWB can also be defined in the context of satisfaction in various domains (e.g. job satisfaction). Studies have indicated that domain satisfaction and life satisfaction are correlated. However, the causal processes between both types of satisfaction are not clear. Top-down theories indicate that people who are satisfied with life may also evaluate life domains more positively, while bottom-up theories assume that life satisfaction is influenced by domain satisfaction (Schimmack 2008; Schimmack and Oishi 2005).

A domain-specific form of satisfaction that received increased attention over the past years is satisfaction with travel (De Vos et al. 2013; Ettema et al. 2010). This travel satisfaction measures the (affective) emotions of travellers during a trip and captures a cognitive evaluation of the trip made. Most studies analysing travel satisfaction focus on elements explaining variations in how satisfied people are with their trips, such as trip duration and travel mode choice (Abou-Zeid 2009; De Vos et al. 2016; Duarte et al. 2010; Ettema et al. 2011, 2012; Friman et al. 2013; Morris and Guerra 2015a, b; Olsson et al. 2013; Stutzer and Frey 2008). The experience of—and satisfaction with—a trip might also affect the ease with which the activity at the destination of the trip is executed and how people perceive this activity (De Vos et al. 2013; Ettema et al. 2010). Negatively perceived trips, for instance, might worsen the performance of—and lower the satisfaction with—the upcoming activity. As multiple studies have indicated that the performance of out-of-home leisure activities has an important effect on people's life satisfaction (e.g. Diener 2000; Kahneman et al. 2004; Schwanen and Wang 2014), satisfaction with travel might consequently have an important indirect influence on life satisfaction, through satisfaction with leisure activities. On the other side, life satisfaction, a general evaluation of a persons' life, will probably also have an important influence on the satisfaction with short-term episodes, such as trips and (out-of-home) leisure activities (Schwanen and Wang 2014). In the following sections we go into deeper detail on the links between travel satisfaction, activity satisfaction and life satisfaction.

In this paper we will analyse (1) potential spill-over effects of trip satisfaction on satisfaction with the leisure activity at the destination of that trip and (2) the relationship between short-term travel and activity satisfaction on the one hand and long-term life satisfaction on the other hand. In order to analyse both a top-down and bottom-up approach between short-term and long-term satisfaction, a structural equation modelling approach will be applied. The paper is organised as follows. "Literature review" section presents a brief literature review on the relationships between travel satisfaction, activity satisfaction and life satisfaction. "Conceptual model" section explains the conceptual model while the key variables are described in "Data" section. "Method" section explains the used methodology. "Results" section deals with the major results while discussion and conclusion are provided in "Discussion and conclusion" section.

[1] In this paper we only focus on hedonic well-being, referring to the experience of happiness or pleasure through the satisfaction of various needs, and not on euidamonic well-being, emphasising on the meaning of life and achieving personal growth (see, for instance, Ryan and Deci 2001; Ryff and Singer 2008).

Literature review

The relationship between activity satisfaction and life satisfaction

Life satisfaction—which can be seen as a component of the broader concept of subjective well-being—is a cognitive evaluation of how good one's life is over a longer period of time (Diener 2009; Kahneman et al. 1999). This life satisfaction can be affected by certain living conditions, such as employment, health and marriage (e.g. Helliwell 2006; Helliwell and Putnam 2004). However, it can also be affected by (satisfaction with) daily activities. People engaging in interesting or rewarding activities are likely to experience more pleasant than unpleasant emotions, which can improve life satisfaction (Diener 2000; Kahneman et al. 2004). Everyday activities help people to actualise their potentials and achieve personal growth and progress to their goals. It can even be argued that people plan and undertake activities to satisfy their needs and maintain or enhance well-being (Abou-Zeid and Ben-Akiva 2012). However, differences occur according to the type of activity; performing out-of-home activities and leisure/social activities seem to result in higher levels of life satisfaction compared to activities at home or more mandatory activities (Archer et al. 2013; Schwanen and Wang 2014; Spinney et al. 2009).

Recent studies indicate that performing leisure activities is positively correlated with life satisfaction (e.g. Newman et al. 2014). Since leisure activities can be defined as (1) freely chosen, and (2) enjoyable and/or satisfying (e.g. Passmore and French 2001; Tinsley et al. 1993), a direct link between leisure activities and life satisfaction can be expected. According to Newman et al. (2014), leisure is a key life domain and a core ingredient of SWB. They state that leisure can affect life satisfaction through five psychological mechanisms that leisure provides: (1) detachment and recovery from work and other potential life pressures; (2) autonomy (i.e. providing people perceptions of control and freedom); (3) mastery (i.e. overcoming of challenges and improving of skills); (4) meaning (i.e. adding value and purpose to one's life); and (5) affiliation (i.e. engagement with others). According to Tinsley and Eldredge (1995), leisure activities can improve life satisfaction as they can provide eleven psychological benefits, including relaxation, creativity and self-expression. Studies have indicated that out-of-home leisure activities (e.g. visiting family or friends) are perceived more positively than in-home leisure activities (e.g. watching television), possibly since engagement in out-of-home activities is often accompanied with social interaction (Archer et al. 2013; Schwanen and Wang 2014; Spinney et al. 2009; Ravulaparthy et al. 2013).

Reverse relationships are also possible: individuals with greater life satisfaction are probably more satisfied with everyday activities and/or enjoy them to a greater extent. A bidirectional relationship seems to occur: a bottom-up causation, where the perceived quality of performed activities cause a certain level of life satisfaction, and a top-down causation, where the degree of life satisfaction produces certain levels of satisfaction with activities (Diener 1984; Feist et al. 1995; Headey et al. 1991). More research is needed to clarify these relations and the ways in which short- and long-term aspects of SWB are interrelated.

The relationship between travel satisfaction and life satisfaction

De Vos et al. (2013) and Ettema et al. (2010) provide an overview of how travel can affect SWB and life satisfaction. Three ways in how travel can affect life satisfaction are

acknowledged in both studies, one direct way and two indirect ways. First of all, travel can affect life satisfaction directly, through the feelings or emotions experienced during the trip and the evaluation of that trip. The mood during a trip can be affected by elements such as trip duration and activities that people (can) perform during travel. Public transport users, for instance, can perform relaxing/entertaining activities such as reading a book, socialising with co-travellers, or listening to music (e.g. Ettema et al. 2012; Lyons et al. 2007). Second, travel enables people to participate in spatially separated activities. Since out-of-home activity participation has a clear impact on life satisfaction, travel has an important indirect effect on this satisfaction with life (Abou-Zeid and Ben-Akiva 2012; Diener 2000; Lyubomirsky et al. 2005). In the worst case scenario of social exclusion, a lack of travel options makes it impossible to engage in rewarding activities, negatively affecting quality of life (e.g. Currie et al. 2009; Lucas 2012). Third, observed spill-over effects of travel on the activity at the destination of the trip are possible (Bergstad et al. 2011; De Vos et al. 2013; Ettema et al. 2010). The (perceived) quality of the trip can affect the ease with which people perform their activity at the destination of that trip. A stressful trip, for instance, might lower satisfaction with the upcoming activity and can therefore reduce the activity's well-being enhancing effect. On the other hand, travel time can give travellers the opportunity to mentally prepare for the activity ahead, facilitating the performance of that activity (Jain and Lyons 2008; Mokhtarian and Salomon 2001). Travel satisfaction, however, can also vary across different types of (leisure) activities. Abou-Zeid (2009), for instance, indicates that travel satisfaction is highest for activities where individuals experience a high level of happiness when conducting that activity, while Mokhtarian and Salomon (2001) and Ory and Mokhtarian (2005) show that people like leisure trips more than commute trips. These findings suggest that people might confound their liking for travel with their liking for the activity at the destination.

Similar to the relationship between activity satisfaction and life satisfaction, it is possible that people evaluating their life positively will have a higher probability of being satisfied with their trips, compared to people with a lower life satisfaction. De Vos et al. (2017, under review) indicate that a strong positive effect of life satisfaction on the feelings experienced during travel exists. Also here a bidirectional relationship seems to occur where satisfaction with certain activity episodes (i.e. trips) results in a certain level of life satisfaction, while this level of long-term well-being affects the perception of these (trip) episodes.

In sum, two sets of relationships between travel satisfaction, activity satisfaction and life satisfaction seem possible (Fig. 1). The first possible set of relationships is a bottom-up approach which analyses the three ways in how travel can affect life satisfaction; i.e. (1) direct, (2) indirect through activity satisfaction and (3) the direct effect of activity satisfaction on life satisfaction, made possible by travel (left side of Fig. 1). The second set of

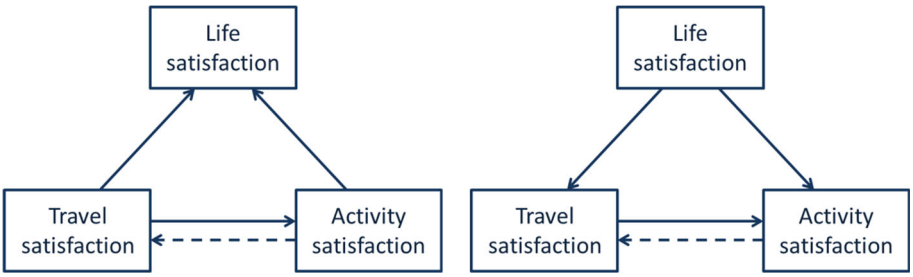

Fig. 1 Hypothesised relationships between travel satisfaction, activity satisfaction and life satisfaction

relationships analyses a top-down approach with effects from life satisfaction on both travel and activity satisfaction, in addition to the effect of travel satisfaction on activity satisfaction (right side of Fig. 1). In both sets of relationships, possible confounding of travel satisfaction with the activity at the destination of the trip might result in a potential link from activity satisfaction to travel satisfaction.

Conceptual model

Based on the previous literature we construct a conceptual model analysing the relationship between travel satisfaction, activity satisfaction and life satisfaction, with a focus on leisure trips and leisure activities (Fig. 2). This (non-recursive) model has bidirectional links between (1) life satisfaction and (2) travel satisfaction and activity satisfaction. The model therefore examines both the effects of travel satisfaction on life satisfaction—directly and indirectly through the satisfaction with the leisure activity at the destination of the trip—and the effect of life satisfaction on both travel satisfaction and activity satisfaction. Satisfaction with a leisure trip and satisfaction with a leisure activity are composed of affective emotions during the activity episode and a cognitive evaluation of this episode. As the evaluation of an activity episode is affected by the emotions experienced during that episode (Kahneman et al. 1997; Kahneman and Krueger 2006), links from (1) positive feelings during the leisure trip to the evaluation of that trip and (2) positive feelings during the leisure activity to the evaluation of that activity are included in the conceptual model.

In the model, trip duration, travel mode choice and company during the trip are included as explanatory variables of travel satisfaction. Although studies have shown that travel time can possess a positive utility and people do not necessarily want to minimise their travel time (Jain and Lyons 2008; Redmond and Mokhtarian 2001), recent studies found that trip duration tends to affect travel satisfaction negatively. With longer durations, travellers become less enthusiastic, less relaxed and they will evaluate the quality and efficiency of the trip lower (De Vos et al. 2016; Ettema et al. 2011, 2012; Morris and Guerra 2015a; Stutzer and Frey 2008). Numerous recent studies also indicate that the choice of travel mode has a significant effect on how satisfied we are with a particular trip. People using public transport (bus in particular) seem least satisfied with their trip, while active travel (walking in particular) results in the highest levels of travel satisfaction

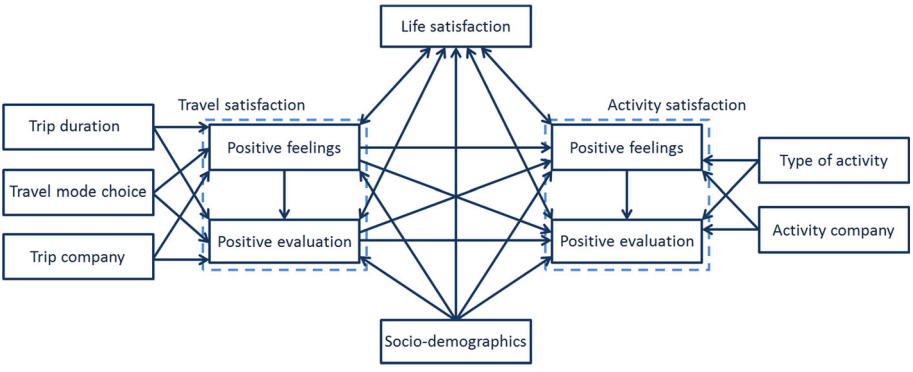

Fig. 2 Conceptual model outlining the relationships between travel satisfaction, activity satisfaction and life satisfaction

(Abou-Zeid 2009; De Vos et al. 2015, 2016; Duarte et al. 2010; Ettema et al. 2011; Friman et al. 2013; Morris and Guerra 2015b; Olsson et al. 2013). As people might travel together to (leisure) activities, social interaction might actually start during the trip towards the (leisure) activity. As a result, people travelling alone might experience their trip less positive than people travelling together with friends and family (Ettema and Zwartbol 2013). Although it is possible that performed activities during a trip affect travel satisfaction, potential activity performance during travel is not included as we do not have information on this.

The model also contains links from the type of leisure activity on satisfaction with the leisure activity, as various (leisure) activities can be perceived differently (e.g. Kahneman et al. 2004). Furthermore, as people often participate in leisure activities to meet and spend time with friends, relatives and others (e.g. Ettema and Schwanen 2012), it is also reasonable to assume that—on average—satisfaction with leisure activities will be lower for people performing such an activity alone, compared to people performing this activity together with others. We therefore added a link from activity company to activity satisfaction. Positive effects of activity duration on activity satisfaction can be expected (see, for instance, Schwanen and Wang 2014), but were, however, not included in the model as we do not have information on activity duration.

Furthermore, a certain level of confounding might exist between trip satisfaction and the liking of the activity at the destination of the trip—resulting in varying levels of travel satisfaction for trips to different types of (leisure) activities (Abou-Zeid 2009; Mokhtarian and Salomon 2001; Ory and Mokhtarian 2005). As a result, two additional relationships are plausible, i.e. a link from the type of leisure activity to travel satisfaction and a link from activity satisfaction to travel satisfaction. Since we measure travel satisfaction (and also activity satisfaction) retrospectively (see "Satisfaction with the most recent leisure activity")—i.e. after the leisure activity has taken place—it is even possible that in our data (remembered) activity satisfaction influences (remembered) travel satisfaction as much as the converse. However, as we have tried to limit possible confounding of the trip with the leisure activity in the used Internet survey,[2] we believe that respondents are able to adequately remember and distinguish their trip from the activity at the destination. We therefore did not include links from activity type and activity satisfaction to travel satisfaction into the model.

Data

For this study we use data from a 2012 Internet survey on travel behaviour, well-being and satisfaction with the most recent leisure activity and the foregoing trip. Invitations with a link to the Internet survey were distributed in twelve neighbourhoods (five typical urban and seven typical suburban neighbourhoods) within the city of Ghent, Belgium (approximately 250,000 inhabitants). In total, 27,780 invitations to the Internet survey were distributed among every household in the selected neighbourhoods, covering about one-fourth of all households in Ghent. Eventually, 1807 adult persons completed the survey, of which

[2] We have tried to limit possible confounding of trip satisfaction with the liking for the activity at the destination by first asking respondents to assess the performed leisure activity, by asking information about the trip (mode choice, trip duration, etc.) prior to measuring travel satisfaction and by italicising *during your trip* in the question *Which emotions did you experience during your trip towards your most recent out-of-home leisure activity?*.

Table 1 Socio-economic and demographic characteristics of the respondents (N = 1213)

	%
Age	
18–30	27.5
31–45	27.7
46–60	25.6
>60	19.2
Gender	
Female	48.3
Male	51.7
Household net income/month	
Low (< 1750 euro)	19.5
Average (1750–3499 euro)	48.9
High (3500+ euro)	31.6
Education	
Low (lower than bachelor degree)	21.5
High (bachelor degree or higher)	78.5
Household type	
Single	26.1
Single parent	4.5
Couple without children	37.4
Couple with children	25.4
Other	6.6
Residential location	
Urban	61.7
Suburban	38.3
Household car ownership	
0	17.7
1	54.4
>1	27.9

1720 respondents were retained after a first data cleaning. For this study we removed an additional share of respondents (see "Satisfaction with the most recent leisure activity"), resulting in 1213 respondents (Table 1). Although the recruitment method results in a rather low response rate (i.e. 6.5%)—making it impossible to perform a descriptive analysis of the total population of the selected neighbourhoods—the respondents are roughly comparable to the population of the selected neighbourhoods in socio-economic and demographic terms.[3] However, since the main goal of this study is an analytical representation of relationships among multiple variables, it is more important to have a large and sufficiently diverse sample than to have a fully representative sample (Groves 1989). Since our sample size is relatively large—even after removing a substantial share of respondents—coefficients to characterise specific relationships can be estimated with ample confidence and precision.

[3] For more information on the sample recruitment and representativeness of the used data, see De Vos et al. 2016.

In this study we use cross-sectional data, measuring respondents' experiences at one point in time. Since our model tries to measure how short-term satisfaction (with trips and leisure activities) is related with longer-term life evaluation, longitudinal data (i.e. repeated observations of the same variables over a certain period of time) would have been most appropriate. Doing so would have made it possible to analyse, among others, whether multiple satisfying (or dissatisfying) trips and/or activity episodes over time could positively (or negatively) affect peoples' evaluation of life. However, within travel behaviour research (but also in other domains) there is a limited availability of such longitudinal data, as they are expensive, time consuming and impose a high respondent burden (e.g. Schlich and Axhausen 2003; Twisk 2013). Although the lack of longitudinal data in this study is a clear limitation, we do think that the cross-sectional data used in our model gives an indication of how (1) travel satisfaction and activity satisfaction and (2) life satisfaction are related with each other at a certain point in time.

Key variables

Satisfaction with the most recent leisure trip

In the used survey we asked respondents how they experienced the trip to their most recent out-of-home leisure activity.[4] Since we want to analyse, among others, the effect of trip satisfaction on satisfaction with the activity at the destination we chose to focus on one specific out-of-home leisure activity (i.e. the most recent one) and the accompanying trip towards this activity, instead of using overall satisfaction with leisure trips and activities. The latter would complicate this relationship due to a rather large variety in leisure trips and activities (e.g. LaMondia and Bhat 2012). In order to measure people's travel satisfaction we used the Satisfaction with Travel Scale (STS) (De Vos et al. 2015; Ettema et al. 2011; Friman et al. 2013). This scale measures the feelings or emotions travellers experience during a trip and how they evaluate the trip being made. The affective feelings measured by this scale are based on two dimensions (i.e. valence: ranging from unpleasant to pleasant; and activation: ranging from deactivation to activation), which are assessed by the Swedish Core Affect Scale (SCAS) (Västfjäll et al. 2002; Västfjäll and Gärling 2007), and consists of six items. The endpoints of each item are combinations of the valence and activation dimensions. Three items range from negative deactivation to positive activation (i.e. bored–enthusiastic; tired–alert; fed up–engaged) and the other three from negative activation to positive deactivation (i.e. stressed–calm; worried–confident; hurried–relaxed). A cognitive evaluation of the trip being made is measured by three additional items that refer to the general quality and efficiency of the trip (i.e. the trip was the worst–best I can think of; the trip was low–high standard; the trip did not work out–worked out well). For all the nine scales, scores vary from −3 to 3 with a higher score implying higher satisfaction.

In this study we subdivide the affective component of travel satisfaction (i.e. emotions during the trip) from the cognitive component of travel satisfaction (i.e. evaluation of the trip made). Since the internal consistency (i.e. the average correlation of a scale's items) of the six scales measuring emotions during the trip and the three scales measuring the cognitive evaluation of the trip are assessed as good (Cronbach's alpha is respectively 0.88

[4] Respondents indicated which of the following seven out-of-home leisure activities they performed most recently, i.e. 1. visiting family/friends; 2. going out to a bar or club; 3. eating out; 4. going to forest, park, nature; 5. going to a cultural/sport activity as spectator; 6. going to a cultural/sport activity as active participant; and 7. recreational shopping.

and 0.87), we created a positive emotion variable by averaging the six scales measuring the affective emotions and a positive evaluation variable by averaging the three scales measuring cognitive evaluation. The average scores on the positive emotion variable and positive evaluation variable are 1.18 and 1.40 respectively,[5] indicating that respondents are fairly satisfied with the trip to their most recent leisure activity.

In order to analyse whether trip satisfaction varies according to travel mode choice, trip duration and company during the trip, we performed two-sample *t* tests. Table 2 shows that people using public transport have the lowest travel satisfaction; while people walking are most satisfied with their trip. People walking are significantly (at $p < 0.05$) more satisfied with their trip compared to people using other travel modes. Table 3 indicates that trip duration does not have a significant effect on the mood during the trip. The average scores on the emotions experienced barely differ between the four groups of trip duration. However, respondents seem to evaluate shorter trips more positively than longer trips. Leisure trips between 0 and 10 min, for instance, are evaluated significantly (at $p < 0.05$) better than trips longer than 20 min. Finally, Table 4 shows that travelling alone results in significantly lower levels (at $p < 0.05$) of trip satisfaction compared to when travelling together with partner, friends, family or colleagues/acquaintances.

Satisfaction with the most recent leisure activity

In order to measure how satisfied respondents were with their most recent out-of-home leisure activity we applied a similar scale as the STS, but applied on the activity instead of on the trip. This Satisfaction with Activity Scale (SAS) therefore also contains six items analysing the experienced emotions during the (leisure) activity, ranging from negative to positive with varying levels of activation (i.e. bored–enthusiastic; tired–alert; fed up–engaged; stressed–calm; worried–confident; hurried–relaxed). A cognitive evaluation of the leisure activity made is measured by three additional items that refer to the general quality of the activity (i.e. the activity was the worst—best I can think of; the activity was low—high standard; the activity did not work out—worked out well). In analogy with the STS, the scores of the SAS vary from −3 to 3 with a higher score implying higher satisfaction.

Parallel to the STS, we subdivide the affective component of activity satisfaction (i.e. emotions during the leisure activity) from the cognitive component of activity satisfaction (i.e. evaluation of the leisure activity). Since the internal consistency (i.e. the average correlation of a scale's items) of the six scales measuring emotions during the activity and the three scales measuring the cognitive evaluation of the activity are good (Cronbach's alpha is respectively 0.81 and 0.78), we created a positive emotion variable by averaging the six scales measuring the affective emotions and a positive evaluation variable by averaging the three scales measuring cognitive evaluation. The average scores on the positive emotion variable and positive evaluation variable—1.82 and 1.80 respectively[6]—indicate that respondents are satisfied with their most recent leisure activity, somewhat more satisfied than with the trip to the activity. These differences can be partly explained by the fact that people often participate in leisure activities to satisfy certain needs, while travel is mostly a derived demand, in this case to enable engagement in leisure activities.

Two sample *t* tests were performed in order to analyse variances in leisure activity satisfaction according to the type of leisure activity and the company during this leisure

[5] Standard deviation is 1.07 and 1.16 respectively; Skewness is −0.36 and −0.52 respectively.

[6] Standard deviation is 0.86 and 0.96 respectively; Skewness is −1.15 and −1.19 respectively.

Table 2 *P* values of two-sample *t* tests analysing trip satisfaction differences according to the used travel mode (average scores between brackets)

Positive feelings	1.	2.	3.	Positive evaluation	1.	2.	3.
1. Car (1.16)				1. Car (1.33)			
2. Publ. Transp. (0.91)	**0.01**			2. Publ. Transp. (1.21)	0.33		
3. Cycling (1.19)	0.56	**0.03**		3. Cycling (1.45)	0.27	0.07	
4. Walking (1.34)	**0.03**	**0.00**	**0.04**	4. Walking (1.62)	**0.00**	**0.00**	**0.04**

Table 3 P-values of two-sample *t* tests analysing trip satisfaction differences according to trip duration (average scores between brackets)

Positive feelings	1.	2.	3.	Positive evaluation	1.	2.	3.
1. 0–10 min. (1.20)				1. 0–10 min. (1.53)			
2. 10–20 min. (1.16)	0.52			2. 10–20 min. (1.39)	0.07		
3. 20–30 min. (1.17)	0.72	0.93		3. 20–30 min. (1.26)	**0.01**	0.24	
4. 30+ min. (1.15)	0.54	0.92	0.88	4. 30+ min. (1.23)	**0.00**	0.09	0.83

Table 4 P-values of two-sample *t* tests analysing trip satisfaction differences according to trip company (average scores between brackets)

Positive feelings	1.	2.	3.	4.	Positive evaluation	1.	2.	3.	4.
1. Alone (1.01)					1. Alone (1.27)				
2. Partner (1.34)	**0.00**				2. Partner (1.54)	**0.00**			
3. Friends (1.44)	**0.00**	0.29			3. Friends (1.55)	**0.01**	0.97		
4. Family (1.27)	**0.00**	0.41	0.12		4. Family (1.40)	0.16	0.11	0.17	
5. Coll./acq. (1.39)	**0.01**	0.74	0.78	0.47	5. Coll./acq. (1.34)	0.67	0.21	0.22	0.72

activity. Table 5 indicates that the type of out-of-home leisure activity can have an important effect on how people perceive this activity. Going to a cultural or sport activity as a spectator has the highest average level of satisfaction. Going to a cultural or sport activity as an active participant, on the other hand, results in significantly lower levels (at $p < 0.05$) of leisure activity satisfaction compared to engagement in other types of leisure activities. This might be partly explained by the relatively mandatory character of this activity (e.g. weekly music lessons). Table 6 shows that participating in a leisure activity together with friends results in the highest levels of satisfaction, while performing a leisure activity alone results in significantly lower levels (at $p < 0.05$) of leisure activity satisfaction compared to when performing these activities together with others.

Satisfaction with the most recent out-of-home leisure activity and satisfaction with the trip to this activity are measured retrospectively. In retrospective measurements the remembered frequency or duration and intensity of positive and negative affect during a

Table 5 P-values of two-sample tests analysing leisure activity satisfaction differences according to the type of activity (average scores between brackets)

Positive feelings	1.	2.	3.	4.	5.	6.
1. Visiting family/friends (1.77)						
2. Going out to a bar/club (1.92)	0.09					
3. Eating out (1.79)	0.81	0.25				
4. Going to a forest/park/nature (1.81)	0.66	0.31	0.89			
5. Going to a cultural/sport activity as spectator (1.93)	**0.02**	0.85	0.17	0.21		
6. Going to a cultural/sport activity as active participant (1.55)	**0.03**	**0.00**	0.06	**0.04**	**0.00**	
7. Recreational shopping (1.82)	0.53	0.30	0.83	0.95	0.15	**0.02**
Positive evaluation	1.	2.	3.	4.	5.	6.
1. Visiting family/friends (1.82)						
2. Going out to a bar/club (1.68)	0.17					
3. Eating out (1.62)	0.11	0.70				
4. Going to a forest/park/nature (1.80)	0.90	0.36	0.27			
5. Going to a cultural/sport activity as spectator (1.87)	0.50	**0.05**	**0.03**	0.55		
6. Going to a cultural/sport activity as active participant (1.32)	**0.00**	**0.01**	**0.05**	**0.00**	**0.00**	
7. Recreational shopping (1.81)	0.97	0.20	0.13	0.92	0.51	**0.00**

Table 6 P-values of two-sample tests analysing leisure activity satisfaction differences according to activity company (average scores between brackets)

Positive feelings	1.	2.	3.	4.	Positive evaluation	1.	2.	3.	4.
1. Alone (1.65)					1. Alone (1.51)				
2. Partner (1.88)	**0.00**				2. Partner (1.79)	**0.00**			
3. Friends (1.93)	**0.00**	0.47			3. Friends (1.95)	**0.00**	**0.01**		
4. Family (1.81)	**0.04**	0.24	0.06		4. Family (1.77)	**0.00**	0.78	**0.01**	
5. coll./acq. (1.88)	**0.00**	0.96	0.53	0.36	5. coll./acq. (1.89)	**0.00**	0.22	0.43	0.17

past time interval are reported. This type of measurement could create memory distortion affecting the delayed recall and evaluation of previous activity episodes or may cause skewing of memories of 'average' trips by extreme or unusual circumstances. Memory distortion, however, is less strong when asking respondents about a certain recent activity episode of a designated type (e.g. the most recent leisure trip and activity) (Kahneman et al. 2004). In order to minimise these disturbing recall effects, we removed respondents indicating that they performed their most recent leisure trip and activity more than 2 days before filling in the survey. This resulted in retaining 1213 respondents who performed their most recent leisure activity and foregoing trip the day of filling in the survey, the day before or 2 days before.[7] It has to be noted that this subdivision is rather arbitrary as it is not clear when memory decay—of experienced emotions during a particular activity—

[7] Respondents were asked in the survey to indicate when they performed their most recent out-of-home leisure activity and accompanying trip. 276 respondents (16.0%) indicated today, 611 (35.5%) yesterday, 326 (19.0%) the day before yesterday, 208 respondents (12.1%) 3 days ago and finally 299 respondents (17.4%) indicated that they performed this leisure trip and activity more than 3 days ago.

starts (e.g. Fredrickson and Kahneman 1993). Retrospective measures have, however, the advantage that the self-report of life satisfaction (see "Life satisfaction") is not affected by the feelings experienced during the leisure trip and activity. This could have resulted in an overestimation of the relation between (1) travel and activity satisfaction and (2) life satisfaction as situational conditions (e.g. experienced feelings and mood) can strongly affect self-reports of life satisfaction (Schwarz and Strack 1999).

Life satisfaction

Life satisfaction has been measured using the Satisfaction With Life Scale (SWLS) (Diener et al. 1985; Pavot and Diener 1993). This scale asks respondents—on a five-point scale going from 1 (strongly disagree) to 5 (strongly agree)—to which extent they agree with five statements: i.e. *In most ways my life is close to my ideal; The conditions of my life are excellent; I am satisfied with my life; So far I have gotten the important things I want in life; If I could live my life over, I would change almost nothing*. Since the internal consistency (reliability) of this scale is high (Cronbach's $\alpha = 0.87$), we created one life satisfaction variable by averaging the five items. The average score of respondents on this variable is 3.66, indicating that respondents are moderately satisfied with their life.[8] These scores, together with the scores of travel satisfaction and activity satisfaction, are in line with studies of Diener and colleagues, indicating that most people are happy and experience above neutral (i.e. positive) emotions most of the time (Diener and Diener 1996; Diener et al. 2006).

Travel mode choice, trip duration and trip company

Respondents indicated which travel mode they chose to reach their most recent leisure activity. Almost half of the respondents travelled by car (587 respondents or 48.8%), 9.5% (or 114 respondents) used public transport, 22.5% (or 270 respondents) cycled, while 19.2% (or 231 respondents) walked to their leisure activity. Since Table 2 indicates that walking results in significantly higher levels of travel satisfaction compared to using other modes, we made a binary variable by subdividing respondents into two groups: respondents cycling or using a car or public transport (0) vs. respondents walking (1). We also asked respondents to indicate how long they travelled to reach their most recent leisure activity. Eight possible time frame answers were provided: 0–5; 5–10; 10–15; 15–20; 20–30; 30–45; 45–60 min; and more than 60 min. Based on the average scores and p-values from Table 3, we created a binary variable by giving trips shorter than 10 min a value of 0 (accounting for 34.7% of the trips) and trips longer than 10 min a value of 1 (accounting for 65.3% of the trips). Finally, we also looked at whether respondents travelled alone, or together with their partner, family, friends or colleagues/acquaintances (multiple answers were possible). Since travelling alone results in significantly lower levels of travel satisfaction, compared to travelling together with others (see Table 4), we added the following binary variable—i.e. travelling alone (0; 42.1% of the trips) versus travelling together with company (1; 57.9% of the trips)—as an explanatory variable of travel satisfaction.

[8] Standard deviation is 0.75; Skewness is −0.71.

Type of leisure activity and activity company

Respondents indicated which type of out-of-home leisure activity they performed most recently. Seven possible leisure activities were provided: Visiting family/friends; Going out to a bar or club; Eating out; Going to forest, park, nature; Going to a cultural/sport activity as spectator; Going to a cultural/sport activity as active participant; and Recreational shopping. Since Table 5 indicates that satisfaction levels of respondents participating in cultural/sport activity as active participant are significantly lower than respondents participating in other types of leisure activities we made the following binary variable: respondents engaging in other activities than actively participating in cultural/sport activity (0; 91.0%) and respondents actively participating in cultural/sport activity (1; 9.0%). In analogy with the trip to the leisure activity we also asked respondents to indicate with whom they performed their most recent out-of-home leisure activity: Alone, with partner, with friends, with children, with family, or with colleagues/acquaintances. We made a binary variable—i.e. performing leisure activity alone (0; 19.7% of the activities) versus performing leisure activity together with others (1; 80.3% of the activities)—as an explanatory variable of leisure activity satisfaction.

Socio-demographic variables

The following socio-demographic variables have been included in the analysis: participants' age (in years), gender (0 = male; 1 = female), educational attainment (0 = low education (secondary school degree or less); 1 = high education (college or university degree)), the monthly net income of their household (0 = low household income (lower than 2500€ per month); 1 = high household income (at least 2500€ per month)), and household size (number of members in the household).

Method

In this study we perform a Structural Equation Modelling (SEM) approach. SEM is a research technique dating from the 1970 s mostly applied in economics, psychology and sociology, and now commonly used in travel behaviour studies (e.g. Cao et al. 2007; Golob 2003; Van Acker and Witlox 2010). SEM examines multiple relationships within a set of variables in which a given variable can be the outcome in one set of relationships and simultaneously a predictor of outcomes in other relationships, making it possible to quantify direct and indirect effects of one factor to another (Golob 2003). SEM offers an appropriate method for the current study because the proposed conceptual model involves multiple simultaneous relationships among travel satisfaction, activity satisfaction and life satisfaction.

A SEM analysis consists of two parts: a measurement model and a structural model. A measurement model specifies the relationships between latent variables and their observed indicators, while the structural model examines relationships between the latent variables. Since our variables are directly observed (manifest variables) or are latent variables constructed by averaging scores, a measurement model has not been specified. A covariance analysis is used to estimate the coefficients of the structural model. A model covariance matrix is fitted on a sample covariance matrix, while iteratively minimizing the

differences between the predicted and observed values. The smaller the dissimilarity between these matrices, the better the model fits the data (e.g. Bollen 1989; Kline 2005).

We have analysed the model as shown in Fig. 2. However, the non-recursive character of the model (i.e. due to bidirectional relationships between (i) life satisfaction and (ii) travel satisfaction and activity satisfaction) greatly increases its complexity. Even after removing non-significant relationships within the model, the model remains unidentified making it impossible to estimate it. This identification problem often occurs in non-recursive models with a considerable amount of endogenous variables (such as in our model with five endogenous variables) (Golob 2003). As a result, we created two recursive models, i.e. without feedback mechanisms. The first (sub)model examines the effects of travel satisfaction on life satisfaction, both directly and indirectly through the satisfaction with the leisure activity at the destination of the trip. The second (sub)model analyses the effect of life satisfaction on both travel satisfaction and activity satisfaction. The main drawback of splitting up the original non-recursive model into two recursive models is that we cannot compare the effects of travel satisfaction and activity satisfaction on life satisfaction in the first (sub)model with the effects of life satisfaction on travel satisfaction and activity satisfaction in the second (sub)model. The comparison between the two (sub)models is unreliable because all variables in the model (also the exogenous variables)—and the directions of influence being modelled—act in complex and interconnected ways to affect the coefficients.

Since outliers may affect the results of a SEM, it is important to detect and remove them. We therefore examined the Mahalanobis distance (a measure of how distant a vector of observed variable values is from the vector of sample means) for each case in the data set and this for both (sub)models. The greater the Mahalanobis distance the greater the contribution to the departure from multivariate normality (Mokhtarian and Ory 2009). Based on this information, cases were removed five at a time until multivariate normality reached the desired level (i.e. multivariate critical ratio—also referred to as Mardia's multivariate kurtosis—being lower than 1.96). In the end we excluded 15 outliers from both models (resulting in 1198 respondents). We chose the maximum likelihood estimation approach, by far the most common estimation technique used in practice (Ory and Mokhtarian 2009), to develop the SEMs in AMOS 22.0.

Results

In this section we will analyse the two (sub)models arising from the conceptual model presented in Fig. 2. Table 7 contains the most common goodness-of-fit measures for both models and shows that the model specifications fit the data well; goodness-of-fit measures are comparable between the two models and are satisfactory. In the following sections we will examine the results (i.e. direct, indirect and total effects of the included links) of both structural equation models.

Travel satisfaction, activity satisfaction and life satisfaction

Table 8 and Fig. 3 show how travel satisfaction, activity satisfaction and life satisfaction affect each other, allowing some main conclusions to be drawn. First of all—for both travel satisfaction and activity satisfaction—a strong relationship between feelings and evaluation exist. Positive feelings experienced during the leisure trip positively affect the

Table 7 Goodness-of-fit measures of the suggested models. For a description of the indices see, for instance, Mokhtarian and Ory (2009)

Model fit indices	Recommended values	Model 1 ($N = 1198$)	Model 2 ($N = 1198$)
χ2/df	<5	3.94	4.74
RMSEA (Root mean square error of approximation)	<0.08	0.05	0.06
GFI (Goodness-of-fit index)	>0.9	0.99	0.99
AGFI (Adjusted goodness of-fit index)	>0.9	0.95	0.94
NFI (Normed fit index)	>0.9	0.98	0.98
RFI (Relative fit index)	>0.95	0.87	0.85
IFI (Incremental fit index)	>0.9	0.98	0.98
CFI (Comparative fit index)	>0.9	0.98	0.98
CR (Multivariate critical ratio)	<1.96	1.42	1.42

evaluation of that trip, while positive emotions during the most recent out-of-home leisure activity positively affect the evaluation of that activity. This confirms the idea that the evaluation of a certain activity is a function of the emotions experienced during the timeframe of that activity episode (Kahneman et al. 1997; Kahneman and Krueger 2006). However, due to the retrospective measures applied in this study, people might confound their evaluation with the experienced emotions when looking back at the activity, resulting in a possible overestimation of the relationship between emotions and evaluation. Second, activity satisfaction seems affected by satisfaction with the trip towards that activity. The feelings experienced during the leisure activity are strongly affected by the feelings experienced during the preceding trip. A positive evaluation of that trip also positively affects the evaluation of the leisure activity. No significant effects were found from feelings during the trip on the evaluation of the activity and from the evaluation of the trip on feelings during the activity. However, a significant indirect effect exists from feelings during the trip to the evaluation of the leisure activity, through the feelings experienced during the activity.

Both models analyse the relationship between (i) travel and activity satisfaction and (ii) life satisfaction. The first model examines effects from travel satisfaction and activity satisfaction on life satisfaction, while the second model analyses the opposite effects. Although it is unreliable to compare both models (due to aforementioned reasons), both models indicate that the relation between (i) the feelings experienced during the trip and the subsequent activity and (ii) life satisfaction is stronger than the link between the evaluation of these two activity episodes and life satisfaction (Table 8; Fig. 3). The effect of feelings during the trip on life satisfaction is, however, mainly indirect, through feelings experienced during the leisure activity. The evaluations of the trip and activity seem less related with life satisfaction, but are highly affected by the emotions experienced during both episodes. This suggests that the evaluation of the trip and activity are more related with the (perceived) quality and the resulting emotions of these episodes than with life satisfaction. However, it has to be noted that these emotions are highly affected by life satisfaction, resulting in a (strong) indirect effect of life satisfaction on the evaluation of leisure trips and activities; people with a high life satisfaction seem to evaluate their leisure trip and activity positively because they experience positive emotions during these activity episodes.

Table 8 standardised direct (D), indirect (I) and total (T) effects on the two recursive models based on Fig. 2 (N = 1198 for both models)

Endogenous variables →	Positive feelings trip			Positive evaluation trip			Positive feeling activity			Positive evaluation activity			Life satisfaction		
	D	I	T	D	I	T	D	I	T	D	I	T	D	I	T
Exogenous variables															
Age	***0.22***	–	***0.22***	0.03	***0.12***	***0.15***	0.00	***0.10***	***0.10***	0.01	***0.08***	***0.08***	*0.06*	**0.05**	***0.11***
Gender (female)	**0.05**	–	**0.05**	*0.06*	0.03	***0.09***	*0.06*	0.03	***0.09***	0.03	0.06	***0.09***	−0.02	0.03	0.01
Education	−0.02	–	−0.02	0.03	−0.01	0.01	*0.06*	−0.01	**0.05**	0.00	0.03	0.03	**0.05**	0.01	*0.06*
Income	0.05	–	0.05	−0.03	0.03	−0.01	−0.01	0.02	0.01	−0.01	0.01	0.00	***0.18***	0.01	***0.19***
Household size	0.00	–	0.00	0.04	0.00	0.04	**−0.06**	0.00	**−0.05**	−0.03	−0.02	−0.05	*0.07*	−0.01	*0.06*
Trip duration	**−0.06**	–	**−0.06**	***−0.07***	−0.03	***−0.10***	–	−0.03	−0.03	–	−0.03	−0.03	–	−0.02	−0.02
Travel mode choice	***0.08***	–	***0.08***	**0.05**	**0.05**	***0.09***	–	0.04	0.04	–	0.04	0.04	–	0.02	0.02
Trip company	***0.15***	–	***0.15***	0.03	***0.08***	***0.11***	–	*0.07*	*0.07*	–	*0.06*	*0.06*	–	0.03	0.03
Type of activity	–	–	–	–	–	–	***−0.12***	–	***−0.12***	***−0.08***	*−0.06*	***−0.14***	–	−0.03	−0.03
Activity company	–	–	–	–	–	–	***0.08***	–	***0.08***	*0.05*	0.04	***0.10***	–	0.02	0.02
Endogenous variables															
Positive feelings trip	–	–	–	***0.55***	–	***0.55***	***0.43***	0.02	***0.45***	0.00	***0.32***	***0.33***	***0.09***	***0.12***	***0.22***
Positive evaluation trip	–	–	–	–	–	–	0.03	–	0.03	***0.17***	0.02	***0.19***	**0.05**	0.01	*0.07*
Positive feeling activity	–	–	–	–	–	–	–	–	–	***0.52***	–	**0.52**	***0.17***	0.03	***0.20***
Positive evaluation activity	–	–	–	–	–	–	–	–	–	–	–	–	**0.05**	–	**0.05**
Squared multiple correlations		0.08			0.33			0.23			0.38			0.16	

Table 8 continued

Endogenous variables →	Positive feelings trip			Positive evaluation trip			Positive feeling activity			Positive evaluation activity			Life satisfaction		
	D	I	T	D	I	T	D	I	T	D	I	T	D	I	T
Exogenous variables															
Age	**0.19**	0.02	**0.22**	0.03	**0.12**	**0.15**	−0.01	***0.11***	***0.10***	0.00	***0.08***	***0.08***	***0.11***	–	***0.11***
Gender (female)	**0.05**	0.00	**0.05**	*0.06*	0.03	***0.09***	*0.06*	0.02	***0.09***	0.03	*0.06*	***0.09***	0.00	–	0.00
Education	−0.04	0.01	−0.03	0.02	−0.01	0.01	**0.05**	0.00	**0.05**	0.00	0.03	0.03	*0.06*	–	*0.06*
Income	0.01	0.04	**0.05**	−0.04	0.04	−0.01	−0.03	**0.05**	0.02	−0.01	0.01	0.00	***0.20***	–	***0.20***
Household size	−0.01	0.02	0.01	0.03	0.01	0.04	*−0.06*	0.01	**−0.05**	−0.03	−0.02	**−0.05**	*0.07*	–	*0.07*
Trip duration	−0.04	–	−0.04	***−0.07***	−0.02	***−0.09***	–	−0.02	−0.02	–	−0.02	−0.02	–	–	–
Travel mode choice	***0.10***	–	***0.10***	*0.05*	*0.05*	***0.10***	–	0.04	0.04	–	0.04	0.04	–	–	–
Trip company	***0.13***	–	***0.13***	0.02	*0.07*	***0.09***	–	*0.06*	*0.06*	–	**0.05**	**0.05**	–	–	–
Type of activity	–	–	–	–	–	–	***−0.11***	–	***−0.11***	***−0.08***	*−0.06*	***−0.14***	–	–	–
Activity company	–	–	–	–	–	–	*0.06*	–	**0.06**	*0.05*	0.03	***0.08***	–	–	–
Endogenous variables															
Positive feelings trip	–	–	–	***0.54***	–	***0.54***	***0.40***	0.01	***0.41***	0.00	***0.30***	***0.30***	–	–	–
Positive evaluation trip	–	–	–	–	–	–	0.02	–	0.02	***0.17***	0.01	***0.18***	–	–	–
Positive feeling activity	–	–	–	–	–	–	–	–	–	***0.51***	–	***0.51***	–	–	–
Positive evaluation activity	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Life satisfaction	***0.21***	–	***0.21***	*0.05*	***0.12***	***0.17***	***0.16***	***0.09***	***0.25***	0.03	***0.16***	***0.19***	–	–	–
Squared multiple correlations		0.12			0.33			0.25			0.37			0.08	

Bold = significant at $0.05 < p < 0.1$; italics = significant at $0.01 < p < 0.05$; bold and italics = significant at $p < 0.01$

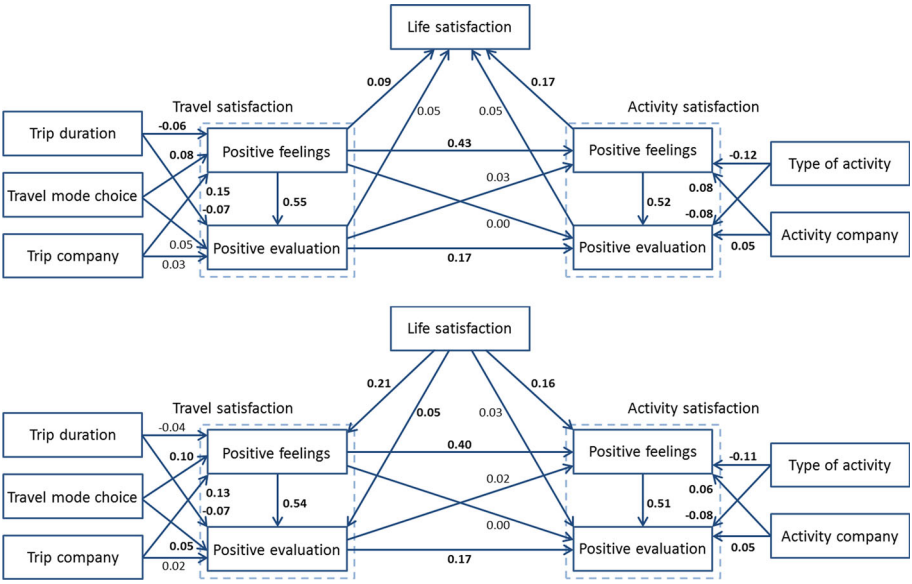

Fig. 3 Standardised direct effects on both models (*black*: significant at $p < 0.05$; *grey*: not significant at $p < 0.05$). Effects from socio-demographic variables on travel satisfaction, activity satisfaction and life satisfaction have been suppressed to enhance readability, but are shown in Table 8

Additional links

Trip duration, travel mode choice and company during the trip have significant effects on travel satisfaction, and are in line with previous research on travel satisfaction (Table 8; Fig. 3). Trips longer than 10 min have a negative effect on trip evaluation, while walking and travelling with companion(s) improve the felt emotions during the trip and improve the evaluation of the trip, partly indirect through the experienced feelings. Trip company also has a significant indirect effect on activity satisfaction, through travel satisfaction. Respondents actively participating in a cultural or sport activity have a significantly worse mood during this activity and evaluate it more negatively compared to respondents engaging in other leisure activities. Company during the performed leisure activity has a significant positive effect on the satisfaction with this activity. Performing the leisure activity with others improves experienced emotions during the activity and the evaluation of the activity.

Finally, socio-demographics also have some significant effects on travel satisfaction, activity satisfaction and life satisfaction (Table 8). Age has a positive direct effect on the feelings experienced during the trip and on life satisfaction, while it has positive indirect effects on the evaluation of the trip and on activity satisfaction (both affect and evaluation). Women are somewhat more satisfied with their leisure trip and leisure activity than men, while education, income and household size mainly have a positive effect on life satisfaction. These three variables only have limited effects on travel satisfaction and activity satisfaction.

Discussion and conclusion

In this paper we applied a structural equation modelling approach to analyse two sets of relations, i.e. (i) the effect of trip satisfaction on satisfaction with the leisure activity at the destination, and (ii) the link between short-term travel and activity satisfaction and long-term life satisfaction. Results indicate that spill-over effects exist from satisfaction with the trip preceding a leisure activity on satisfaction with that activity. The mood during the leisure activity is strongly affected by the mood during the foregoing trip, while the evaluation of this activity is affected by the evaluation of that trip. Furthermore, the experienced emotions during the trip preceding the leisure activity have a significant indirect effect on the evaluation of the leisure activity, through experienced emotions during the leisure activity. These outcomes confirm the assumptions made by De Vos et al. (2013) and Ettema et al. (2010) that an important effect exists of the perceived quality of trips on the satisfaction with—and performance of—activities at the destination. This suggests that improvements in travel options, such as shorter travel times, will not only positively affect the travel experience but will also have positive effects on activities performed after the trip. It is, however, unclear how long these spill-over effects from travel on activities at the destination last. A stressful trip might negatively affect the mood during the full period of a 1 h during leisure activity, but how will a stressful commute trip affect people's mood during the work activity the rest of the day? Repetitive real-time measures of people's experienced emotions before, during (in case of public transport use and walking) and after a trip—i.e. a few times during the activity at the destination—might provide researchers with detailed information on how emotions developed during a trip flatten out afterwards. Smartphone surveys, for instance, could be a useful tool to gather this real-time information (see, for instance, Ettema and Smajic 2015). Another benefit of (repetitive) real-time measures is that (potential) memory distortions will be avoided and people will not as much relate or confound (i) their experienced feelings during a trip (or activity) with the evaluation of that trip (or activity) and (ii) trip satisfaction with the liking for the activity at the destination of the trip, as might happen when applying a single retrospective method asking information about travel satisfaction (and activity satisfaction) at one point in time, i.e. after the activity episode(s) have taken place. Furthermore, it might also be interesting to analyse satisfaction with different types of trips and succeeding activities, such as commuting trips and work activities. As these trips and activities mostly have a rather mandatory and invariable character, both the satisfaction with these activity episodes and spill-over effects from the commute trip on the work activity might be different compared to leisure trips and leisure activities.

The second focus of this paper is on the link between long-term life satisfaction and short-term satisfaction with leisure trips and activities. Doing so, we tried to provide a contribution in the debate whether people with a high life satisfaction perceive and evaluate activities and life domains positively (top-down theory) or whether life satisfaction is affected by satisfaction with certain activities (bottom-up theory). Insofar as cross-sectional data allows us to make statements about causality, results suggest that satisfaction with out-of-home leisure activities has an important effect on life satisfaction, while satisfaction with the trip towards this activity mainly has an indirect effect on life satisfaction, through satisfaction with the leisure activity. In sum, although significant effects have been found from a positive mood during trips on life satisfaction, the effect of travel on SWB is mainly indirect, by enabling activity participation and by spill-over effects on these activities. This might not come as a big surprise as leisure activities are

often performed to satisfy certain needs and maintain or enhance well-being, while travel is mostly a derived demand; in this case to enable participation in leisure activities. Besides these effects of satisfaction with short-term activity episodes on longer-term life satisfaction, results also indicate a strong positive effect of life satisfaction on both travel satisfaction and activity satisfaction (especially on the emotions experienced during these episodes). To conclude, results suggest a strong effect of long-term life satisfaction on short-term activity satisfaction, while life satisfaction is directly affected by satisfaction with leisure activities but mainly indirect by satisfaction with the trip towards this leisure activity.

Future research analysing the relationship between travel (satisfaction) and life satisfaction might benefit, as indicated before, from using longitudinal data. Using these data makes it possible to analyse whether people with a high life satisfaction are more satisfied with repeated activity episodes compared to people with a lower life satisfaction. This would also make it possible to look at whether life satisfaction is the most important explanatory variable of activity/domain satisfaction, more than for instance trip characteristics for travel satisfaction. On the other hand, longitudinal data also enable to look at potential changes in life satisfaction due to repeated positively (or negatively) experienced leisure trips and activities. Although life satisfaction tends to be rather stable over time—partly because it is moderately heritable and is strongly correlated with personality factors—studies do indicate that life satisfaction is not stable over the course of an entire life span and can vary over longer-time periods (i.e. periods of numerous years) (Diener et al. 2006; Eid and Diener 2004). Anyhow, longitudinal data over a long period of time would be necessary in order to analyse potential changes in life satisfaction. An alternative for applying—hard to obtain—longitudinal data is using commute trips instead of leisure trips. Commute trips are mostly repetitive, have a more mandatory character and are more stable in terms of trip characteristics (e.g. travel mode choice, travel distance and travel time). Therefore, the relation between travel satisfaction and life satisfaction might be stronger when using commute trips instead of leisure trips. Another way to (partly) circumvent the problem of cross-sectional data is by analysing satisfaction with daily travel instead of satisfaction with one particular trip. Bergstad et al. (2011), for instance, measured this travel satisfaction by asking respondents to rate general statements such as *I am completely satisfied with my daily travel*. Doing so, however, makes it impossible to analyse potential spill-over effects of satisfaction with a trip on satisfaction with the activity at the destination.

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