Does the order of visiting destinations affect their recall and evaluation?

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Abstract:
Tourists frequently engage in visiting a sequence of cities, sites and destinations. Previous psychology studies have shown the impact of order on recall and favourability; key concepts are the serial position effect and primacy and recency influences. A field-based natural experiment collected post-trip responses from 179 international tourists to four major Iranian cities. The researchers examined the relationships between the order of visiting the cities, tourists' recall and judgment. Results from the manipulations revealed there is a relationship (mainly Primacy) between position in the itinerary and their recall. For evaluative judgments, both primacy and recency effects were linked to order of visiting. The work has implications for the presentations of tourism units in a sequence and sharpens the way we use the expression memorable in tourism research.

Keywords: Memorable Destination, Tourist Experience Design, Itinerary Design, Primacy and Recency, Visit order, Serial Position Effect
1 Introduction

In many locations around the world, tourists frequently compare destinations to each other in their planning process or post-travel evaluations. For example, after a visit to Italy, visitors may face the question of which one of the iconic cities of Rome, Florence, or Venice they like the best. Surprisingly, the effects of the order of visiting on tourists' evaluation of destinations, and indeed their ability to recall all or some of the places visited in a sequence, appear to have been overlooked in tourism study. In recalling and evaluating the cities, key psychological processes involving memory mechanisms and heuristics are involved.

A rich understanding of how experiences are encoded and accessed will serve several purposes. For those designing travel experiences, enhanced knowledge of the hidden issues driving the evaluation of products and services can shape the presentation of their offerings (Zare, 2019). Today, staging a memorable, exciting and engaging destination experience has been introduced as the road to prosperity (Barnes, Mattsson & Sørensen, 2016; Kim, 2018; Kim, Ritchie & McCormic, 2012; Marschall, 2012; Zhang, Wu & Buhalis, 2018). To define and design memorability in the tourist experience context, scales have been constructed, and recommendations have been made (Chandralal & Valenzuela, 2013; Kim, 2014; Kim & Chen, 2018; Kim & Jang, 2016; Kim & Ritchie, 2014; Coelho, Gosling, & Almeida, 2018; Tung & Ritchie 2011a). Memorable tourism experiences (MTEs) studies are acknowledged for generating an initial level of understanding of the role of memory in tourist experiences. This research, however, does not fit precisely in the MTEs domain; rather, it starts a conversation of its own about a need for more research on the complicated processes involving memory, such as recalling and evaluating tourist experiences. It particularly focuses on the temporal-spatial properties of experiences and their importance for the design that have not been investigated thoroughly (Hägerstrand, 1970; Shoval, McKercher, Birenboim, & Ng, 2015). While some attention has been paid to the travel experience as a process in space, and tourists' spatial behavior has been investigated in order to manage destinations (Edwards & Griffin, 2013; Modsching, Kramer, Gretzel, & Hagen, 2006; Page & Hall, 2014; Shoval et al., 2015), the importance of the sequences (or tourists' temporal behaviors) has rarely been explored (Hwang, 2019;
Pearce, 2020). Therefore, the current study tackles this issue of the effects of order or temporal positions of events within a tourist experience.

Understanding the effects of order in the evaluation of not only tourist destinations but also different tourism and even hospitality products has far-reaching implications for the design and management of tourism destinations, services and products. Such implications for smart construction, management and marketing tourism and hospitality products will be explained further in the literature review section.
2 Literature review

2.1 Tourist experiences in two dimensions of time and space

There is an ever-increasing amount of research on designing experiences. To understand the area of design science, the decomposition of the experience seems to be the first step (Fesenmaier & Xiang, 2016b), and to deconstruct experiences, the ways experiences are defined, examined and described is a key starting point. Tourist experiences, as the essence of the travel industry, have been studied from the lenses of geographers, sociologists and marketers (Holbrook & Hirschman, 1982; Krippendorf, 1987; Pearce, 1988; Dann, 1996; Ryan, 1997, Baerenholdt, Haldrup, Larsen & Urry, 2002; Uriely, 2005; Morgan, Lugosi & Ritchie, 2010). Studies from a psychological lens, however, drive the understanding of tourist experiences in the current research. The approach is not original with work on the participants' perspectives offering multiple insights about tourism experiences (see Jennings, Lee, Ayling, Lunny, Cater & Ollenburg, 2009; Larsen, 2007; McCabe, 2005; Pearce, 2011; Prebensen et al., 2014; Quan & Wang, 2004; Ritchie & Hudson, 2009; Ryan, 2010; Tung & Ritchie, 2011a; Uriely, 2005; Walls, Okumus & Wang, 2011). Among these contributions, some empirically-based studies have led to conceptual understandings of tourist experiences (Larsen, 2007; O'Dell, 2007; Pearce, 2011; Vittersø, Vorkinn, Vistad & Vaagland, 2000). For example, Larsen (2007) considered tourist experiences to be psychological phenomena based on individual experiences. He stated that tourist experiences are formed within individuals by means of psychological processes, mainly memory operations. He proposed a definition where a tourist experience is regarded as "a past personal travel event, emotionally strong enough to have entered long-term memory" (p. 15). Larsen's definition shares important similarities with some other definitions of tourist experiences. For example, Tung and Ritchie (2011a, 1369) defined memorable tourism experiences (MTE) as: "An individual's subjective evaluation and undergoing experience (i.e., affective, cognitive, and behavioural) of events related to his/her tourist activities which begin before (i.e., planning and preparation), during (i.e., at the destination), and after the trip (i.e., recollection)".

The links Larsen, Tung and Ritchie are drawing to the concept of time and memory are central to the approach towards tourism experience in the current study. In these two definitions, there are also connections to the topic of emotions and individuals' evaluations. In these conceptualizations of tourist experiences, it is
implicitly indicated that the actual tourist experiences are different from the remembered experiences (due to the reconstruction process in the memory). Previous researchers have also established that the individuals' evaluation of an experience is different from that of the actual experience. The foundation ideas were introduced and expanded by the Nobel laureate psychologist Daniel Kahneman and his colleagues (Tversky & Kahneman, 1973; Kahneman, 2011). Later studies indicated that memories of experiences rather than actual events are superior in predicting peoples' future behaviors (Wirtz, Kruger, Scollon, & Diener, 2003; Larsen, 2007).

Synthesizing the reviewed work, the two fundamental terms of tourist experiences and tourist evaluations (of their experiences) are defined as follows: Tourist experiences are recalled episodic memories of past travel events in two dimensions of time and space. The evaluations of such experiences are, therefore, considered as the judgment of the remembered experience rather than the actual experience, and the two dimensions of space and time are embedded in all the micro-events that constitute an experience.

2.2 Tourist experiences' design

The term "experience design" was introduced to the research world to guide business processes and to build on theoretical application from the contemporary field of design (Tussyadiah, 2014). As discussed above, tourist experiences have a clear beginning and ending in time and space; therefore the events and activities happen as a sequence. Tussyadiah and Zach (2012), Stienmetz and Fesenmaier (2013) as well as Kim and Fesenmaier (2015), among others, demonstrated that the entire tourist experience (including the emotions raised in every moment) can be recognized as a series of 'micro' experiences or series of 'events' within a travel journey. The recognition of the importance of these micro experiences individually and in the formation of overall tourist experiences and their evaluations has valuable contributions to the design, marketing and management of such experiences. For example, in the early service literature, it was believed that providing consistent performance during a service encounter contributes to the overall satisfactory evaluation of an experience (Verhoef, Antonides & de Hoog, 2004; Zeithmal & Binter, 1996). This idea was later challenged by psychological studies that highlighted the importance of peak and end events for a memorable experience. In other words, it was found that the time and the order in which
a sequence of events occur during the course of an experience matters in the overall outcome of that experience (Kahneman, Wakker & Sarin, 1997; Loewenstein & Prelec, 1993). Previous theories such as peak and end rule have been concerned with the overall evaluation of experiences. This research, however, applied some of the established theories about the order effects in the tourism context concerning the individual evaluation of each event - in this case, each destination.

The destination experience is a holistic journey that consists of hundreds of steps. Vacation trips are produced and consumed at the destination, and tourists have to deal with various people and situations in the destination to fulfil their needs and wants (Ryan, 1997; Prebensen, et al., 2014). Destinations, therefore, are central to the delivery of tourist experiences. To a large extent, tourist experience design arguably translates into destination design (Sitckdorn & Schneider, 2011). The physical and social attributes of destinations can be presented and managed to enhance the likelihood of creating memorable tourism experiences (Kim, 2014). As holistic experiences, however, destinations cannot be fully managed, but specific components or dimensions can be shaped or offered. For example, at the destination attributes level, Kim (2014) developed a scale with ten dimensions related to designing memorable experiences. These factors included infrastructure, accessibility, local culture or history, physiography, activities and events, destination management, quality of services, hospitality, place attachment, and superstructure. Understanding and managing such attributes assist destination managers in designing appealing environments to deliver memorable experiences.

The current study refers to the opportunities for optimizing travel memories and desirably managing them through the retrieval stage of memory and maximizing favourable recall and evaluation of events through manipulation of the order of visits. By creating intangible touch points throughout a travel timeline and in different locations, clear memories can be formed and retrieved more easily (Verhoef, et al., 2009). As a further point of assistance in communicating this research, the actual words "memory" and "recall" are used interchangeably. Evaluation and judgment both refer to the same concept of destination favorability assessment by the tourists. The terms "(temporal) position" and "order" are also utilized interchangeably. The researchers employ these word pairs as synonyms to assist the readability of the study.
2.3 Remembering tourist destinations

Three key processes need to be understood to capture the complexity of the functioning of human memory: encoding, storage and retrieval (Braun, 1999). In remembering a place, almost like remembering anything else, the final process of memory, which is retrieval, is necessarily important. To improve recall, several techniques and the factors involved can be highlighted. For example, reinstalling the original encoding conditions (through context-dependent or state-dependent cues) represents one successful pathway to improving recall (Tulving & Thomson, 1973). The encoding specificity theory by Tulving and Thomson (1973) asserts that during the recall, the original encoded information is linked to the situation or environment in which it was learned. As a consequence, memory is improved when information available at the time of retrieval matches that at encoding. For example, individuals going to a restaurant for the second time can recall details of the first experience more successfully when they are at the site rather than when they are asked about the first experience in a different location. Therefore, the contextual cue of location is helping memory retrieval. Some examples of cue modalities include words, images, scents, music and mementos. In psychology research, there is a long history of reinstalling these cues to provide original encoding conditions and improve retention (Goh & Lu, 2012; Tulving, 1985).

Other factors influencing recall include paying attention and being mindful in the learning process, the role of emotions (both positively and negatively loaded words have been found to be easier to recall), the power of motivations (encouraging respondents with incentives for the better recall has improved the recall rate), and minimizing delay interferences (whether there has been any delay between the presentation of messages) (Cohen, 1989; Craik, Naveh-Benjamin, Ishaik & Anderson, 2000; Gotoh, 2012). In the present research, the focus is on one of the context-dependent influences on memory, that is, the "order" or "temporal position" effect. The core idea here is to find the effects of different orders of visiting destinations on the memorability of them while controlling for the other factors (mentioned above) affecting memory as much as possible.

2.3.1 Serial position effect in free recall

In studying order effects, there is a substantial tradition to consider and employ in conceptualizing the processes at work. One long-standing approach to understanding
order effects is called the serial position effect. It was first introduced by Ebbinghaus (1902, p. 624-626). Using nonsense syllables (random and not meaningful combinations of three letters), he studied free recall. Ebbinghaus' foundation work suggested that the first and last few elements in a series are recalled best (the primacy and recency effects). Items in the middle tend to be recalled less well, resulting in a U shaped or bow curve of performance (Hilgard, Atkinson & Atkinson, 1967). There have been many successful replications of this kind of study (see Crowder, 2014; Goldstein, 2014).

2.3.2 Primacy and recency effects in free recall

The effect that early items in a list have a memory advantage is called the primacy effect, and it is due to the first items having less competition from other items for limited memory capacity (Crowder, 2014; Waugh & Norman, 1965; Hilgard et al., 1967). In a normal free recall test, the last few items in the list also receive a memory advantage (a recency effect) because these items may still be available in short-term or working memory during the memory test (Wyer & Srull, 1986; Brown, 1824; Calkins, 1896).

A question might be asked here: Is such a theory involving short term memory (presentation and recall of listed words over a few seconds) also applicable to remembering destinations visited over a number of days? The research suggests an affirmative answer to this question. After testing SPE in different contexts, it is now widely accepted by contemporary researchers that similar memory mechanisms operate for autobiographical memories over different timescales such as days, months and years (cf. Howard, Shankar, Aue & Criss, 2015; Moreton & Ward, 2010). Further, in these studies involving events over longer time periods, short-term memory explanations of primacy and recency alone are untenable, and processes are more akin to serial position influences prevail (Mack, Cinel, Davies, Harding & Ward, 2017).

2.4 Evaluating tourist destinations

In addition to exploring recall, the research team seeks to study the evaluation of ordered tourism entities. To define evaluation in the context of this study, it is important to review two levels of processing information. Different names have been used to show the contrast between these forms: two levels of processing, mindfulness vs mindlessness, and the elaboration likelihood model of persuasion. In essence, Craik and Lockhart
(1972) first noticed that learning is improved if the meaning is processed at the time of encoding, and they proposed that there are two levels of processing for long-term memory: deep processing and shallow processing. Numerous studies have supported this theory, and some have applied the two-level processing concept in tourism contexts (Moscardo & Pearce, 1986; Moscardo, 2009; Frauman & Norman, 2004; Kim & Fesenmaier, 2005; Morosan & Fesenmaier, 2007).

Shallow versus deep processing can be seen as relevant to different stages of a travel experience; firstly, in remembering places to consider (Cohen, Prayag & Moital, 2014; Horner & Swarbrooke, 2004), next in choosing holidays (Barros, Butler & Correia, 2008; Nicolau & Mas, 2005), and then again in post-trip evaluations. Memory is involved in each of the sequential steps used to describe the decision-making process; from identifying items to be placed in the initial consideration set, then to ruling out options from the "total set" to create a "consideration set", and further in the selection from a narrower "choice set" to a final option (Jones & Chen, 2011; Sirakaya & Woodside, 2005). Since tourism offerings are holistic, multi-faceted, and risky to purchase, the decision-making requires extensive time and consideration that creates a high level of involvement in planning and buying holidays (Hawkins, Best & Coney, 1995). By way of contrast, in the post-travel evaluations of a few visited cities, customers are involved in first recalling and then comparing those cities. These processes naturally involve less pressure and perceived risk because a choice has been made, the holiday has been paid for, and tourists are only reporting on their experience (Tversky & Kahneman, 1973; Kahneman & Tversky, 1973). These points thus identify involvement in the evaluation as a key issue shaping how memory is used. Less involvement with the task consequently means more heuristic biases such as order effects, a point which will arguably explain some aspects of the result in this study.

Besides the level of involvement, there are two different types of evaluations based on when the evaluation tasks are required (Hastie & Park, 1986). Some information is likely to be evaluated on the spot, for example, in a talent show where judges have to comment and write down notes about each performer following the performance. This type of evaluation is called online evaluation (it is done on the spot). There are also situations that lead people to evaluate the information at a later point in time, and the individuals are not aware of the evaluation task until then. For instance, a professor who has observed several students' presentations is surprised by an evaluation
task where the department dean later seeks his views of the student work. This type of judgment is called memory-based. In brief, online judgments are mostly independent of long-term memory, whereas memory-based judgments are not. Therefore, more heuristic biases such as the order effects may occur during memory-based evaluations (Bizer, Tormala, Rucker & Petty 2006; Anderson & Hubert 1963; Lichtenstein & Srull, 1987; Kardes & Herr, 1990). The relationship between memory and judgment in memory-based judgments is mostly explained by the availability model, which assumes that memory availability causes judgment (Tversky & Kahneman, 1973). Manipulation of order is the most common feature of experiments in memory-based judgments. The study of tourists' memory-based judgements and the associated order effects are aligned with other common memory-based judgments, synchrony which suggests that strong order effects may be uncovered in destination or tourism entity evaluation tasks.

2.5 Research objectives and hypotheses

Building on the long-standing literature in the fields cited, this work has two key aims: 1) to investigate whether the position of a tourism offering (a destination in this case) in sequence (the order of visits in a travel itinerary) has any strong pattern of effects on the recall of that particular offering, and 2) to examine the order effects on the overall favourability evaluation of destinations. The overall ideas reviewed in the literature, notably the theories of serial position effect and memory-based judgments, direct the hypotheses in this thesis:

**H1** In a multi-destination trip, the destination at the beginning and/or the end is likely to be better remembered than the other destinations (Primacy and/or recency effects in recall).

**H2** In a multi-destination trip, the destination at the beginning and/or the end is likely to be better evaluated than the other destinations (Primacy and/or recency effects in evaluation).
3 Research design and method

This study is designed as a quasi-experiment in a naturally occurring situation measuring natural behaviors (recall and evaluation) of tourists. They provide their responses at the end of their trip and following their multi-city tour experience. Tourists do have different travel itineraries, and the manipulation of visit order (the treatment) follows realistic tour patterns operating in the study context. In this study, the questionnaire was an essential part of the quasi-experimental design and the natural manipulation of the independent variable was captured through the careful recording of itineraries with distinguishing codes added onto the questionnaires.

3.1 Research context

To design a quasi-experiment research with as much control as possible in the natural environment, the following requirements had to be fulfilled:

1) Travel itineraries. The first requirement was a setting where the natural manipulation of the independent variable (the order of visiting the same sets of destinations) was possible. In the chosen context of this study (Iran), the order of visiting four major targeted cities of Shiraz, Isfahan, Tehran and Yazd are naturally varied by various tour operators. Therefore, high credibility and ecological validity were expected to achieve through conducting such research in a real-world context (Dolnicar & Ring, 2014; Juvan & Dolnicar, 2017).

As the purpose of the present research is to know more about the relative role of certain destinations compared to the other destinations in a travel route in regard to the memory they engender, a map of the context country (Iran), including the places tourists typically visit on their first trip to Iran, is presented in Figure 2.

Insert figure 2 here.

2) Packaged tours. The second requirement was a setting where tourists mostly take packaged tours because, in that case, the standard and same level services provided for them can control for the effects of (dis)satisfaction with the utilitarian aspect of their experience on the memory and evaluation of destinations.

There is a uniformity in the kinds of city packaged tours undertaken in Iran. Across the tours, the international tourists follow the same path and use the same
level of accommodation. Further, their interactions and activities are likely to be similar based on a daily plan. The choice of tour packages as the context for this research neatly represents the main variables of interest with a credible level of control for the extraneous factors affecting memory.

3) **First-time visitors.** As the third requirement for the study, it was desirable to have many first-time visitors so that recall and evaluation can be measured without the reactivity effects of previous trip experiences. Multi-destination packaged tours have been the most popular way of travelling for the first-time international tourists (Butler, O'Gorman & Prentice, 2012), therefore, choosing Iran as the study's context fulfilled this criterion.

4) **Uniform destinations.** A setting where the targeted cities (destinations) were from the same category or product type was a further desirable attribute. The effect of visit order cannot be easily examined if the nature of destinations, sites, activities and overall atmosphere of the cities are strikingly diverse. For example, if tourists travel to a coastal city with much time spent on beach and water activities, then a visit to a predominantly historical city compromises the comparison of the memories. The Iranian cities with their relative homogeneity as cultural and historical destinations with parallel richness in history, architecture and art and activities for tourists suit the purpose of the study. This selection made the non-equivalent value of destinations coming from a variety of factors at the city level as controlled as possible for measuring recall and favourability.

### 3.2 Data collection

This section explains the rationale for the content of the questionnaire and the ways data were collected. Professional tour guides working for different tour operators in Iran assisted in the data collection process for this study. The questionnaires were distributed on the last day of the tour. The questionnaire content was brief and in plain, simply worded English. Tourists were not aware that they would be surveyed at the end of their trip. Such an expectation could change the memory-based evaluation process to online (on the spot) evaluation for each destination.

The first section of the questionnaire included some demographic questions, and then the second part included two key questions: What cities did you visit on this trip?
(Name three destinations at least, no order for these cities was required in the instructions), and which city (cities) did you like the best? (Name three destinations at least, in the order they were liked). Cross-reference data about the exact travel itinerary, including the order of destinations, visited, travel length (with the overnight stay details in each destination) as well as travel dates, were given to the researchers by the tour guides. The basis for all the analyses in this research is, therefore, built on the comparison of what tourists actually did (the actual visit itinerary as given to the researcher by the tour guides) and what the tourists remembered they did (the recalled order and evaluation in the questionnaire responses).

During a period of three months (April to June 2017), 17 tour guides facilitated access to their tourists for the survey. In total, 179 tourists responded to both recall and evaluations tasks, therefore, completed the survey correctly. The tourists were from 17 groups with different itineraries, and a combination of visits for the targeted cities of the study (Isfahan, Shiraz, Yazd and Tehran) were achieved. Table 1 shows the variation of the itineraries and the positions of the destinations.

Insert table 1 here
4 Data analysis and results

4.1 Preliminary analysis

From the demographic section of the questionnaire and by cross-referencing data by the tour guides, the following information was extracted. The most common itineraries taken by the tourists had four variations in visiting the combination of the targeted cities of Isfahan, Shiraz, Yazd and Tehran (the natural manipulation of order). The length of trips ranged from 6 to 15 nights. 71% of the respondents were from different European countries, with only a few respondents from Oceania, North America and Africa. Women made up 54% of the total respondents. More than half of the tourists (54%) had considerable travel experience - more than ten international trips. As required, 96% of the total number were visiting Iran for the first time. The mean age of the respondents was 61.

Previous research suggests that the demographic background of tourists, such as gender and age may influence certain aspects of trip memories, such as how social episodes are better recalled by women rather than by men (Pearce, 1981) or how memories of young children differ from adults due to the fewer details they can remember (Hamond & Fivush, 1991). These differences are not, however, relevant to the recall of destinations by naming them, the method used in this study. Therefore, further analyses were not performed on the effects of these items on recall or evaluation of destinations.

4.2 Statistical analysis

The current study combined the external validity of tracking the behavior of actual tourists with the internal validity of using data about travel itineraries. The relatively similar experiences of tour packages on offer helped to control for between tour variations. Some other factors affecting tourists' memory, such as the reactivity effect of prior visits or the differences in services received during the trip, were controlled through the study design. For each hypothesis, the variable "position" is the main independent variable and has been explored once for its relationship with the recall and once with the evaluation as dependent variables in separate procedures. Both hypotheses were tested for the total number of N=179 participants for different one-way tours in Iran.
4.2.1 Recall-position relationship \((H_1)\)

The dependent variable of interest is "recall". Recall is a categorical variable in the form of city names: Isfahan, Shiraz, Yazd, and Tehran. Each city receives a value from one to four. Independent variables are "position" and "city". The position for the city at the beginning of the itinerary is coded as first (1), all the cities that are not at the end or the beginning are labelled as the middle (2), and the city at the end is coded as last (3).

Having one categorical dependent and two categorical independent variables suggest that the binary logistic regression will be the best model to test the hypothesis (Pallant, 2013). For this first test, the reference variables (or the intercepts) were chosen to be the first position and the city of Isfahan. Therefore, these factors are not listed in the regression, and all the other cities' and positions' coefficients should be interpreted as relative to them.

The full model containing all predictors was statistically significant, \(\chi^2 (5, N=716) = 252.29, p <.001\). The model as a whole explained between 29.7\% (Cox and Snell R square) and 45\% (Nagelkerke R square) of the variance in recall and correctly classified 85.2\% of the cases.

Based on Table 2, it can be seen that the city values of Yazd and Tehran are significantly contributing to the model. Compared to Isfahan, the city of Shiraz does not have a significantly different recall, while Yazd and Tehran (both in comparison with Isfahan) have significantly lower recall rates. Therefore, \(H_1\) is accepted in the form of partial serial position effect; Primacy in recall of destinations based on their positions.

Insert Table two here.

4.2.2 Evaluation-position relationship \((H_2)\)

The same SPSS coding and preparation steps as before were followed with "favourability evaluation" as the dependent variable, as well as "position" and "city" as independent variables. Either 0 or 1 were assigned to each of the target destinations every time one of them was chosen in response to the question: which destination did you like the best?. For example, if Shiraz was the most liked destination, Shiraz was assigned 1, Isfahan 0 and Yazd 0. The reference variable for the position was chosen to be the last variable (last position), and the reference for the city variable was selected to be the first variable (the city of Isfahan) for easier interpretations.
**Result:** The full model containing all predictors was statistically significant, $\chi^2 = 278.136$, $p < .001$. The model as a whole explained between 32.2% (Cox and Snell R square) and 48.3% (Nagelkerke R square) of the variance in recall and correctly classified 81.7% of the cases.

Based on Table 3, all the city values and the middle position are significantly contributing to the model. The first position, however, does not have a significant difference to the last position ($p= 0.246$). The overall result for H$_2$ confirms strong recency and (not significantly lower) primacy effect in the favourability evaluation of destinations based on their position in the itinerary.

Insert Table three here
5 Discussion and conclusion

The hypotheses in this study explored two main relationships between visit order and recall as well as order and judgment of destinations. The key findings that emerged from this study reveal that tourists when asked by a simple task, recall the first destination in a sequence better and rate the last destination in the itinerary higher. The achieved results and their connection to the literature are discussed under the following subheadings.

5.1 The existence and nature of position effect in visiting destinations

To the authors’ knowledge, empirical research about order effects in visiting multiple destinations has never been conducted before; therefore, previous literature can only indirectly support or challenge the current result.

The key finding of this study states that order effects do occur in the context of multi-destination visits in the form of primacy in recall as well as recency (and to a lesser extent primacy effects) in judgment. Previous studies in consumer behavior have also found primacy and/or recency in different contexts (Einhorn & Hogarth, 1987; Jones & Goethals, 1972; Kardes & Herr, 1990; Murphy, et al., 2006; Lichtenstein & Srull, 1987). There are a few studies in tourism and hospitality contexts that have shown the dual effects of primacy and recency; for example, for the top and bottom items in hotel booking lists, meal menus and website links in decision-making processes (e.g. Dayan & Bar-Hillel, 2011; Ert & Fleischer, 2014; Murphey et al., 2006; Pan, Hembrooke, Joachims, Lorigo, Gay & Granka, 2007; Pan, Zhang & Law, 2013). These studies presented findings in decision-making and choice, while the current study investigated memorability in the form of recall and evaluation behaviors.

Following the traditions existing in previous position effect studies, suggestions can be made about the possible mechanisms behind the discovered order effects. There is, though, an important consideration that neither this research nor most previous studies were designed to find such mechanisms but to only confirm the existence and nature of the order effects. The inference of causality should also be taken with care as a full exploration of the possible explanations for order effects requires separate studies. Nonetheless, the discussion and explanations offered below are consistent with the results from the data analyses.
5.1.1 Recall and Primacy

The logistic regression analysis in this study revealed that the recall of the first destination is higher than the last and then the middle cities. All the positions compared to the first position had a significantly lower recall.

Some primacy effects in product choice have been suggested to be associated with satisficing principles (Simon, 1957). The fact that some people are satisficers by personality and prefer to quickly and readily pick the first good enough option rather than the optimal choice explains their behavior (Ert & Fleischer, 2014). However, satisficing principles do not apply in this study because tourists were not given a list from which to choose a destination. The satisficing principle - quickly making a choice that will be adequate - may have been at work, but it should be randomly distributed across the cities visited rather than underpinning a primacy effect.

The second set of reasons behind primacy effects mentioned in the free recall literature relates to the first items being in the long-term memory at the time of recall task (Rundus, 1971; Wyer & Srull, 1986). Although it seems plausible, this idea makes better sense for free recall of words when subjects can rehearse the words as they receive and then send them into the long-term memory. In this study, multi-destination visits included two to three overnight stays in each city and the whole sequence of presenting destinations unfolded over a week or two. Therefore, all the destinations had more or less the same advantage of already being in the long-term memory by the time of recall task at the end of the trip.

The more compelling reason behind the first destinations of multi-city tours being recalled first correctly seems to stem from the nature of recall task itself. Tourists were asked "which destinations did you visit?". To respond, it seems that they mindfully tried to recall the sequence of visits based on the actual itinerary although they were not instructed to do so. The recall task created an involvement in thinking as it was visited.

5.1.2 Recency and judgment

It was seen that the middle position, when compared to the last position, had a significantly lower chance of receiving a favorability judgment, while the first position compared to the last one did not show a statistically different likelihood of selection. Therefore, it is concluded that there is a double effect for both recency and then primacy effects in judgment.
Forty-seven percent of the tourists in this study chose the last destination as their favorite destination. This recency in the evaluation may be well explained by the availability heuristic model (Tversky & Kahneman, 1973). Based on the model of Hastie and Park (1986), the evaluations in this study are considered as memory-based because tourists did not know about the survey until the end of their tours. Therefore, they generated memory-based judgments about destinations. The effects of initial processing goal and awareness on the level of involvement and on position effects have been established before (Alba & Hutchinson, 1987; Petty & Cacioppo, 1986; Kahneman et al., 1982, Nisbett & Ross, 1980). When the subjects wait to make a decision after being exposed to all information, memory-based end-of-the-process judgment takes place and recency effects are likely to occur (Kashima & Kerekes, 1994).

Recency in judgment can also be justified by the evaluation task. Previous studies have reported different results for order effects in impression sets, choice sets and memory sets. Primacy is common in impression tasks. Choice tasks have not revealed a clear pattern of order effects, probably because they involve complex integration and differentiation analysis, whereas memory sets have often shown recency effects (Asch, 1946; Haugtvedt & Wegener, 1994; Kardes & Herr, 1990). As the questions in this study were memory tasks, the recency effects found in the context of the destination conforms to this classification.

5.1.3 **Stronger position effects in evaluation compared to recall.**

It was also noticed that the recall question created more apparent mindfulness compared to the evaluation task. This observation is supported by stronger patterns of order effects found in evaluation hypotheses compared to recall counterparts. High primacy in recall translates to higher correct answers by the respondents and somewhat less position-dependent choices. By way of contrast, recency effects show higher position-dependent selections. Therefore, recall compared to evaluation seems to be less susceptible to the heuristic bias of order/position.

The point about different cognitive processes engaging participants with different levels of involvement has been addressed in the literature before (Miller & Krosnick, 1998; Tse & Lee, 2001; Sirakaya & Woodside, 2005). Involvement is defined as an individual's perceived risk with the decision (Arnauld & Price, 1993). As mentioned in 2.4, when consumers are purchasing a tourism product, there is complexity and risk (financial, time and energy) involved with the purchase, whereas
when tourists are recalling or evaluating a trip as good or bad, it is completed, and there is less involvement in the task and consequently more heuristic biases. Previous research with media has also shown evidence for primacy and recency effects often being mediated by the individual's involvement or motivation to think (Murphy et al., 2006). For example, television viewing is a low-involvement activity; therefore, recency effects are common in remembering advertisements (Duncan & Murdock, 2000; Krugman, 1965; Tse & Lee, 2001).
6 Implications and limitations

Theoretical and practical contributions of the results in advancing and stimulating research are as follows.

6.1 Theoretical implications

In general, the study contributes to the knowledge of systematic order patterns in the tourism and hospitality context (e.g., Ert & Fleischer, 2014; Hwang, 2019). More specifically, one of the first and most important contributions of the current work is to operationalize memorability into the two cognitive processes of recall and favourability evaluation. Key implications result from making a distinction between these two cognitive behaviors. Using the term memorability/memorable in conducting surveys that have been the tradition of previous studies about memorable experiences is actually imprecise. It is not clear what cognitive process is exactly measured in that case. Meanwhile, the memory and consumer behavior literature offers a plethora of research efforts about each of these two processes (recall and evaluation) and advocates that they be accessed separately depending on the study context (Lichtenstein & Srull, 1987; Hastie & Park, 1986).

Further, a consideration of real questions in the post-travel surveys conducted by different stakeholders often refers to these processes separately. Therefore, memorability was reconceptualized as the combination of recall and favorability judgment in this research. By employing this operationalization of the term memorability, position effects could be measured clearly, and the result were well supported by the established theories in psychology (serial position effect and memory-based judgments). Defining memorability based on recall and favorability evaluation can arguably have important implications in the design and outcome of memorable tourism experience studies. Foundation MTEs work such as Tung and Ritchie (2011a) as well as Kim, Ritchie and McCormick (2012) and consequently many studies that followed (Chandralal & Valenzuela, 2013; Coelho, et al., 2018; Kim 2014; Kim & Chen, 2018; Park & Santos, 2017; Servidio & Ruffolo, 2016) asked their respondents to recall one of their most memorable travel experiences and explain the reasons why they thought this specific memory was special. Acknowledging the advances in our knowledge owed to these studies, it might be time to define the word memorable more clearly as recall and favorability judgment, and thus more accurately track the cognitive processes that are used to respond to the task.
Finally, the quasi-experimental design of this study attempts to bridge the gap between attitudes and behaviors. Although measuring attitudes, opinions or preferences is not as simple as asking a question, if measured correctly, more credible correlations between these processes and the actual behaviors can be shown (Plous, 1993). Through natural experiments, it is also possible to understand better and explore the mechanisms behind the discrepancy between attitude and behaviors. For example, in this study, the availability heuristic was suggested to be central to probability and frequency of judgment based on position (Plous, 1993; Tversky & Kahneman, 1973). The methods and the study design of this research also respond to the need for further application of experimental and quasi-experimental design in tourism (Dolnicar & Ring, 2014). Measuring actual behaviors also contribute to valid measurements in tourism marketing research (Dolnicar, 2013; Rossiter, 2011). As was the case with the destination evaluation tasks in this work, people are not always aware of the reasons behind their behaviors; rather, they may create responses on the spot if they are asked to explain them. Measuring actual behaviors is, therefore, the best way of understanding these biases (Dolnicar & Ring, 2014).

6.2 Practical implications

The main implication is for the design of tourism and hospitality experiences within the paradigm of the "consumer's journey" over time (Baxendale, Macdonald & Wilson, 2015; Hwang, 2019; Lemon & Verhoef, 2016). There are different types of touch points designed for the consumers to interact in various phases of the experience (before, during and after). Creating these touchpoints has become increasingly more complex and multidimensional. In this research, the sequence of events or, more specifically, the order of visiting destinations over time was conceptualized as an important way to manage touch points and build a better understanding of their arrangements. Therefore, this study directly links to the design principles, particularly those related to the temporal structure of the experiences (Hwang, Xiang, Gretzel & Fesenmaier, 2009; Pearce & Zare, 2017; Schneider & Stickdorn, 2011; Stienmetz & Fesenmaier, 2017; Tussyadiah, 2014; Ye, Tussyadiah & Fesenmaier, 2009; Zare & Pearce, 2018).

The design of tour packages, most of which include multi-city itineraries, is an important task for travel agencies and tour operators (Hwang, 2019; Zare & Pearce, 2018). Armed with the knowledge of position effects, a tour itinerary designer may
want to place an already popular city at the beginning or the end of a tour, thus generating powerful positive feedback for the destinations and for the overall experience. A comprehensive consideration of the order effects, the value of the destinations in a set travel length, customers’ visit history and other background information can further suggest ways in which the optimum positive result in terms of memorability is achieved for the overall trip and individual destinations.

At a larger scale, the role/function of a destination in an itinerary is, most of the time, determined by the point in time in which that destination is visited (Lew & McKercher, 2002). For example, combining the order effect and destinations' role knowledge, managers and planners may choose to boost the recall and evaluation given to a moderately known city (that is usually a touring destination in the middle of an itinerary) by facilitating opportunities for that destination to become hubs and therefore be visited at the beginning or the end of tours. In other words, planning and marketing strategies based on temporal position might ensure more even recall and evaluation for destinations across the span of the tourists' holiday (Zare & Pearce, 2018). Such decisions and strategies might work as remedial and competitive tools for the perceived success of the destinations.

Overall, the way that micro-events within a tourist experience are staged to come one after another can be an important factor shaping the overall or individual service evaluations and influencing customers' memory. (Pearce, 2020; Pearce & Zare, 2017; Stickdorn & Schneider, 2011; Fesenmaier & Xiang, 2017; Zare & Pearce, 2018). Therefore, the researchers may investigate other common post-trip evaluations, such as when tourists think about which attraction, museum or theme park was their favorite among several that they have visited. Such context-specific research then advances the design knowledge for desired involuntary or intentional memory comparisons and evaluations of the services within a trip. The variable role of order in which tourism and hospitality services are presented, consumed or visited also offers opportunities for managing key experiential factors creating memories such as satisfaction, recommendation and revisit.

6.3 Limitations

Some of the main limitations to the current work and its results are summarized as follows. First, conducting quasi-experiments to collect data, although appreciated for
its high external validity (Gribbons & Herman, 1997), comes with compromises in randomization and internal validity. The consistency found in the patterns of position effects (stability of the results) and the relatively large magnitude of them, however, address some of the internal validity concerns related to the randomness (Campbell, 1963). Second, there is no doubt that designing and implementing natural experiments measuring natural behaviors in natural settings provides several difficulties compared to other types of research design (Dolnicar & Ring, 2014). In this study, tourists were not aware of the memory test underpinning the survey to control for their natural behavior in recalling and evaluating destinations. Packaged tours with a standard level of services were also selected as controlled settings. These measures minimized the effects of other influences on memorability and favourability of the destinations; however, the possibility of those factors still playing a role cannot be ruled out. Third, this work has been conducted in one setting, and the diversity inherent in the phenomenon of tourism demands that replications in other countries and for other kinds of tourism cities need to be pursued. Fourth, this study was not designed to find the mechanisms behind the position effects; rather, the explanations offered were tentative and based on the use of theories about cognitive processes of recall and evaluation.
7 References


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Table 1 Itineraries and destinations positions

<table>
<thead>
<tr>
<th>Itinerary on the map</th>
<th>N=179</th>
<th>Itinerary A (42%)</th>
<th>Itinerary B (32%)</th>
<th>Itinerary C (26%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isfahan's position</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Shiraz's position</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Yazd's position</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

Table 2 Logistic regression result showing destination recall-position relationship

<table>
<thead>
<tr>
<th>Predictor</th>
<th>B</th>
<th>S.E.</th>
<th>Wald</th>
<th>df</th>
<th>Sig.</th>
<th>Exp(B)</th>
</tr>
</thead>
<tbody>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shiraz</td>
<td>-0.378</td>
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<td>1.188</td>
<td>1</td>
<td>0.276</td>
<td>0.685</td>
</tr>
<tr>
<td>Yazd</td>
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<td>0.428</td>
<td>5.944</td>
<td>1</td>
<td>0.015</td>
<td>0.352</td>
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<tr>
<td>Tehran</td>
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<td>12.775</td>
<td>1</td>
<td>0.000</td>
<td>0.133</td>
</tr>
<tr>
<td>Position</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Middle position</td>
<td>-4.481</td>
<td>0.529</td>
<td>71.633</td>
<td>1</td>
<td>0.000</td>
<td>0.011</td>
</tr>
<tr>
<td>Last position</td>
<td>-4.166</td>
<td>0.539</td>
<td>59.751</td>
<td>1</td>
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<td>0.016</td>
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<tr>
<td>Constant</td>
<td>2.474</td>
<td>0.548</td>
<td>20.367</td>
<td>1</td>
<td>0.000</td>
<td>11.871</td>
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### Table 3 Logistic regression result showing destination evaluation-position relationship

<table>
<thead>
<tr>
<th>Predictor</th>
<th>B</th>
<th>S.E.</th>
<th>Wald</th>
<th>df</th>
<th>Sig.</th>
<th>Exp(B)</th>
</tr>
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<td>0.005</td>
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<tr>
<td>Position</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>First position</td>
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<tr>
<td>Constant</td>
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<td>0.288</td>
<td>42.065</td>
<td>1</td>
<td>.000</td>
<td>6.481</td>
</tr>
</tbody>
</table>

### Figure 1 Serial position effect curve in free recall (Hilgard, et al., 1967)
Figure 2 Iran’s main cultural cities in a classic tour itinerary.