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A Serious Leisure Perspective of Culinary Tourism Co-Creation: The Influence of Prior Knowledge, Physical Environment, and Service Quality

Abstract

Purpose: Recognising tourists' increasing desire for authentic destination-specific experiences, the hospitality industry has responded by increasing provision of innovative culinary activities. This study uses the concepts of serious leisure and terroir to examine how knowledge, physical environment, and service quality influence co-creation within the culinary tourism context.

Design/methodology/approach: Following cooking class participation, 575 domestic Iranian tourists were surveyed. These educational classes provide opportunities to learn about local foods alongside peers in an interactive setting. Consistent with the benefits of serious leisure, this consumption context could prove conducive to stimulating co-creation.

Findings: Prior knowledge strongly influences tourists' reflective and recreational motives for participation (i.e., the benefits of serious leisure). This shapes how tourists evaluate physical environments and service quality therein; influencing value co-creation and supporting serious leisure as the conceptual lens through which to understand experiential culinary consumption.

Research implications: The proposed conceptual model was tested on domestic tourists following class participation. However, in suggesting that visually-stimulating, tactile premises with olfactory appeal can encourage co-created experiences, the findings are relevant to service touch-point management more generally.

Originality/value: Recognizing the influential role played by the physical and social aspects of experiential consumption, the serious leisure framework improves extant understanding of value co-creation.

Keywords: co-creation; culinary tourism; physical environment; serious leisure; service quality; prior knowledge

1. Introduction

The importance of the social consumption of food and the experiential value of culinary activities are established across hospitality research. Studies suggest that consumer tastes have evolved, underpinned by increased awareness of new flavours and ingredients; alongside a yearning to experience destination-specific culinary heritage (Mak *et al.*, 2012). Thus, driven by a desire to experience ‘real’ representations of place (Taheri *et al.*, 2018) recent years have seen food tourism flourish (Robinson *et al.*, 2018). The hospitality sector has responded in turn, developing innovative offerings in response to tourists’ eagerness to consume authentic, novel, place-appropriate culinary heritage (Boesen *et al.*, 2017). Accordingly, varied food cultures and culinary traditions within host societies can shape tourists’ lived experiences; influencing perceptions of place, decision-making processes, dining choices, and interactions with local hosts (Okumus *et al.*, 2018).

Some destinations are therefore inexorably linked to indigenous cuisine. For example, tourists’ perceptions of destinations with established global culinary heritage (e.g., Italy, France) are influenced by their celebrated gastronomic offerings, with emphasis placed on the quality, maturity, and proficiency of actors and experiences therein (Choe and Kim, 2018). Conversely, in emerging tourist markets characterised by less ubiquitous cuisines, greater emphasis is placed on uniqueness and novelty (Peštek and Činjarević, 2014). Further, culinary tourism can also serve as an anchor for regional development (Hillel *et al.*, 2013; MacKenzie and Gannon, 2019). However, to emphasise the uniqueness of culinary experiences, we draw upon *terroir*. Terroir is predominantly discussed within the context of wine research, where it is described as the unique environment characteristics that influence wine quality and taste (Kruger and Viljoen, 2019). In this study, we argue that the physical and social aspects of terroir can be used to demonstrate the uniqueness and authenticity of local cuisine in emerging

tourist markets. The gastronomic attractiveness of a place is not only contingent on its ability to satisfy tourists' quest for authentic products and activities, but also on convincingly communicating such experiences by linking food, place, and community (Hillel *et al.*, 2013). Therefore, culinary tourism is not solely driven by the quality and variety of food on offer, but also experiential aspects of consumption related to the physical and social characteristics of the 'places' that facilitate leisure activities.

Tourists pursuing serious leisure experiences prioritize interesting and fulfilling activities; particularly those likely to provide opportunities to acquire knowledge (Stebbins, 2007). Thus, culinary experiences can be characterised as serious leisure, given their efficacy in encouraging knowledge and skill development, and exposure to 'experts' in a field, all while developing "unique social worlds around the activity" (Curran *et al.*, 2018, p.1119). The benefits of serious leisure emerge via culinary experiences thanks to both the physical (Kruger and Viljoen, 2019) and social aspects of terroir (Sjölander-Lindqvist *et al.*, 2019). However, this proposition remains untested in hospitality and tourism literature. Culinary experiences involve communal consumption and interaction, where dining atmosphere, service environment quality, and prior knowledge of destination food culture can contribute to the experiential value derived from tourism (Robinson *et al.*, 2018). Accordingly, the hospitality industry has evolved from viewing culinary experiences as passive activities (e.g., serving local cuisine in traditional restaurants) towards recognising their potential as vessels for co-created experiential consumption (Ellis *et al.*, 2018). Consequently, food tours, agri-tourism, cooking retreats, and food festivals have emerged to satiate tourists' desires for more interactive and engaging culinary consumption (Robinson *et al.*, 2018).

Yet, the most popular example of a participative, co-created culinary experience remains 'cooking classes'; where tourists typically learn the history of local dishes, how to identify unusual ingredients, and indigenous cooking techniques, before cooking and

consuming regional food (Agyeiwaah *et al.*, 2019). The verve with which tourists have embraced this opportunity to engage with culinary culture has led to more in-depth offerings, such as tourist-focused ‘cooking schools’ (Walter, 2017), with some destinations primarily recognised for their high-quality experiential cooking classes (Son and Xu, 2013). Yet, while food tourism remains underpinned by the perceived quality and/or novelty of culinary products (e.g., the food), the appeal of cooking classes also stems from their experiential nature (Walter, 2017). For example, cooking classes can showcase all three aspects of gastronomic attractiveness (food, place, and community); demonstrating the intimate link between all three to visitors (Hillel *et al.*, 2013). Accordingly, given their inherently participative design, cooking classes represent natural vessels for co-creation, underpinned by involvement and engagement (Robinson *et al.*, 2018). They thus provide opportunities to engage in serious leisure, where skill and knowledge-development combine with experiential consumption value to encourage involvement (Curran *et al.*, 2018).

Cooking classes thus represent a medium where tourists’ desire to undertake serious leisure (underpinned by learning, interaction, and prior knowledge) can combine with high-quality servicescape design to stimulate co-creation. As such, this study investigates how the interplay between serious leisure, prior culinary knowledge, perceived physical environment quality, and service quality can influence the degree of co-creation from the perspective of domestic tourists in an emerging tourism market: Iran. Domestic tourism contributes significantly to the national economy of Iran (Pezeshki *et al.*, 2019), often concentrated in urban areas and underpinned by a desire to visit friends and relatives, pilgrimage sites, the Caspian Sea, or Kish Island (Seyfi and Hall, 2018). However, given its rich culinary heritage and growing recognition of Persian cuisine, the cooking class setting may proffer further insights into the factors influencing co-creation within the context of domestic tourism.

The contributions of this study are therefore three-fold. First, we demonstrate that the serious leisure concept can be used to understand the drivers stimulating tourist participation in cooking classes. This is underpinned by an investigation of how serious leisure influences perceptions of the service environment, shaping co-creation in the process (**Fig. 1**). As such, we respond to calls for further investigation into the importance of serious leisure within hospitality discourse more generally (Curran *et al.*, 2018). Second, we extend *terroir* (Kruger and Viljoen, 2019) to the cooking class context. In doing so, the study demonstrates that both the physical and social aspects of *terroir* underpin the extent to which tourists perceive experiences as being co-created. Accordingly, we demonstrate that perceptions of physical servicescape and tourists' interactions with others are influenced by prior knowledge and serious leisure, impacting upon co-creation. These concepts have yet to be concurrently evaluated in a theoretical model. Finally, the study provides nascent insight into domestic tourist behaviour in an under-researched context, recognising that culinary experience discourse typically focuses on international tourists and destinations with globally recognised food heritage (e.g., Italy, Thailand).

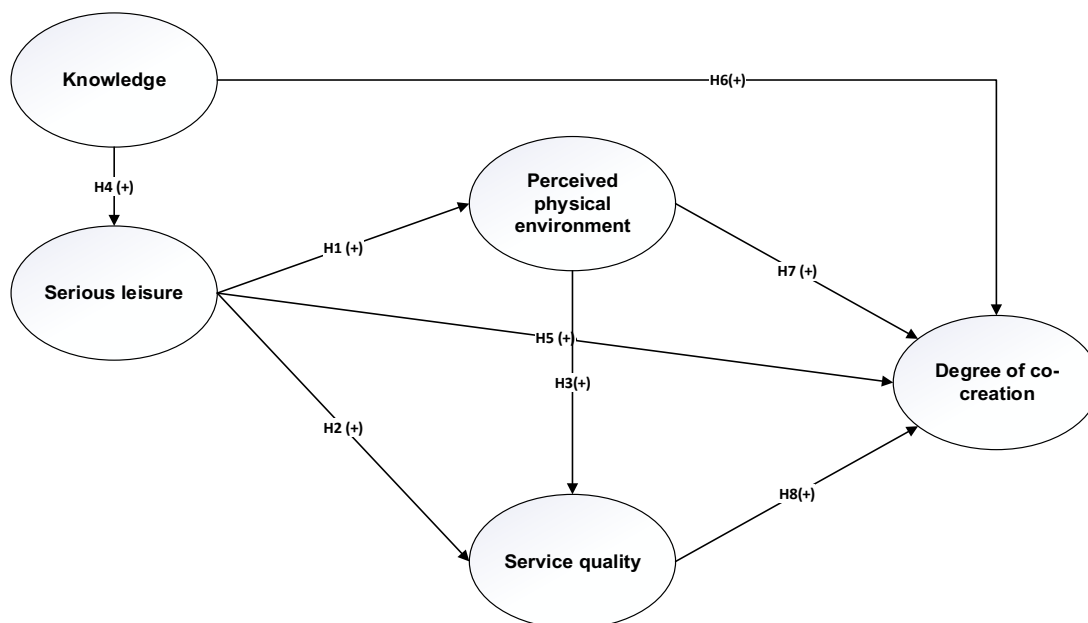


Figure 1. Proposed conceptual model

2. Theoretical background

2.1 *Experiential tourism, terroir and cooking classes*

Experiential tourism holds multiple cognitive, affective, and sensory attributes (Lee *et al.*, 2019), with cooking classes serving as special-interest food-related activities underpinned by tangible physiological (food) and intangible (knowledge-transfer) stimuli. Thus, cooking class delivery can prove complex for service providers, as the importance placed on tangible and intangible aspects differs depending on tourist type and culinary context (Roberts *et al.*, 2014). However, with growing numbers of tourists visiting cookery schools, the need to gain greater understanding of their experiences predicates value creation. Moreover, cooking classes serve as interactive vessels for promoting authentic culinary tourism, offering visitors the opportunity to engage with local culture via food (Hillel *et al.*, 2013). Tourists' derive experiential value from the authentic, interactive nature of cooking classes, with this underpinned by the physical and social aspects of terroir that combine to determine the gastronomic attractiveness of a destination.

Terroir is commonly referred to as the '*taste of place*'. In wine consumption, it is crucial in demonstrating authenticity (Bele *et al.*, 2017); contingent on the provenance of *physical aspects* such as landscape, vegetation, soil quality, and local produce (Kruger and Viljoen, 2019). However, these characteristics shape destination culinary offerings more generally, and may thus be relevant within the cooking class context. Conversely, the interactive value of culinary consumption is underpinned by the *social aspects of terroir*; the practices locals use to add value to physical terroir (Sjölander-Lindqvist *et al.*, 2019). For cooking classes, social terroir refers to joint practices undertaken by hosts and participants, and can include visits to local markets, preparing food, learning traditional cooking techniques, and social practices around eating. Interactions also take place between tourists and local experts (e.g., chefs,

retailers, farmers). As such, cooking classes are characteristically interactive and experiential and may thus embody the physical and social aspects of terroir. Further, experiential value may also emerge from interactions with like-minded peers, and from acquiring new knowledge and skills; stimulating greater understanding of host culture (Agyeiwaah *et al.*, 2019). These interactive social practices around food production and cooking, alongside marketing practices that influence a destination's image, shape the identity of a place and its people, and contribute to visitors' perceptions of experiential value (Marlowe and Bauman, 2019).

Yet, little remains known about how terroir shapes culinary tourism experiences. Its experiential value remains under-researched within the food-tourism interface more generally (Marlowe and Bauman, 2019), with extant studies typically limiting its application to wine tourism and production (Kruger and Viljoen, 2019). We argue that both *physical* and *social terroir* are relevant for understanding the experiential value of cooking classes as they can contribute to the perceived authenticity of culinary tourism activities (Bele *et al.*, 2017). With extant studies prioritising its physical aspects (Kruger and Viljoen, 2019); this study contends that social terroir may instead increase the experiential value that tourists' derive from cooking classes through interaction opportunities with locals. For example, as knowledge is typically shared by local chefs and educators pertaining to local food, environments, culture and identities, opportunities for value creation are significant (Trubek, 2008). Therefore, social interactions may help participants better understand the physical and social aspects of terroir.

2.2 Co-creating value in food-related experiences

Co-created experiences are formed by interactions between collaborative actors, which create mutual value (Luo *et al.*, 2019). Unlike firm-centric paradigms, a collaborative understanding of consumer-firm interactions is prevalent in studies investigating co-created experiences; literature contends that value is created through involvement and engagement, integrating

consumer knowledge into service design. Yet, while tourism studies often concentrate on understanding customer value from the firm's perspective, value generated from tourists can provide more holistic understanding of a firm's value proposition (Wong and Lai, 2019).

However, meeting the expectations of informed culinary tourists can prove challenging. Accordingly, staff quality may predict perceived service quality in the cooking class context, where "staff must be knowledgeable, responsive, friendly, and communicate well" (Wijaya *et al.*, 2017, p.5). Barnes *et al.* (2019) note that consumer perceptions of service quality are closely linked to staff behaviour (e.g., staff being helpful, flexible, and providing personalized service). Nevertheless, few studies expand upon this nascent understanding of value co-creation within culinary service settings.

This study therefore focuses on value developed during co-created culinary tourism experiences. On an individual level, value is created during the "process of interactions and transactions occurring between tourists and tourism service providers...during moments of contact in which both are involved" (Buonincontri *et al.*, 2017, p.266). Customers engage in co-creation with service providers and peers in various ways, depending on activity type (Roberts *et al.*, 2014). An individual's desire to engage in co-creation can be attributed to many factors, including their consumption motives, which can be influenced by their self- or others-orientation and may have social, economic, hedonic, and/or altruistic antecedents (Etgar, 2008).

2.3 A Serious Leisure Perspective on Experiential Value

From a serious leisure perspective, cooking classes can serve as consumption milestones; participants undertake such experiences to learn and develop skills in an area of 'serious' interest to them (Scott, 2012). Stebbins (2007) argues that serious leisure tourism stimulates the development of tastes (e.g., food), the acquisition of specialised knowledge (e.g., culinary

knowledge), or the development of specific skills (e.g., how to cook). This is consistent with Taheri *et al.* (2014), who argue that hospitality and tourism activities serve as vehicles for serious leisure when emphasis is placed on engagement, interaction, learning, and participation. Accordingly, cooking classes can be characterised as activities “that people find so substantial, interesting, and fulfilling that...they launch themselves on...acquiring and expressing a combination of special skills, knowledge, and experience" (Stebbins, 2007, p.5).

In contrast to casual leisure activities (e.g., shopping), Curran *et al.* (2018) argue that two key dimensions underpin serious leisure: reflective and recreational. The reflective dimension includes one’s reflections on oneself, one’s own knowledge, and one’s identity. The recreational dimension encompasses enjoyment of an activity. Subsequently, participants’ during- and post-experience expectations differentiate casual and serious leisure. Through serious leisure activities, participants gain ‘long-lasting and deeper’ personal values (e.g., self-enrichment and self-actualization) alongside the formation of group identity (Cohen-Gewerc and Stebbins, 2013; Scott, 2012). Understanding why serious leisure seekers engage in activities is therefore important, as antecedent stimulants vary and can lead to different outcomes. For example, Lee and Hwang (2018) demonstrate that education, personal enrichment, self-expression, and self-gratification drive participation in serious leisure activities. This study thus proposes that participation in cooking classes can be considered engagement in a serious leisure activity.

3. Hypothesis Development

3.1 *Effect of Serious Leisure on Perceived Physical Environment and Service Quality*

Within the experiential cooking class context, serious leisure can be categorized based on its reflective and recreational significance (Curran *et al.*, 2018). The reflective dimension includes developing one's knowledge base, sharing prior knowledge, self-actualization, and identity-development. In contrast, 'recreation' centres on the experience itself, including the enjoyment derived from participation in an activity (Taheri *et al.*, 2014). The physical environment an activity occurs within appeals to the sensory dimensions of perceived experiential value (Taheri *et al.*, 2019), which provides immediate, tangible cues from which to appraise one's experiences (Smith *et al.*, 2010). Studies demonstrate that physical environments are crucial within the domain of food tourism, generating value when novel, clean, and appealing to all of the customers' senses (Adongo *et al.*, 2015).

Yet, while the physical environment's influence on food-related experiential value is recognized (Ryu *et al.*, 2012), few studies discuss how antecedent desires shape tourists' perceptions within this context. From a serious leisure perspective, cooking classes serve as multi-sensory experiences, with this influencing assessment of the physical environment. Thus, the need to satisfy tourists' desire to undertake serious leisure activities, alongside the visual, tactile, and olfactory stimulus of the physical environment, may influence the experiential value derived from culinary consumption. Therefore:

H1: There is a positive relationship between serious leisure and perceptions of the physical environment.

Consumers' perceptions of service quality are characterized by their "judgment about a product's overall excellence or superiority" (Zeithaml, 1988, p.3); critical in evaluating

culinary tourism experiences (Muskat *et al.*, 2019). Customers assess service quality relative to their prior expectations and the subsequent performance of service providers. Serious leisure remains a key determinant of expectations, influencing perceptions of service quality (McCabe *et al.*, 2007). Yet, antecedents to service quality in food-related tourism activities must be understood in a manner consistent with the activity and setting (Henderson, 2009). Serious leisure within this context is complex. Per Woo (2017), consumers seeking serious leisure tend to be more engaged and demonstrate different behaviours than casual leisure seekers. Accordingly, cooking class participants may be more likely to seek both the reflective and recreational dimensions of serious leisure (Taheri *et al.*, 2014), shaping their expectations, behaviours, and perceptions of service quality (Henderson, 2009). Therefore:

H2: There is a positive relationship between serious leisure and perceptions of service quality.

3.2 Effect of Perceived Physical Environment on Service Quality

Service quality is also dependent on how consumers perceive the physical environment (Hungenberg *et al.*, 2019). In hospitality, the physical environment provides important consumption cues, which can stimulate positive consumer responses and increase experiential value (Taheri *et al.*, 2019). From a serious leisure perspective, participants may expect to gain knowledge from cooking class experiences (Taheri *et al.*, 2014). As such, learning theory can be used to explain the effects of the physical environment on service quality perceptions, with emphasis placed on how aesthetics shape learning (Kokkos, 2010). During transformative adult learning experiences (e.g., cooking classes), reflective thinking and sense-making are contingent upon the atmospherics of the environment (Mezirow and Taylor, 2009).

Thus, consistent with serious leisure, aesthetically appealing environments are critical in stimulating the reflective, affective, and imaginative dimensions of learning (Kokkos, 2010).

Participants may therefore use service quality as a surrogate for evaluating the cognitive aspects of learning, while using pleasant service environments to evaluate the affective and imaginative dimensions of learning (Kokkos, 2010). As such, pleasant service environments can stimulate higher perceived service quality. Accordingly:

H3: A positive perception of the physical environment has a positive relationship with service quality.

3.3 Effect of Knowledge on Serious Leisure

Prior knowledge influences consumer expectations, buying behaviour, and engagement in co-creation processes (Im and Qu, 2017). Feeling ‘knowledgeable’ allows consumers to act more efficiently; making better-informed decisions. Knowledgeable customers feel in control, and hold higher self-efficacy, competency, and a greater ability to manage complicated tasks. Meuter *et al.* (2005) suggest knowledge positively influences engagement, with knowledgeable consumers exhibiting greater role clarity and ability to participate in co-created experiences.

For cooking class participants, sharing and acquiring knowledge is a key driver of consumption; acquiring new knowledge, novelty-seeking and experiencing ‘unusual’ foods and service environments can encourage tourists to seek out culinary experiences when travelling (Peštek and Činjarević, 2014). Adongo *et al.* (2015, p.57) consider this the need to seek “cultural, educational, novelty, hedonism–meaningfulness, and adverse experiences”. The cognitive aspect of novelty-seeking combines with the affective dimension of socializing to drive culinary consumption (Smith *et al.*, 2010). The interactive cooking class environment may also contribute to knowledge sharing, with participants acquiring new information while also sharing their own expertise. This echoes Taheri *et al.* (2014), as sharing one’s own knowledge and expertise drives self-actualization, which stimulates positive feelings. Therefore:

H4: Knowledge has a positive relationship with serious leisure.

3.4 Effect of Serious Leisure on Co-creation

Cooking classes are distinctive; they require greater participant engagement than traditional dining experiences (Ellis *et al.*, 2018). The relationship between serious leisure and the degree of co-creation within the cooking class context can be understood from a serious leisure perspective. This consumption experience requires tourists to engage with co-participants and providers, undertaking the functional task of cooking and sharing their own knowledge while learning about the history and heritage of local foods (Ellis *et al.*, 2018).

Tourists participating in serious leisure activities seek to develop skills and knowledge (Stebbins, 2007). Through such activities, participants develop an appreciation of service setting aesthetics alongside social relationships with other participants (Curran *et al.*, 2018). Serious leisure seekers tend to take part in activities because they want to align with a group in ways that those undertaking casual leisure activities do not (Cohen-Gewerc and Stebbins, 2013). In contrast to other food-related tourist activities (e.g., restaurant visits), cooking classes require tourists to immerse themselves, be more active, and interact during consumption (Walter, 2017). Thus, tourists' level of desire to engage in serious leisure may predict the extent to which they engage in co-creation (Grissmann and Stokburger-Sauer, 2012). Cooking classes rely upon the degree of co-creation between tourist and provider, with the required level of co-creation higher when compared to conventional culinary experiences. Accordingly, co-created experiences that facilitate provider-participant relationship building offer a better sense of belonging, fun and enjoyment, and stimulate greater physical and emotional engagement (Etgar, 2008; Mathis *et al.*, 2016). Subsequently:

H5: Serious leisure has an effect on co-creation.

3.5 Effect of Knowledge on Co-creation

Willingness to engage with service providers in the co-creation process is influenced by various antecedents (Buonincontri *et al.*, 2017). For example, prior knowledge influences consumer expectations, buying behaviours, and disposition to engage in co-creation (Meuter *et al.*, 2005). Im and Qu (2017) suggest that customers endowed with greater knowledge and self-efficacy are more likely to participate in service co-creation. For cooking classes, serious leisure is likely to be related to knowledge sharing and a willingness to co-create experiences. Thus, to satisfy tourists' desire for serious leisure, cooking classes must offer opportunities to share their own knowledge with others while providing avenues to learn from peers (Storey and Larbig, 2018). Knowledge sharing stimulates participant thinking, fosters creativity and personal growth, and provides opportunities to reflect on one's personal identity (Ballantyne and Varey, 2006). Thus:

H6: Customer knowledge is positively related to co-creation.

The perceived physical environment is another antecedent of co-creation. Physical environments can either encourage or hinder customer engagement and willingness to co-create (Mathis *et al.*, 2016). For food-related activities, the physical environment can elicit positive emotions and increase experiential value (Ryu *et al.*, 2012). Thus, for cooking classes, an engaging physical environment encouraging interaction can provide the environmental cues required to stimulate sensory feelings (Kivela and Crofts, 2006). By designing appealing interiors and managing olfactory stimulus on-site, service providers can inspire co-creation. Thus:

H7: Perceived physical environment has a positive effect on the degree of co-creation.

Perceptions of service quality can impact upon tourists' willingness to engage in co-creation activities with service providers and other participants. The perceived quality of cooking class experiences can be enhanced through the interactive delivery of preparing, cooking, eating, and sharing knowledge about food. Consumers may perceive higher levels of service quality if employees are friendly, responsive, knowledgeable, and demonstrate subject-specific knowledge (Wijaya *et al.*, 2017). These qualities may influence the interactive nature of service delivery and consumers' willingness to co-create. Therefore:

H8: Service quality has a positive effect on the degree of co-creation.

4. Methodology

4.1 Study context

The proposed model (**Figure 1**) is assessed within the context of regional Iranian cuisine. Only 61% of Iran's population are Persian, with sizable Azerbaijani, Turkmen, Kurdish, and Jewish minority communities. Geographically, Iran reflects this; located between Central Asia and the Middle East. As such geographical and ethnic diversity influence cooking styles and dishes (Oktay and Sadikoglu, 2018). Yet, derived from a rich heritage of agricultural food processing, wine cultivation, and maintenance of orchards and gardens, Iranian cuisine has many rice-based dishes, uses dried fruits as key ingredients, and is known for regional breads prepared by diverse ethnic groups (Karizaki, 2017). We focus on domestic tourism for several reasons. *First*, given the current sanctions against Iran, international tourist numbers have dwindled leaving the industry reliant on domestic travellers (Taheri, Gannon and Kesgin, 2019). *Second*, studies into Iranian domestic tourism often focus on urban areas, pilgrimage sites, and holidays to the Caspian Sea (Seyfi and Hall, 2018); overlooking regional offerings.

Third, interactive cookery classes demonstrating the nuances of Iranian cuisine have grown in recent years (ITTO, 2020). Major cities (e.g., Tehran, Isfahan, Tabriz) have prioritized developing interactive cooking classes in order to promote local culinary heritage to domestic travellers (ITTO, 2020). Thus, this study contends that domestic tourist participation in Iranian cookery classes serves as a context worthy of greater attention.

4.2 Sample and data collection

Data was collected from those attending three cooking classes, each offering similar experiences, within a major Iranian city. All had travelled from elsewhere in Iran and are thus domestic tourists. Participants attended these classes to learn about regional cuisine alongside peers in an interactive setting; a core antecedent of a desire to co-create. At the participants' request, identifiable information is anonymised. A self-administrated, face-to-face questionnaire was employed. This questionnaire used back-translation to avoid language errors, and was checked by native academics fluent in Farsi *and* English. A pilot study was used to check questionnaire statements prior to data collection. The questionnaire was developed based on conversational interviews and an extensive literature review. Fifteen customers per class were interviewed to identify factors influencing the degree of co-creation experienced within the cooking classes, minimising common method bias (CMB).

As data was collected from a single-source, CMB required further verification; participant anonymity was assured and dependent and independent variables were located in different parts of the questionnaire. Further, Harman's one factor test was employed. The findings of the unrotated exploratory factor analysis detected six factors with eigenvalues >1 , explaining 74.13% of total variance, with the first factor showing 41.87% ($<50\%$ suggested value); thus CMB was not violated. The questionnaire was reviewed by three local academics to ensure face validity. Based on their comments, changes were made to increase statement

clarity. G*Power was used to calculate minimum sample size based on power analysis (Faul *et al.*, 2009). To achieve a power of 0.95 for the proposed framework, G*Power indicated a minimum sample of 138. Overall, 575 usable questionnaires were collected over 3-months in 2018. Regarding participant age, 23% were 18-25, 53% were 26-40, and 24% were 41+. Overall, 58% of respondents were female.

4.3 Measures

To ensure content validity, all items and measures were adapted from previous studies: knowledge (3-items) and physical environment (3-items) (Im and Qu, 2017), service quality (3-items) (Jung *et al.*, 2017), and degree of co-creation (4-items) (Grissemann and Stokburger-Sauer, 2012). Serious leisure (higher-order) was underpinned by two dimensions: reflective (4-items) and recreational (4-items). These were revised from Taheri *et al.* (2014) and Curran *et al.* (2018). MacKenzie *et al.* (2005, p.715) argue that higher-order measurements represent “the conceptual distinctions that the researcher believes are important...the most powerful means of testing and evaluating the construct”. Participants were invited to indicate their agreement/disagreement with statements using a 5-point Likert-type scale (“1=strongly disagree”; “5=strongly agree”). **Table 1** presents all items under each measure.

Table 1. Measurement model and descriptive statistics.

Construct/Underlying Items	t-value	Standard loading	Mean	SD	Skewness	Kurtosis
Step 1: Results of the assessment of measurement model for first-order constructs						
<i>Reflective dimension</i>						
(CR=0.87; ρ_A =0.84; α =0.8; AVE ^a =0.56)						
Attending this cooking class helps me to express who I am	13.59	0.66	4.11	1.07	-1.24	-1.86
Attending this cooking class allows me to display my knowledge and expertise on certain cooking subjects	30.17	0.81	3.89	1.12	1.14	-1.79
Attending this cooking class has a positive effect on how I feel about myself	8.77	0.79	4.12	1.32	-0.10	-0.61

Attending this cooking class allows me to interact with others who are interested in the same things as me	9.78	0.69				-2.48	-1.03
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Recreational dimension

(CR=0.81; ρ A=0.83; α =0.78;AVE^a=0.55)

Attending this cooking class is a lot of fun	12.76	0.71	4.20	1.39	-4.09	-2.80
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I get a lot of satisfaction from attending this cooking class	16.89	0.66	3.69	1.54	3.14	-3.96
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I find attending this cooking class a refreshing experience	30.23	0.89	4.05	1.45	-2.62	-3.40
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Attending this cooking class is an enriching experience	18.78	0.72	3.83	1.12	-4.01	-1.95
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Knowledge(CR=0.8; ρ A=0.83; α =0.80;AVE^a=0.61)

I know a lot about food production, cooking, and delivery processes	20.49	0.71	3.89	1.65	2.06	-0.30
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I know a lot about how to judge the quality of food, cooking, and service delivery processes	18.57	0.68	3.27	1.09	2.13	-2.66
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Compared with an average person, I think I know more about food production, cooking ,and service delivery processes	19.89	0.77	4.11	1.58	1.46	-0.30
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Service

quality(CR=0.83; ρ A=0.85; α =0.81;AVE^a=0.66)

I believe that the general service quality of the cooking class is high.	16.57	0.85	3.27	1.65	3.69	-3.27
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Overall, I consider the cooking class service to be excellent.	18.89	0.81	3.25	1.30	2.80	1.76
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The quality of the cooking class service is generally excellent.	12.08	0.83	4.11	1.01	-1.24	-2.49
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Perceived physical environment

(CR=0.8; ρ A=0.91; α =0.86;AVE^a=0.71)

This cooking class has a pleasant atmosphere.	15.13	0.73	3.78	1.23	-2.11	-2.55
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The location of this cooking class was clean.	40.02	0.71	3.88	1.27	-1.30	-1.51
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The location of this cooking class was attractive.	31.00	0.88	3.21	1.09	-2.28	-3.66
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Degree of co-creation

(CR=0.84; ρ A=0.85; α =0.81;AVE^a=0.73)

I have been actively involved in preparing for this class.	17.05	0.76	3.73	1.60	-1.81	3.22
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I have used my experience from previous training to prepare for this class.	19.07	0.73	4.11	1.48	-1.61	-2.31
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The idea of how to arrange this class was suggested by me.	37.09	0.79	4.78	1.39	-3.73	4.11
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I have spent a considerable amount of time preparing for this class.	31.07	0.84	4.17	1.22	-2.33	-2.81
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Step 2: Results of the assessment of measurement model after generating second-order construct

(serious leisure)

(CR=0.8; ρ A=0.81; α =0.8;AVE^b=0.66;VIF=1.38)

Reflective(CW=0.94)	27.02	0.72
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Recreational(CW=0.95)	30.29	0.77
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Note: Significant at t -value>1.96 at p -value<0.05; t -value>2.57 at p -value<0.01; t -value>3.29 at p -value<0.001. α =Cronbach's alpha;CR=composite reliability; ρ A=Dijkstra-Henseler's rho;AVE^a=average variance

extracted; AVE^b= percentage of variance of indicator explained by the latent variable; CW=correlational weights of first-order construct on second-order construct; VIF= the variance inflation factor.

4.4 Statistical procedure

Partial least squares structural equation modelling (PLS-SEM) was used to assess the research model. It offers vigorous findings for data with both normal and non-normal distributional properties (Hair *et al.*, 2014). Skewness and kurtosis were identified for all questionnaire statements (acceptable from -3 to +3) (Mardia, 1970). Results showed the assumption of normality was questioned; thus PLS-SEM is appropriate (**Table 1**). PLS-SEM can be used for reflective, formative, and higher-order modes. Serious leisure was measured in higher-order mode. SmartPLS 3.2.4 (5,000 resamples) facilitated measurement and structural model testing (Ringle *et al.*, 2014).

5. Results

5.1 Measurement model

Following a two-stage approach, serious leisure was established as a second-order composite construct. Six reflective exogenous and one composite endogenous constructs were assessed. To evaluate the measurement model in PLS-SEM, several tests were used. To test indicator reliability, construct reliability, and the convergent validity of the measurement model, outer loadings of associated items for each reflective construct, weights of the second-order construct, composite reliability (CR), Dijkstra-Henseler's rho (ρ_A), Cronbach's Alpha (α), AVE^a=average variance extracted, and AVE^b= percentage of variance of indicator explained by the latent variable (Hair *et al.*, 2010) were measured for each reflective first-order and second-order construct. The loading and weights must be >0.7 , $CR > 0.7$, $\alpha > 0.6$, $\rho_A > 0.7$, and the AVE^a or AVE^b > 0.5 to establish reliability and convergent validity (Hair *et al.*, 2010).

Loadings and weights >0.5 and <0.7 remain acceptable if CR and AVE values meet the threshold (Hair *et al.*, 2010). **Table 1** shows indicator reliability, construct reliability, and convergent validity for the data collected.

Discriminant validity was established via two tactics. First, per Fornell and Larcker (1981), the square root of the AVE for each first-order and second-order construct surpassed the value of their respective correlations (**Table 2**). Correlations among all first-order constructs were <0.70 ; hence were suitably distinct. Second, Henseler *et al.*'s (2015) discriminant validity approach based on the multitrait-multimethod matrix, to test discriminant validity using heterotrait–monotrait (HTMT) ratio of correlations, was used. Using HTMT, discriminant validity was achieved; all $HTMT_{0.85}$ criterion values (ranging 0.44-0.63) were below the threshold (0.85). Thus, discriminant validity was established.

Table 2. Correlation matrix

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1)Service quality	0.81						
(2)Degree of co-creation	0.41	0.85					
(3)Serious leisure	0.63	0.43	n/a				
(4)Knowledge	0.58	0.41	0.51	0.78			
(5)Perceived physical environment	0.51	0.56	0.55	0.51	0.84		
(6)Reflective	0.58	0.67	0.60	0.55	0.60	0.74	
(7)Recreational	0.54	0.34	0.60	0.57	0.46	0.48	0.74

Note: Square root of AVE (**diagonal**); Serious leisure is absent as this construct was operationalised as a higher-order model, with AVEs only relevant to its dimensions.

5.2 Structural model and key findings

Variance inflation factor (VIF) values were identified to establish collinearity. Per **Table 1**, all VIF values were below the threshold (5) (Hair *et al.*, 2010), suggesting that structural model collinearity was not an issue. Prior to assessing hypotheses, effect sizes (f^2), predictive relevance (Q^2) and Standardized Root Mean Square Residuals (SRMR) were calculated

(Henseler *et al.*, 2015). Cohen's f^2 indicates 0.01 (small), 0.06 (medium), and 0.14 (large) effects using SEM. **Table 3** indicates f^2 for significant direct paths within the model. Most direct paths demonstrate medium or large f^2 for direct relationships. Following the blindfolding procedure, Q^2 indicates how well data can be reconstructed empirically using the model and PLS-SEM parameters. All Q^2 values are >0 . Therefore, Q^2 values for endogenous variables hold predictive relevance. The model SRMR value was 0.068; lower than Henseler *et al.*'s (2015) recommended value (0.08).

The model explains 32% of serious leisure, 45% of perceived physical quality, 35% of service quality, and 52% of co-creation. Per **Table 3**, serious leisure demonstrated a direct relationship with perceived physical environment ($\beta=0.55, t=21.06$) and service quality ($\beta=0.43, t=12.41$). Physical environment had a direct relationship with service quality ($H3: \beta=0.33, t=11.82$); and knowledge was directly related to serious leisure ($H4: \beta=0.37, t=12.11$). Finally, serious leisure ($H5: \beta=0.29, t=8.29$), knowledge ($H6: \beta=0.43, t=17.29$), physical environment ($H7: \beta=0.53, t=8.28$) and service quality ($H8: \beta=0.66, t=34.28$) had direct relationships with degree of co-creation.

Table 3. Effect size (direct paths)

Direct Paths	Path coefficient	<i>P</i> value	f^2	Effect size	Supported?
Serious leisure → Perceived physical environment	0.55	$p < 0.001$	0.24	Large	Supported
Serious leisure → Service quality	0.43	$p < 0.001$	0.17	Large	Supported
Perceived physical environment → Service quality	0.33	$p < 0.001$	0.11	Medium	Supported
Knowledge → Serious leisure	0.37	$p < 0.001$	0.05	Small	Supported
Serious leisure → Degree of co-creation	0.29	$p < 0.001$	0.09	Medium	Supported
Knowledge → Degree of co-creation	0.43	$p < 0.001$	0.12	Medium	Supported
Perceived physical environment → Degree of co-creation	0.53	$p < 0.001$	0.14	Medium	Supported
Service quality → Degree of co-creation	0.66	$p < 0.001$	0.26	Large	Supported

5.3 Post-hoc analysis of indirect effects

Mediation analysis was conducted via bootstrapping (Williams and MacKinnon, 2008). A 95% confidence interval (CI) of parameter estimates (5,000 resamples) was employed. The results show serious leisure indirectly affects degree of co-creation through perceived physical environment (indirect effect=0.21; $t=8.33$; $p<0.001$;CI=[0.17, 0.26]). As the direct effect was significant, perceived physical environment partly mediates the impact of serious leisure on degree of co-creation. The findings also indicate that serious leisure influences degree of co-creation through service quality (indirect effect=0.28; $t=10.22$; $p<0.001$;CI=[0.24, 0.33]).

6. Discussion and Conclusions

6.1 Conclusions

This study evaluates a model of co-creation and its antecedents in the context of domestic Iranian culinary tourism, arguing that serious leisure and terroir (physical and social) can explain the relationships between prior knowledge, physical environment, service quality, and degree of co-creation in cooking class experiences. Recognizing the physical and social aspects of terroir, the findings illustrate how prior culinary knowledge and serious leisure shape cooking class participation and co-creation. We thus demonstrate the potential links between food, place, and local community that enhance the gastronomic attractiveness of destinations as suggested by Hillel *et al.* (2013).

Previous research into serious leisure (Curran *et al.*, 2018) argues that while participants engage in activities for enjoyment (recreational dimension), some also seek to develop new skills, express or reaffirm self-identity, and socialize with likeminded individuals (reflective dimension). Our model extends culinary tourism literature by showing that domestic cooking

class tourists value both the recreational and reflective benefits of serious leisure, driven by pre-existing knowledge of food production and consumption. During cooking classes, perceptions of the physical and social aspects of the experience influence co-creation. The physical environment enables co-creation by providing tangible evidence of the physical aspects of terroir, whereas interactions with local chefs, educators, and peers contribute to service quality while increasing participant understanding of the social aspects of terroir. Accordingly, our model confirms the importance of serious leisure, service quality, and the physical environment in shaping co-creation.

6.2 Theoretical implications

The findings confirm that a desire to develop skills and the opportunity to display one's cooking knowledge impacts upon how tourists evaluate the tangible cooking class environment. Supporting **H1**, a positive relationship was found between serious leisure and the perceived physical environment. This suggests that opportunities for tourists to express themselves through cooking, the social experience, and associated fun and enriching activities therein influence the perceived attractiveness of premises. Seeking to express one's self-identity while experiencing something enjoyable and fun, domestic tourists use the perceived quality of the premises as a surrogate to assess the extent to which the experience is co-created. Therefore, the evaluation of physical terroir within the cooking class environment is shaped by considerations pertaining to serious leisure. This extends the concept of terroir from wine tourism literature (Sjölander-Lindqvist *et al.*, 2019) to the cooking class context by highlighting how serious leisure influences perceptions of the physical environment, stimulating experiential value from participation.

The positive relationship between serious leisure and service quality (**H2**) attests to the importance of interaction within cooking classes. As both recreational and reflective

dimensions influence perceptions of service quality, the ability to augment one's culinary knowledge via an enriching experience may encourage tourists to interact with others. This allows them to understand the social aspects of terroir while evaluating the experience (Taheri *et al.*, 2018). Interaction with locals provides opportunities to share practices around food preparation and consumption; contributing to the authenticity of cooking class experiences (Hillel *et al.*, 2013). When such interactions take place between tourists and local experts (e.g., chefs, farmers, educators), there is an opportunity to showcase and reinforce the social aspects of terroir, developing destination attractiveness. This is unsurprising given food tourism is often driven by the pursuit of authenticity (Boesen *et al.*, 2017) and service quality impacts perceived experiential value (Robinson *et al.*, 2018). This echoes studies that suggest that physical environment and service quality shape experiential value (Kivela and Crotts, 2006), but we extend this by demonstrating that prior culinary knowledge and motives of participation are critical antecedents to co-creation.

Prior studies demonstrate the impact of positive evaluations of the physical environment on service quality perceptions (Hungenberg *et al.*, 2019). Per **H3**, a similar relationship emerges within cooking classes. The attractiveness, cleanliness, and atmosphere of the premises influence perceptions of service excellence, communicating the physical and social aspects of terroir. Likewise, knowledge of food culture influences the experiential value derived from food tourism (Robinson *et al.*, 2018). This study shows the positive influence of previous knowledge of food production, cooking, and delivery processes consistent with the serious leisure view of culinary tourism (**H4**). Participants actively seek to extend this knowledge, demonstrating their own expertise to others in the process. This desire to display one's identity and skills, alongside opportunities for self-development, complement the traditional motives of learning and socialization associated with experiential tourism (Gannon *et al.*, 2017).

Yet, serious leisure seekers are not solely driven by skill acquisition and socialization (Cohen-Gewerc and Stebbins, 2013). In co-created experiences, the presence of others fosters relationship building and group identity (Gannon, Taheri and Olya, 2019). Per **H5**, the reflective and recreational dimensions of serious leisure drive tourists to engage in cooking classes. This can positively impact their pursuit of co-created experiences. The findings suggest that tourists who participate in cooking classes are therefore willing to actively prepare for the class and make suggestions about how to improve the experience. Thus, acquiring and sharing knowledge becomes embedded in this form of experiential consumption, confirming cooking classes as important vessels for co-creation (Agyeiwaah *et al.*, 2019).

Further, prior culinary knowledge positively impacts on the extent to which tourists seek co-creation opportunities (**H6**). Cognitive aspects of an experience (e.g., knowledge and learning) can act as enablers, stimulating engagement (Cordina *et al.*, 2019; Storey and Larbig, 2018). In the cooking class context, the greater a tourist's knowledge of food production, cooking, and delivery processes, the greater their desire for co-created experiences. This echoes studies suggesting higher levels of knowledge increase consumer participation in co-created experiences (Im and Qu, 2017). As the physical environment can also stimulate sensory experiences (Kivela and Crotts, 2006), it is unsurprising that a positive relationship between perceived physical environment quality and degree of co-creation emerged (**H7**). Attractive premises increase tourists' willingness to co-create, extending findings from alternative contexts (Mathis *et al.*, 2016). Finally, this study demonstrates that a tourist's desire to co-create experiences is positively influenced by their perceptions of service quality (**H8**). Having quality concerns at the forefront of service delivery can enhance the experience for tourists and stimulate their desire to engage in co-creation. Previous studies have suggested this, albeit with little empirical evidence (Wijaya *et al.*, 2017).

6.3 Practical implications

The model developed and tested in this study has several practical implications with respect to designing and managing cooking classes. It suggests that participants seek various outcomes ranging from knowledge acquisition and sharing, developing positive perceptions of self, and having an enjoyable time. This implies that industry managers should embrace co-creation in order to better-fulfil participant desires. As participants' prior culinary knowledge shapes their expectations, extending tourists' knowledge of regional cuisines can be achieved in several ways. Our findings suggest that prioritizing the communication of the physical and social aspects of terroir underpins this. This echoes Hillel *et al.*'s (2013) suggestion that the attractiveness of gastronomic destinations is contingent upon demonstrating the link between cuisine, place, and local community.

The findings emphasize the importance of the physical environment and service quality as touchpoints when delivering interactive cooking experiences. Co-creation emerges in environments that are carefully designed to be attractive. The findings thus encourage industry managers to design premises that are visually stimulating, tactile, and hold olfactory appeal in order to improve tourists' perceptions of the potential for co-creation therein. Given the importance of interaction with others, those offering cooking classes should train staff on the terroir related to local cuisine and ways to improve interaction quality; emphasising narratives and storytelling in order to deliver experiences that demonstrate how co-created cooking classes can embody the combined physical and social terroir of regional culinary heritage.

The findings also have broader implications for hospitality education in Iran. By opening the door for students and staff to engage with tourists through cooking classes, these institutions could develop a distinct image and reputation underpinned by quality and authenticity. Increasing domestic tourist interest in cooking classes offers opportunities for hospitality schools to generate additional revenue in times of economic sanctions. These schools can meaningfully contribute to a better understanding of regional cooking practices by

sharing traditional skills with visitors, contributing to cultural understanding in the process. Hospitality schools can use this opportunity to revive traditional cooking techniques and teach participants a combination of traditional and contemporary Iranian culinary practices.

6.4 Limitations and future research

The study extends extant literature by highlighting how prior culinary knowledge and serious leisure combine to influence tourists' perceptions of experience quality, alongside their willingness to co-create culinary consumption. However, it is not without limitations. First, the proposed model was tested on tourists participating in three cooking classes. These cooking classes represent only one type of culinary experiences offered to tourists in Iran. Future studies should test the proposed model on tourists undertaking other participative culinary experiences. Second, while we used the concept of terroir (physical and social aspects) as the theoretical lens for explaining some of our findings, this concept was not explicitly measured. Future studies should measure how physical and social aspects of terroir directly influence co-creation and other experiential aspects of the cooking class. Third, all participants were domestic tourists, implying some familiarity with Iranian cooking practices. Future studies should investigate international tourists visiting Iran, collecting data from participants with different experience and knowledge levels, before testing the model across alternate locales. Finally, perceived quality is assessed using two constructs: the quality of (i) the physical environment and (ii) services offered therein. Future studies could also incorporate assessments of *food* quality as third dimension of perceived quality.

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