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

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1 Prayag, G., Gannon, M., Muskat, B., & Taheri, B. (2020). A Serious Leisure Perspective  
2 of Culinary Tourism Co-Creation: The Influence of Prior Knowledge, Physical  
3 Environment, and Service Quality, *International Journal of Contemporary Hospitality*  
4 *Management*.

5  
6 **Abstract**

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

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

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

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

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

28 **Keywords:** co-creation; culinary tourism; physical environment; serious leisure; service  
29 quality; prior knowledge  
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## 53 1. Introduction

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

65 Some destinations are therefore inexorably linked to indigenous cuisine. For example,  
66 tourists’ perceptions of destinations with established global culinary heritage (e.g., Italy,  
67 France) are influenced by their celebrated gastronomic offerings, with emphasis placed on the  
68 quality, maturity, and proficiency of actors and experiences therein (Choe and Kim, 2018).  
69 Conversely, in emerging tourist markets characterised by less ubiquitous cuisines, greater  
70 emphasis is placed on uniqueness and novelty (Peštek and Činjurević, 2014). Further,  
71 culinary tourism can also serve as an anchor for regional development (Hillel *et al.*, 2013;  
72 MacKenzie and Gannon, 2019). However, to emphasise the uniqueness of culinary  
73 experiences, we draw upon *terroir*. Terroir is predominantly discussed within the context of  
74 wine research, where it is described as the unique environment characteristics that influence  
75 wine quality and taste (Kruger and Viljoen, 2019). In this study, we argue that the physical  
76 and social aspects of terroir can be used to demonstrate the uniqueness and authenticity of  
77 local cuisine in emerging tourist markets. The gastronomic attractiveness of a place is not  
78 only contingent on its ability to satisfy tourists’ quest for authentic products and activities,  
79 but also on convincingly communicating such experiences by linking food, place, and  
80 community (Hillel *et al.*, 2013). Therefore, culinary tourism is not solely driven by the  
81 quality and variety of food on offer, but also experiential aspects of consumption related to  
82 the physical and social characteristics of the ‘places’ that facilitate leisure activities.

83 Tourists pursuing serious leisure experiences prioritize interesting and fulfilling  
84 activities; particularly those likely to provide opportunities to acquire knowledge (Stebbins,  
85 2007). Thus, culinary experiences can be characterised as serious leisure, given their efficacy  
86 in encouraging knowledge and skill development, and exposure to ‘experts’ in a field, all  
87 while developing “unique social worlds around the activity” (Curran *et al.*, 2018, p.1119).  
88 The benefits of serious leisure emerge via culinary experiences thanks to both the physical  
89 (Kruger and Viljoen, 2019) and social aspects of terroir (Sjölander-Lindqvist *et al.*, 2019).  
90 However, this proposition remains untested in hospitality and tourism literature. Culinary  
91 experiences involve communal consumption and interaction, where dining atmosphere,  
92 service environment quality, and prior knowledge of destination food culture can contribute  
93 to the experiential value derived from tourism (Robinson *et al.*, 2018). Accordingly, the  
94 hospitality industry has evolved from viewing culinary experiences as passive activities (e.g.,  
95 serving local cuisine in traditional restaurants) towards recognising their potential as vessels  
96 for co-created experiential consumption (Ellis *et al.*, 2018). Consequently, food tours, agri-  
97 tourism, cooking retreats, and food festivals have emerged to satiate tourists’ desires for more  
98 interactive and engaging culinary consumption (Robinson *et al.*, 2018).

99 Yet, the most popular example of a participative, co-created culinary experience  
100 remains ‘cooking classes’; where tourists typically learn the history of local dishes, how to  
101 identify unusual ingredients, and indigenous cooking techniques, before cooking and  
102 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).

## FIG. 1

### 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

153 experiential value from the authentic, interactive nature of cooking classes, with this  
154 underpinned by the physical and social aspects of terroir that combine to determine the  
155 gastronomic attractiveness of a destination.

156 *Terroir* is commonly referred to as the ‘*taste of place*’. In wine consumption, it is  
157 crucial in demonstrating authenticity (Bele *et al.*, 2017); contingent on the provenance of  
158 *physical aspects* such as landscape, vegetation, soil quality, and local produce (Kruger and  
159 Viljoen, 2019). However, these characteristics shape destination culinary offerings more  
160 generally, and may thus be relevant within the cooking class context. Conversely, the  
161 interactive value of culinary consumption is underpinned by the *social aspects of terroir*; the  
162 practices locals use to add value to physical terroir (Sjölander-Lindqvist *et al.*, 2019). For  
163 cooking classes, social terroir refers to joint practices undertaken by hosts and participants,  
164 and can include visits to local markets, preparing food, learning traditional cooking  
165 techniques, and social practices around eating. Interactions also take place between tourists  
166 and local experts (e.g., chefs, retailers, farmers). As such, cooking classes are  
167 characteristically interactive and experiential and may thus embody the physical and social  
168 aspects of terroir. Further, experiential value may also emerge from interactions with like-  
169 minded peers, and from acquiring new knowledge and skills; stimulating greater  
170 understanding of host culture (Agyeiwaah *et al.*, 2019). These interactive social practices  
171 around food production and cooking, alongside marketing practices that influence a  
172 destination’s image, shape the identity of a place and its people, and contribute to visitors’  
173 perceptions of experiential value (Marlowe and Bauman, 2019).

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

## 187 2.2 Co-creating value in food-related experiences

188 Co-created experiences are formed by interactions between collaborative actors, which create  
189 mutual value (Luo *et al.*, 2019). Unlike firm-centric paradigms, a collaborative understanding  
190 of consumer-firm interactions is prevalent in studies investigating co-created experiences;  
191 literature contends that value is created through involvement and engagement, integrating  
192 consumer knowledge into service design. Yet, while tourism studies often concentrate on  
193 understanding customer value from the firm’s perspective, value generated from tourists can  
194 provide more holistic understanding of a firm’s value proposition (Wong and Lai, 2019).

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

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

### 211 *2.3 A Serious Leisure Perspective on Experiential Value*

212 From a serious leisure perspective, cooking classes can serve as consumption milestones;  
213 participants undertake such experiences to learn and develop skills in an area of ‘serious’  
214 interest to them (Scott, 2012). Stebbins (2007) argues that serious leisure tourism stimulates  
215 the development of tastes (e.g., food), the acquisition of specialised knowledge (e.g., culinary  
216 knowledge), or the development of specific skills (e.g., how to cook). This is consistent with  
217 Taheri *et al.* (2014), who argue that hospitality and tourism activities serve as vehicles for  
218 serious leisure when emphasis is placed on engagement, interaction, learning, and  
219 participation. Accordingly, cooking classes can be characterised as activities “that people find  
220 so substantial, interesting, and fulfilling that...they launch themselves on...acquiring and  
221 expressing a combination of special skills, knowledge, and experience” (Stebbins, 2007, p.5).

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

## 235 **3. Hypothesis Development**

### 236 *3.1 Effect of Serious Leisure on Perceived Physical Environment and Service Quality*

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

247 Yet, while the physical environment’s influence on food-related experiential value is  
248 recognized (Ryu *et al.*, 2012), few studies discuss how antecedent desires shape tourists’  
249 perceptions within this context. From a serious leisure perspective, cooking classes serve as  
250 multi-sensory experiences, with this influencing assessment of the physical environment.  
251 Thus, the need to satisfy tourists’ desire to undertake serious leisure activities, alongside the

252 visual, tactile, and olfactory stimulus of the physical environment, may influence the  
253 experiential value derived from culinary consumption. Therefore:

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

256 Consumers' perceptions of service quality are characterized by their "judgment about  
257 a product's overall excellence or superiority" (Zeithaml, 1988, p.3); critical in evaluating  
258 culinary tourism experiences (Muskat *et al.*, 2019). Customers assess service quality relative  
259 to their prior expectations and the subsequent performance of service providers. Serious  
260 leisure remains a key determinant of expectations, influencing perceptions of service quality  
261 (McCabe *et al.*, 2007). Yet, antecedents to service quality in food-related tourism activities  
262 must be understood in a manner consistent with the activity and setting (Henderson, 2009).  
263 Serious leisure within this context is complex. Per Woo (2017), consumers seeking serious  
264 leisure tend to be more engaged and demonstrate different behaviours than casual leisure  
265 seekers. Accordingly, cooking class participants may be more likely to seek both the  
266 reflective and recreational dimensions of serious leisure (Taheri *et al.*, 2014), shaping their  
267 expectations, behaviours, and perceptions of service quality (Henderson, 2009). Therefore:

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

### 270 *3.2 Effect of Perceived Physical Environment on Service Quality*

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

280 Thus, consistent with serious leisure, aesthetically appealing environments are critical  
281 in stimulating the reflective, affective, and imaginative dimensions of learning (Kokkos,  
282 2010). Participants may therefore use service quality as a surrogate for evaluating the  
283 cognitive aspects of learning, while using pleasant service environments to evaluate the  
284 affective and imaginative dimensions of learning (Kokkos, 2010). As such, pleasant service  
285 environments can stimulate higher perceived service quality. Accordingly:

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

### 288 *3.3 Effect of Knowledge on Serious Leisure*

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

296 For cooking class participants, sharing and acquiring knowledge is a key driver of  
297 consumption; acquiring new knowledge, novelty-seeking and experiencing 'unusual' foods  
298 and service environments can encourage tourists to seek out culinary experiences when  
299 travelling (Peštek and Činjarević, 2014). Adongo *et al.* (2015, p.57) consider this the need to  
300 seek "cultural, educational, novelty, hedonism—meaningfulness, and adverse experiences".  
301 The cognitive aspect of novelty-seeking combines with the affective dimension of socializing

302 to drive culinary consumption (Smith *et al.*, 2010). The interactive cooking class environment  
303 may also contribute to knowledge sharing, with participants acquiring new information while  
304 also sharing their own expertise. This echoes Taheri *et al.* (2014), as sharing one's own  
305 knowledge and expertise drives self-actualization, which stimulates positive feelings.  
306 Therefore:

307 **H4:** Knowledge has a positive relationship with serious leisure.

#### 308 *3.4 Effect of Serious Leisure on Co-creation*

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

315 Tourists participating in serious leisure activities seek to develop skills and  
316 knowledge (Stebbins, 2007). Through such activities, participants develop an appreciation of  
317 service setting aesthetics alongside social relationships with other participants (Curran *et al.*,  
318 2018). Serious leisure seekers tend to take part in activities because they want to align with a  
319 group in ways that those undertaking casual leisure activities do not (Cohen-Gewerc and  
320 Stebbins, 2013). In contrast to other food-related tourist activities (e.g., restaurant visits),  
321 cooking classes require tourists to immerse themselves, be more active, and interact during  
322 consumption (Walter, 2017). Thus, tourists' level of desire to engage in serious leisure may  
323 predict the extent to which they engage in co-creation (Grissemann and Stokburger-Sauer,  
324 2012). Cooking classes rely upon the degree of co-creation between tourist and provider, with  
325 the required level of co-creation higher when compared to conventional culinary experiences.  
326 Accordingly, co-created experiences that facilitate provider-participant relationship building  
327 offer a better sense of belonging, fun and enjoyment, and stimulate greater physical and  
328 emotional engagement (Etgar, 2008; Mathis *et al.*, 2016). Subsequently:

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

#### 330 *3.5 Effect of Knowledge on Co-creation*

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

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

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



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

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

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

## 361 **4. Methodology**

### 362 *4.1 Study context*

363 The proposed model (**Figure 1**) is assessed within the context of regional Iranian  
364 cuisine. Only 61% of Iran's population are Persian, with sizable Azerbaijani, Turkmen,  
365 Kurdish, and Jewish minority communities. Geographically, Iran reflects this; located  
366 between Central Asia and the Middle East. As such geographical and ethnic diversity  
367 influence cooking styles and dishes (Oktay and Sadikoglu, 2018). Yet, derived from a rich  
368 heritage of agricultural food processing, wine cultivation, and maintenance of orchards and  
369 gardens, Iranian cuisine has many rice-based dishes, uses dried fruits as key ingredients, and  
370 is known for regional breads prepared by diverse ethnic groups (Karizaki, 2017). We focus  
371 on domestic tourism for several reasons. *First*, given the current sanctions against Iran,  
372 international tourist numbers have dwindled leaving the industry reliant on domestic  
373 travellers (Taheri, Gannon and Kesgin, 2019). *Second*, studies into Iranian domestic tourism  
374 often focus on urban areas, pilgrimage sites, and holidays to the Caspian Sea (Seyfi and Hall,  
375 2018); overlooking regional offerings. *Third*, interactive cookery classes demonstrating the  
376 nuances of Iranian cuisine have grown in recent years (ITTO, 2020). Major cities (e.g.,  
377 Tehran, Isfahan, Tabriz) have prioritized developing interactive cooking classes in order to  
378 promote local culinary heritage to domestic travellers (ITTO, 2020). Thus, this study  
379 contends that domestic tourist participation in Iranian cookery classes serves as a context  
380 worthy of greater attention.

### 381 *4.2 Sample and data collection*

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

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

401 *et al.*, 2009). To achieve a power of 0.95 for the proposed framework, G\*Power indicated a  
402 minimum sample of 138. Overall, 575 usable questionnaires were collected over 3-months in  
403 2018. Regarding participant age, 23% were 18-25, 53% were 26-40, and 24% were 41+.  
404 Overall, 58% of respondents were female.

#### 405 4.3 Measures

406 To ensure content validity, all items and measures were adapted from previous studies:  
407 knowledge (3-items) and physical environment (3-items) (Im and Qu, 2017), service quality  
408 (3-items) (Jung *et al.*, 2017), and degree of co-creation (4-items) (Grissmann and  
409 Stokburger-Sauer, 2012). Serious leisure (higher-order) was underpinned by two dimensions:  
410 reflective (4-items) and recreational (4-items). These were revised from Taheri *et al.* (2014)  
411 and Curran *et al.* (2018). MacKenzie *et al.* (2005, p.715) argue that higher-order  
412 measurements represent “the conceptual distinctions that the researcher believes are  
413 important...the most powerful means of testing and evaluating the construct”. Participants  
414 were invited to indicate their agreement/disagreement with statements using a 5-point Likert-  
415 type scale (“1=strongly disagree”; “5=strongly agree”). **Table 1** presents all items under each  
416 measure.

### 417 TABLE 1

#### 418 4.4 Statistical procedure

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

## 427 5. Results

### 428 5.1 Measurement model

429 Following a two-stage approach, serious leisure was established as a second-order composite  
430 construct. Six reflective exogenous and one composite endogenous constructs were assessed.  
431 To evaluate the measurement model in PLS-SEM, several tests were used. To test indicator  
432 reliability, construct reliability, and the convergent validity of the measurement model, outer  
433 loadings of associated items for each reflective construct, weights of the second-order  
434 construct, composite reliability (CR), Dijkstra-Henseler's rho ( $\rho_A$ ), Cronbach's Alpha ( $\alpha$ ),  
435  $AVE^a$ =average variance extracted, and  $AVE^b$ = percentage of variance of indicator explained  
436 by the latent variable (Hair *et al.*, 2010) were measured for each reflective first-order and  
437 second-order construct. The loading and weights must be  $>0.7$ ,  $CR > 0.7$ ,  $\alpha > 0.6$ ,  $\rho_A > 0.7$ , and  
438 the  $AVE^a$  or  $AVE^b > 0.5$  to establish reliability and convergent validity (Hair *et al.*, 2010).  
439 Loadings and weights  $>0.5$  and  $<0.7$  remain acceptable if CR and AVE values meet the  
440 threshold (Hair *et al.*, 2010). **Table 1** shows indicator reliability, construct reliability, and  
441 convergent validity for the data collected.

442 Discriminant validity was established via two tactics. First, per Fornell and Larcker  
443 (1981), the square root of the AVE for each first-order and second-order construct surpassed  
444 the value of their respective correlations (**Table 2**). Correlations among all first-order  
445 constructs were  $<0.70$ ; hence were suitably distinct. Second, Henseler *et al.*'s (2015)  
446 discriminant validity approach based on the multitrait-multimethod matrix, to test  
447 discriminant validity using heterotrait-monotrait (HTMT) ratio of correlations, was used.  
448 Using HTMT, discriminant validity was achieved; all  $HTMT_{0.85}$  criterion values (ranging  
449 0.44-0.63) were below the threshold (0.85). Thus, discriminant validity was established.

### 450 TABLE 2

451 5.2 Structural model and key findings

452 Variance inflation factor (VIF) values were identified to establish collinearity. Per **Table 1**,  
453 all VIF values were below the threshold (5) (Hair *et al.*, 2010), suggesting that structural  
454 model collinearity was not an issue. Prior to assessing hypotheses, effect sizes ( $f^2$ ), predictive  
455 relevance ( $Q^2$ ) and Standardized Root Mean Square Residuals (SRMR) were calculated  
456 (Henseler *et al.*, 2015). Cohen's  $f^2$  indicates 0.01 (small), 0.06 (medium), and 0.14 (large)  
457 effects using SEM. **Table 3** indicates  $f^2$  for significant direct paths within the model. Most  
458 direct paths demonstrate medium or large  $f^2$  for direct relationships. Following the  
459 blindfolding procedure,  $Q^2$  indicates how well data can be reconstructed empirically using the  
460 model and PLS-SEM parameters. All  $Q^2$  values are  $>0$ . Therefore,  $Q^2$  values for endogenous  
461 variables hold predictive relevance. The model SRMR value was 0.068; lower than Henseler  
462 *et al.*'s (2015) recommended value (0.08).

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

471 **TABLE 3**

472 5.3 Post-hoc analysis of indirect effects

473 Mediation analysis was conducted via bootstrapping (Williams and MacKinnon, 2008). A  
474 95% confidence interval (CI) of parameter estimates (5,000 resamples) was employed. The  
475 results show serious leisure indirectly affects degree of co-creation through perceived  
476 physical environment (indirect effect=0.21; $t=8.33; p<0.001; CI=[0.17, 0.26]$ ). As the direct  
477 effect was significant, perceived physical environment partly mediates the impact of serious  
478 leisure on degree of co-creation. The findings also indicate that serious leisure influences  
479 degree of co-creation through service quality (indirect effect=0.28; $t=10.22; p<0.001; CI=[0.24,$   
480  $0.33]$ ).

481 **6. Discussion and Conclusions**

482 6.1 Conclusions

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

491 Previous research into serious leisure (Curran *et al.*, 2018) argues that while  
492 participants engage in activities for enjoyment (recreational dimension), some also seek to  
493 develop new skills, express or reaffirm self-identity, and socialize with likeminded  
494 individuals (reflective dimension). Our model extends culinary tourism literature by showing  
495 that domestic cooking class tourists value both the recreational and reflective benefits of  
496 serious leisure, driven by pre-existing knowledge of food production and consumption.  
497 During cooking classes, perceptions of the physical and social aspects of the experience  
498 influence co-creation. The physical environment enables co-creation by providing tangible  
499 evidence of the physical aspects of terroir, whereas interactions with local chefs, educators,  
500 and peers contribute to service quality while increasing participant understanding of the

501 social aspects of terroir. Accordingly, our model confirms the importance of serious leisure,  
502 service quality, and the physical environment in shaping co-creation.

### 503 *6.2 Theoretical implications*

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

517 The positive relationship between serious leisure and service quality (**H2**) attests to  
518 the importance of interaction within cooking classes. As both recreational and reflective  
519 dimensions influence perceptions of service quality, the ability to augment one's culinary  
520 knowledge via an enriching experience may encourage tourists to interact with others. This  
521 allows them to understand the social aspects of terroir while evaluating the experience  
522 (Taheri *et al.*, 2018). Interaction with locals provides opportunities to share practices around  
523 food preparation and consumption; contributing to the authenticity of cooking class  
524 experiences (Hillel *et al.*, 2013). When such interactions take place between tourists and local  
525 experts (e.g., chefs, farmers, educators), there is an opportunity to showcase and reinforce the  
526 social aspects of terroir, developing destination attractiveness. This is unsurprising given food  
527 tourism is often driven by the pursuit of authenticity (Boesen *et al.*, 2017) and service quality  
528 impacts perceived experiential value (Robinson *et al.*, 2018). This echoes studies that suggest  
529 that physical environment and service quality shape experiential value (Kivela and Crofts,  
530 2006), but we extend this by demonstrating that prior culinary knowledge and motives of  
531 participation are critical antecedents to co-creation.

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

544 Yet, serious leisure seekers are not solely driven by skill acquisition and socialization  
545 (Cohen-Gewerc and Stebbins, 2013). In co-created experiences, the presence of others fosters  
546 relationship building and group identity (Gannon, Taheri and Olya, 2019). Per **H5**, the  
547 reflective and recreational dimensions of serious leisure drive tourists to engage in cooking  
548 classes. This can positively impact their pursuit of co-created experiences. The findings  
549 suggest that tourists who participate in cooking classes are therefore willing to actively  
550 prepare for the class and make suggestions about how to improve the experience. Thus,

551 acquiring and sharing knowledge becomes embedded in this form of experiential  
552 consumption, confirming cooking classes as important vessels for co-creation (Agyeiwaah *et*  
553 *al.*, 2019).

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

### 569 *6.3 Practical implications*

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

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

590 The findings also have broader implications for hospitality education in Iran. By  
591 opening the door for students and staff to engage with tourists through cooking classes, these  
592 institutions could develop a distinct image and reputation underpinned by quality and  
593 authenticity. Increasing domestic tourist interest in cooking classes offers opportunities for  
594 hospitality schools to generate additional revenue in times of economic sanctions. These  
595 schools can meaningfully contribute to a better understanding of regional cooking practices  
596 by sharing traditional skills with visitors, contributing to cultural understanding in the  
597 process. Hospitality schools can use this opportunity to revive traditional cooking techniques  
598 and teach participants a combination of traditional and contemporary Iranian culinary  
599 practices.

### 600 *6.4 Limitations and future research*

601 The study extends extant literature by highlighting how prior culinary knowledge and serious  
602 leisure combine to influence tourists' perceptions of experience quality, alongside their  
603 willingness to co-create culinary consumption. However, it is not without limitations. First,  
604 the proposed model was tested on tourists participating in three cooking classes. These  
605 cooking classes represent only one type of culinary experiences offered to tourists in Iran.  
606 Future studies should test the proposed model on tourists undertaking other participative  
607 culinary experiences. Second, while we used the concept of terroir (physical and social  
608 aspects) as the theoretical lens for explaining some of our findings, this concept was not  
609 explicitly measured. Future studies should measure how physical and social aspects of terroir  
610 directly influence co-creation and other experiential aspects of the cooking class. Third, all  
611 participants were domestic tourists, implying some familiarity with Iranian cooking practices.  
612 Future studies should investigate international tourists visiting Iran, collecting data from  
613 participants with different experience and knowledge levels, before testing the model across  
614 alternate locales. Finally, perceived quality is assessed using two constructs: the quality of (i)  
615 the physical environment and (ii) services offered therein. Future studies could also  
616 incorporate assessments of *food* quality as third dimension of perceived quality.  
617

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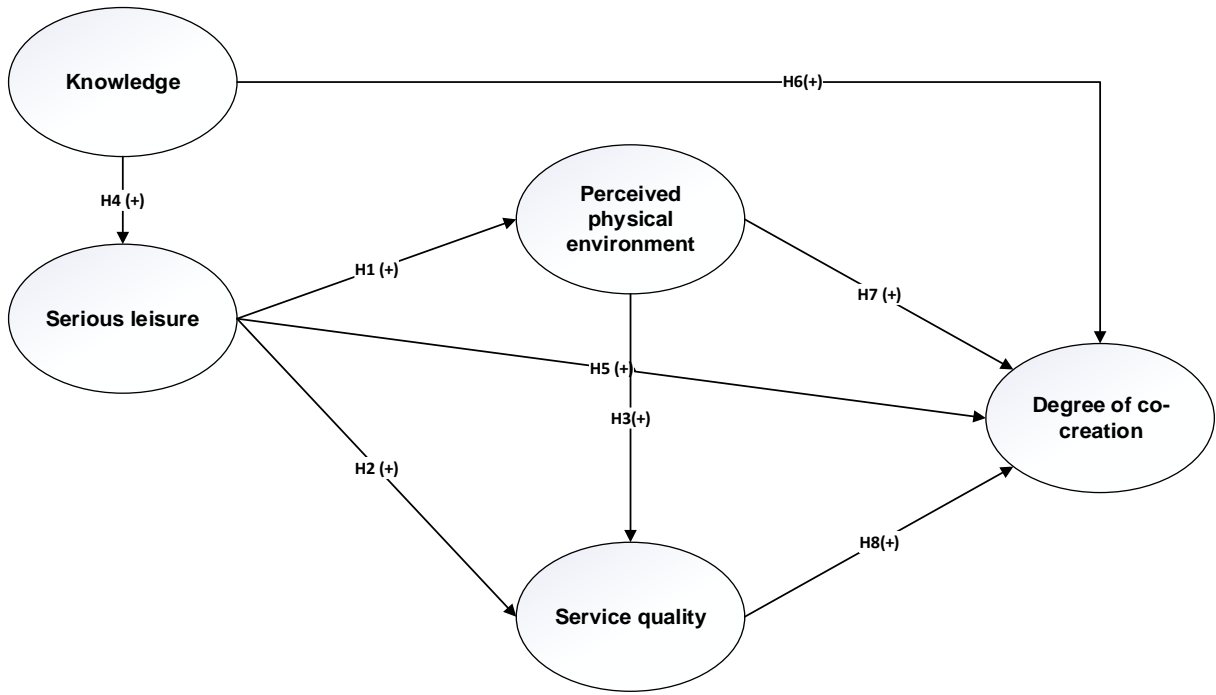
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**Figure 1.** Proposed conceptual model

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**Table 1.** Measurement model and descriptive statistics.

Construct/Underlying Items	<i>t</i> -value	Standard loading	Mean	SD	Skewness	Kurtosis
<b>Step 1: Results of the assessment of measurement model for first-order constructs</b>						
<i>Reflective dimension</i>						
(CR=0.87;ρA=0.84;α=0.8;AVE <sup>a</sup> =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
<i>Recreational dimension</i>						
(CR=0.81;ρA=0.83;α=0.78;AVE <sup>a</sup> =0.55)						
Attending this cooking class is a lot of fun	12.76	0.71	4.20	1.39	-4.09	-2.80
I get a lot of satisfaction from attending this cooking class	16.89	0.66	3.69	1.54	3.14	-3.96
I find attending this cooking class a refreshing experience	30.23	0.89	4.05	1.45	-2.62	-3.40
Attending this cooking class is an enriching experience	18.78	0.72	3.83	1.12	-4.01	-1.95
<i>Knowledge</i> (CR=0.8;ρA=0.83;α=0.80;AVE <sup>a</sup> =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
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
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
<i>Service quality</i> (CR=0.83;ρA=0.85;α=0.81;AVE <sup>a</sup> =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
Overall, I consider the cooking class service to be excellent.	18.89	0.81	3.25	1.30	2.80	1.76
The quality of the cooking class service is generally excellent.	12.08	0.83	4.11	1.01	-1.24	-2.49
<i>Perceived physical environment</i>						
(CR=0.8;ρA=0.91;α=0.86;AVE <sup>a</sup> =0.71)						
This cooking class has a pleasant atmosphere.	15.13	0.73	3.78	1.23	-2.11	-2.55
The location of this cooking class was clean.	40.02	0.71	3.88	1.27	-1.30	-1.51
The location of this cooking class was attractive.	31.00	0.88	3.21	1.09	-2.28	-3.66
<i>Degree of co-creation</i>						
(CR=0.84;ρA=0.85;α=0.81;AVE <sup>a</sup> =0.73)						
I have been actively involved in preparing for this class.	17.05	0.76	3.73	1.60	-1.81	3.22
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
The idea of how to arrange this class was suggested by me.	37.09	0.79	4.78	1.39	-3.73	4.11
I have spent a considerable amount of time preparing for this class.	31.07	0.84	4.17	1.22	-2.33	-2.81

**Step 2: Results of the assessment of measurement model after generating second-order construct (serious leisure)**

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(CR=0.8; $\rho$ A=0.81; $\alpha$ =0.8;AVE<sup>b</sup>=0.66;VIF=1.38)

Reflective(CW=0.94) 27.02 0.72

Recreational(CW=0.95) 30.29 0.77

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835 **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.  
836  $\alpha$ =Cronbach's alpha;CR=composite reliability; $\rho$ A=Dijstra-Henseler's rho;AVE<sup>a</sup>=average variance  
837 extracted;AVE<sup>b</sup>= percentage of variance of indicator explained by the latent variable;CW=correlational weights  
838 of first-order construct on second-order construct;VIF= the variance inflation factor.

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842 **Table 2.** Correlation matrix

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

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

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847 **Table 3.** Effect size (direct paths)

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

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