

Music to my lips: Effects of musical tempo on the coffee drinking experience

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Abstract

A study was designed to investigate the influence of music tempo on lone coffee drinkers' experience in a coffee shop. The study (N=400) was a single-blind randomised experiment conducted at a specialty coffee shop. The results demonstrate that music in the background, regardless of the tempo, induced a positive experience in those coffee drinkers who may have been motivated by utilitarian (weekday) vs. hedonic (weekend) needs. Specifically, slow tempo music on weekdays led to intentions to re-purchase coffee. Furthermore, customers lingered for longer in the coffee shop on weekends when slow tempo music was playing. These findings, and the implications for future research, are discussed in light of the current literature on environment congruency, motivations and consumer behaviour.

27 Introduction

28 Coffee has become an integral part of daily life in many countries and continues to thrive as one of
29 the most consumed beverages globally (Statista, 2024b). Although consumption of instant coffee far
30 outweighs premium roast coffee consumption in Malaysia, there is nevertheless a noteworthy
31 upward trend for specialty coffee (Knowledge Sourcing Intelligence, 2024; Statista, 2024a). In
32 Malaysia alone, revenue from the coffee market is projected to reach US\$9 million in 2024; and the
33 market is expected to grow further, with consumers consistently seeking out unique and high-
34 quality coffee experiences (Statista, 2024a). In fact, Malaysia is currently ranked third among 58
35 countries in the Asia Pacific region with the biggest spike in coffee consumption (Yuen, 2023).

36 The consumption of coffee can be considered a hedonic experience as it provides moments of
37 pleasure and represents a lifestyle choice. To other consumers, however, coffee addresses a
38 utilitarian need, with caffeine acting as a mental and physical stimulant (Desmet & Schifferstein,
39 2008; Hsu & Hung, 2005; Labbe et al., 2015). The consumption of coffee during weekdays is likely
40 to be of functional value, providing drinkers with a ‘kick’, while consumption during the weekends
41 might well represent more of a hedonic experience (Ágoston et al., 2018; Bhumiratana et al., 2014;
42 Desmet & Schifferstein, 2008; Lanfranchi et al., 2016). Meanwhile, the rise of coffee shops taking
43 on the role of an alternative place to work has led to emergence of the term ‘coffice’
44 (<https://www.theguardian.com/money/shortcuts/2014/jan/05/coffice-future-of-work>). This popular
45 new work environment enables people to work individually or meet with others over coffee in a less
46 formal environment than a traditional office (Ofita, 2024). Hence, one might say that the quality of
47 the coffee in-and-of itself might sometimes only be of secondary importance.

48 Drinking coffee can be an emotional experience, one that is influenced by store atmospherics: The
49 smell of the freshly-ground coffee, the cafe’s colour scheme, the sound of coffee preparation, the
50 background music, and the taste and mouthfeel of the coffee itself (Knöferle, 2012; Samoggia &
51 Riddle, 2018; Spence 2021; Spence & Carvalho, 2020). However, there are three points to bear in
52 mind here. First, the majority of sensory testing studies have been conducted under highly
53 controlled laboratory conditions, or else online (Grossman & Rachamim, 2023; Kim et al., 2016;
54 Knöferle, 2012; Labbe et al., 2015; Motoki, et al., 2021). This has led some to question the validity
55 of the results of such research. At the same time, however, it is important to stress that tests carried
56 out in a virtual coffee shop environment may not necessarily reflect realistic consumer decisions in
57 natural situations (Bangcuyo et al., 2015; Meiselman et al., 2000; Spence & Carvalho, 2020;
58 Stroebele & De Castro, 2004).

Second, although the effect of consumers' decision-making with regard to utilitarian vs. hedonic food products has been studied extensively (Chowdhury et al., 2018; Lee & Yun, 2015; Loebnitz & Grunert, 2018; Maehle et al., 2015; Otterbring et al., 2023), most studies concerning utilitarian and hedonic products have compared two or more products, or else a general class of products (such as organic/non organic food, or healthy/unhealthy items). For instance, Lee and Yun (2015) found that consumers' perceptions of the nutritional content, ecological welfare, and price attributes of organic food have strong effects on utilitarian attitudes toward buying organic food, while perceptions of the sensory appeal attributes have a strong effect on hedonic attitudes. Meanwhile, in a study reported by Loebnitz and Grunert (2018), those participants with a highly primed health motivation purchased hedonic food products with nutrition claims only if the product benefit was clear. For utilitarian food products, the negative effect of the nutrition claim can be mitigated by making the perceived benefit explicit but only among participants with low self-health awareness. A recent study by Ghali (2020) examined a specific product (olive oil) that had both utilitarian and hedonic value. The author argued that the hedonic value of the olive oil had more of an influence on the willingness to buy while the utilitarian value had a stronger influence on willingness to pay. Lastly, the majority of studies on music and coffee relate to how sonic stimuli can enhance or diminish the multisensory coffee tasting experiences (Bravo-Moncayo et al., 2020; Spence, 2021). This study therefore set out to investigate whether manipulating the tempo of the background music would influence the coffee-drinking experience and purchase intentions, given that motives for consuming coffee can be categorized as either utilitarian or hedonic.

Music congruity refers to the ability of background music, with characteristics that correspond to the central brand message of a particular product, to raise salient product beliefs (Kantano et al., 2016; Yeoh & Allan, 2020; Yeoh & North, 2013; Zellner et al., 2017). Music congruity has been shown to influence perceptions positively leading to increased purchase likelihood (Grossman & Rachamim, 2013; North et al., 2003; Yeoh & North, 2013; Yeoh et al., 2023). Among all the musical characteristics (e.g., key, style/genre, tempo, volume) that contribute to musical congruity, musical tempo is arguably the most important structural feature influencing consumer behaviour (see Juslin & Lindström, 2010). In the context of this study, musical tempo should positively influence consumer perceptions.

Of all auditory parameters, musical tempo is reported to have had the greatest effect on arousal, which can lead to behavioural responses such as the amount of time spent chewing and eating (Migliavada et al., 2024); and evoking taste expectations and purchase intentions (Pantoja & Borges, 2021; see also Bissau et al., 2019; Knöeferle et al., 2017; Spence et al., 2019; Yeoh, et al., 2023). The term arousal here means emotions and attitudes that are evoked through music

(Gabrielsson & Juslin, 2003; Gagnon & Peretz, 2003; Hevner, 1937). Specifically, fast-tempo (vs. slow-tempo) music has been shown to increase arousal (Droit-Volet et al., 2013; Hunter et al., 2010; Webster & Weir, 2005), consistent with previous literature published in the field of sensory marketing (see Garlin & Owen, 2006; Roshck et al., 2017, for a review). High arousal music is usually defined as having a faster tempo (>120bpm) while low arousal music is associated with a slower and more relaxed tempo (<80 bpm; e.g., Carpentier & Potter, 2007; Husain et al., 2002; Kelley et al., 2014; Liu et al., 2018). Previous research shows that consumers' need for stimulation changes with arousal levels, in that when consumers are in a high arousal state, their need for external stimulation increases as well (Di Muro & Murray, 2012; Gullo et al., 2019; Sun et al., 2023). Arousal level refers to the degree to which a person feels excited, stimulated, alert, and active, and is considered an emotional dimension that can range from sleepiness to extreme excitement (Das & Varshneya, 2017). For example, research by Ridgway et al. (1990) reported that those consumers with higher levels of arousal tend to explore retail environments more and interact more with others in the shopping context. Meanwhile, Dubé et al. (1995) found that when consumer arousal is increased, consumers tend to increase their interactions with sellers. Menon and Kahn's (2002) study revealed that consumers who had high levels of arousal from their previous online shopping experience were more likely to engage in high-arousal activities in subsequent purchases, such as exploring shopping venues, learning about new products and stores, and responding more actively to promotions.

Studies of the influence of background music on the coffee drinking experience have been on the rise in recent years. For example, the sounds of the coffee machine grinding, dripping, steaming, etc. have been shown to influence tasting experiences (Knöferle, 2012; see also Labbe et al., 2015); the volume of background noise/music has been shown to result in differences in people's tasting (Bravo-Moncayo et al., 2020); while the genre of music has been shown to affect the likelihood of coffee purchase (Grossman & Rachamim, 2023; North & Hargreaves, 1998; Shimokura, 2020); and the use of music co-creation resulted in patrons spending more money and time at the coffee shop (Jeon et al., 2016). It is clear that listening to background sound/music in coffee shops may exert an influence on the coffee drinking experience. Spence (2021) highlights the importance of sonic seasoning in food; and specifically, in the case of coffee (see Spence & Carvalho, 2020, for a review).

In a recent online study, Bui and Nguyen (2022) claimed that sound, as compared to sight, touch, smell and taste had the highest correlation with customer satisfaction in Vietnamese coffee shops. However, it is important to note how this study involved an online survey and participants were required to recall their past experiences with coffee shops, which may not represent a true reflection

127 of results that might be obtained in the field. Similarly, in a study by Jang and Lee (2019), the
128 authors found moderating effects of hedonic and utilitarian motivations on the relationship between
129 the five senses and the PAD (pleasure, arousal, dominance) emotions. Specifically, sound exerted a
130 positive effect on arousal, although it was unclear how this was determined, since in this online
131 survey, participants were requested to respond based on their memory of popular coffee shop
132 experiences in Korea. However, in both instances, no details of the genre, tempo or choice of music
133 used were provided.

134 In a laboratory study on the use of background music in 20 Japanese coffee shops, the genre of
135 music did not evoke an affiliation for specific coffee shops, however, the tempo of the music (bpm)
136 was found to affect emotional responses. Specifically, slower paced music (70-110 bpm) was
137 considered an important stimulus in terms of inducing the need for tranquility and leisure
138 (Shimokura, 2020; see also North & Croeser, 2006). Along similar lines, an online study of coffee
139 purchase likelihood by Grossman and Rachamim (2023) found no significant differences in
140 purchase intentions between genre (classical vs. pop). The participants did, however, report higher
141 levels of arousal, leading to a greater likelihood to purchase coffee when faster-paced music was
142 used (108 bpm) as compared to music with a slower tempo (87 bpm). The authors claimed that high
143 arousal music ‘fitted’ the arousing nature of the coffee. The participants were instructed to imagine
144 themselves eating breakfast at Starbucks and to rate how likely they were to drink coffee, and to
145 rate the arousal dimensions of the PAD model. Possibly, because of the utilitarian nature of the
146 study (i.e., consumers imagining themselves drinking coffee during breakfast) there could have
147 been some biases in the results. Since this was an online study, it would not be possible to
148 determine the time of day participants watched the video, nor was their partiality towards
149 Starbucks’ coffee assessed. According to Bui and Nguyen (2022), certain famous café chains have
150 successfully developed a signature sensory experience. As a case in point, they describe how
151 Starbucks adds a coffee scent to its heating, ventilation, and air conditioning systems which, in turn,
152 increases brand recognition and recall.

153 A study by Jeon et al. (2016) explored the potential for the co-creation of background music in a
154 coffee shop. Patrons were found to behave differently in this regard on weekdays vs. weekends. In
155 particular, on weekends, co-creation (where patrons would select their own background music, as
156 provided by the coffee shop) was a strong driver of higher spending by customers, with additional
157 orders driving increased consumption. Most of the patrons who visited the cafe on weekends had
158 companions to share experiences with (hedonic motivation). Interestingly, whilst patrons stayed in
159 the coffee shop for longer on weekdays, this did not result in higher spending. Furthermore, most of
160 the patrons who visited the coffee shop on weekdays came in as individuals and focused only on

161 their individual tasks (utilitarian motivation). Along similar lines, Labbe et al. (2015) investigated
162 the impact of hedonic vs. utilitarian motivations on the entire coffee drinking experience, from
163 preparation through to drinking the coffee itself in a non-blinded study. In this case, the authors
164 found that those participants who were motivated by the hedonic experience reported a more
165 positive emotional response (specifically with smell and taste) than utilitarian coffee drinkers.

166 Despite the excitement around, and the upward trend in research on the use of background music to
167 modify the coffee drinking experience, there may have been some biases in the research that has
168 been published to date that is worth bearing in mind. First, most of the studies that have been cited
169 above were conducted online and required the participants to recall previous memories of drinking
170 coffee in specific cafés (situations), which may not be a fair reflection of the environmental factors
171 involved. Second, among the listed studies, the participants were required to imagine being in a
172 well-known franchised coffee house (i.e., Starbucks) instead of a generic or specialty coffee shop.
173 As such, participants may already have pre-conceived notions and perceptions of such cafés, which
174 might be expected to affect their responses. Moreover, even when this was done in a laboratory
175 setting, these studies were non-blinded. The present study therefore sets out to examine the effects
176 of fast/slow music on: Perceptions of coffee and purchase intentions, on weekdays/weekends in an
177 independent specialty coffee shop (EST Café), while taking into account the different effects that
178 utilitarian/hedonic motivations may have on coffee drinking. Utilitarian motivations are usually
179 associated with customers drinking coffee on weekdays, meanwhile hedonic experiences are often
180 reported by those customers drinking coffee on weekends (e.g., Jeon et al., 2016; Labbe et al.,
181 2015). Given that the tempo of background music influences arousal, it can be hypothesized that
182 playing fast tempo music on weekdays and slow tempo music on weekends should result in positive
183 perceptions of the coffee (see Grossman & Rachamim, 2013; North et al., 2003; Yeoh & North,
184 2013; Yeoh et al., 2023). Meanwhile playing slow tempo music on weekdays and fast tempo music
185 on weekends might result in negative perceptions of the coffee.

186 Methods

187 In order to disguise the actual purpose of the present study, the participants were told that EST Café
188 was conducting a survey on customers' coffee flavor profiles and their overall satisfaction with the
189 coffee served.

190

191 Participants

192 Ethical approval was granted by the Ethics Committee of Universiti Putra Malaysia (submission
193 reference: JKEUPM-2023-1225; dated January 26, 2024). The participants were required to sign a
194 consent form stating that the purpose of the study was to understand the flavour profiles of the

195 coffee brewed at EST Café. The consent form also mentioned that participation was voluntary and
196 that the participants were allowed to withdraw at any time without penalty. It was also noted that
197 the participants' identity would remain confidential in the event of the study results being
198 published. This was a single-blind randomized study in which a total of 400 participants were
199 recruited, using a between-groups experimental design. Of the four hundred responses that were
200 collected, 200 were from customers who visited the café on weekdays, and another 200 from those
201 who visited on weekends. Of those who came on weekdays, 100 were exposed to fast-tempo
202 background music, while another 100 were exposed to slow-tempo background music. Similarly,
203 100 of the customers who visited the café on weekends had fast-tempo music playing in the
204 background while the remaining 100 customers were exposed to slow-tempo background music.
205 The inclusion criteria required customers to be 18 years of age or older, fluent in both written and
206 spoken English. They had to either have ordered black or white coffee, and customers who ordered
207 tea, juice or fizzy drinks were excluded. Anyone who had a hearing impairment or who was
208 listening to any form of entertainment on their mobile device or laptop with an ear piece was not
209 invited to take part. All of the participants were lone coffee drinkers, so as not to be influenced by
210 friends. The participants were thanked after completing the questionnaire, and were informed of the
211 purpose of this study, which was to ascertain if music had an influence over their perceptions of the
212 coffee consumed, and not necessarily to gather data on flavor profiles.

213

214 Pilot study

215 A pilot study was conducted to ensure that the music used in the main experiment would be clearly
216 identifiable as either high arousal/fast-tempo (>120bpm) or low arousal/slow-tempo (<80bpm) by a
217 sample of 20 participants drawn from the same general population as those who took part in the
218 main study. Participants were briefed of the aims of the study, and were informed that they would
219 not be included in the formal study. Moreover, they were requested to inform the barista if they
220 were subsequently asked to partake in the formal study. Each participant heard a sample of high/low
221 arousal songs taken from the same Spotify playlist used in the main study. They were asked to
222 discriminate between the two alternatives. All the participants were able to distinguish between the
223 pieces of music, with high arousal music being characterized as lively and energizing, whilst low
224 arousal music was described as low-key and relaxing. Four Sonos Bluetooth loudspeakers were
225 tested to determine the appropriate position and volume in the café. The ambient noise level
226 (without music) ranged from 65dB to 75dB, which can be attributed to the sound of coffee
227 machines as well as the chatter from customers and staff. When tested with both types of music, an
228 average of 64-66dB was deemed as the most comfortable listening level, while not interfering with

229 conversations between customers and staff; and the four loudspeakers were positioned in the four
230 corners of the café which had a dimension of 22 x 70 sq. ft. (see Spence, 2014).

231

232 Materials and Design

233 Either high arousal or low arousal music was presented in the background. Both high and low
234 arousal music was taken from two separate Spotify playlists; specifically, the high arousal music
235 was taken from Joey (2022) while the low arousal music was from Lofi (2024). Both music
236 selections were played every day of the week/weekend, alternating between weeks. For example,
237 high arousal music would be played on Weeks 1 and 3 of the month, while low arousal music was
238 played on Weeks 2 and 4. Music was looped to ensure continuity in sound and this was played for 6
239 hours a day between the hours of 10 a.m. and 4 p.m. Both playlists comprised instrumental songs
240 without any lyrics. The usual playlist for this café consists of K-pop music.

241

242 Procedure

243 The participants were personally approached by a waitress after ordering their drinks at the counter
244 and having been seated with their coffee for at least 20 minutes. Most of the customers who
245 volunteered to take part in this study were customers who appeared to be working on their laptops
246 or else scrolling on their mobile phones. To mask the purpose of the study, the customers were
247 informed that the café was conducting a survey on coffee flavor profiles and overall satisfaction
248 with the coffee. The waitress collected the forms immediately upon completion. Those who agreed
249 to take part in the study were then given a pen and a three-page questionnaire to complete. The first
250 page consisted of a consent form. The second and third pages consisted of 18 questions (see
251 Appendix for details). The first 11 questions required the customer to give their ratings on a 5-point
252 Likert scale. The first two questions required the participants to rate their overall liking for (with '1'
253 being 'I like it very much' to '5' being 'I dislike it very much'), and quality of (with '1' being 'very
254 good quality' to '5' being 'very low quality'), the coffee they were consuming. The next five
255 questions concerned flavor profiling. Questions 8 and 9 required the participants to rate their
256 likelihood of re-purchase (with '1' being 'very likely' to '5' being 'very unlikely'), and to rate their
257 opinion concerning the price of the coffee (with '1' being 'very cheap' to '5' being 'very
258 expensive'). To ensure that music was heard throughout, questions 10 and 11 required the
259 participants to describe the music playing (with '1' being 'very lively' to '5' being 'very slow'), and
260 their liking (with '1' being 'I like it very much' to '5' being 'I dislike it very much') for it. Question
261 12 asked the customer about their main motive for drinking coffee at that moment (with '1' being
262 'to stay awake' and '2' being 'to relax'). Questions 3-7 and 13-18 were not directly related to the

263 immediate coffee experience; and were asked in order to mask the main purpose of the study.
264 Demographic details were requested at the end of the questionnaire. The duration of their stay was
265 also recorded.

266 A one-way Multivariate Analysis of Variance (MANOVA) and a Tukey HSD post hoc test was
267 conducted on SPSS version 29.0.2. was performed to examine whether differences in ratings on
268 coffee likability, quality of coffee, purchase intentions, and coffee pricing differed between the four
269 groups of customers who heard fast music playing on weekdays/weekends, and those who heard
270 slow music playing on weekdays/weekends. Next, a one-way Analysis of Variance (ANOVA) was
271 conducted to assess whether the tempo of the music playing on weekdays/weekends affected
272 customers' liking for the music. Finally, a chi-square tests was carried out to determine whether the
273 tempo of the music playing was associated with the duration of the customer's stay.

274

275 Results

276 Data were collected from 400 participants (200 males and 200 females). The mean age of the
277 participants was 33.3 years ($SD = 9.82$). With the use of Wilks' criterion, the combined dependent
278 variables were significantly different as a function of the level of the treatment group, $F(12,$
279 $1040.07) = 4.003, p < .001$, Wilks' $\Lambda = 0.887, \eta^2 = .039$. A follow-up analysis using an alpha level
280 of .05 revealed that a significant difference existed on coffee liking ($F(3, 396) = 11.77, p < .001, \eta^2$
281 $= .082$); quality of coffee ($F(3, 396) = 5.75, p < .001, \eta^2 = .042$); and purchase intentions ($F(3, 396)$
282 $= 3.99, p < .05, \eta^2 = .003$). A comparison of effect sizes indicated that the music playing on both the
283 weekdays and weekends had a medium effect on coffee liking and a small effect on customers'
284 perception of the quality of the coffee they were drinking. Whilst music also exerted a significant
285 influence over customers' future purchase intentions, the effect here was small. The result was not
286 significant when customers were asked to rate the price that they had paid for the coffee they were
287 consuming.

288 In particular, the results demonstrated that those customers who listened to fast/slow tempo music
289 playing on weekdays rated their liking for the coffee they were drinking more highly, as compared
290 to those who listened to fast/slow music on weekends. When the customers were asked to rate the
291 quality of their coffee, customers who listened to slow tempo music on weekdays gave the highest
292 rating. Although the differences were not significant between those who listened to slow vs. fast
293 music on weekdays, there was a significant difference in the perceived quality of the coffee between
294 those who listened to slow music on weekdays and slow/fast music on weekends. Purchase

295 intentions reflected somewhat similar sentiments in that those customers who listened to slow music
296 on weekdays were the group that was mostly likely to re-purchase coffee at this café in the future.
297 There was no significance between all groups in how they rated the price of coffee they bought (see
298 Table 1).

299 [Table 1 approx. here]

300

301 A pairwise comparison and a Tukey's HSD post hoc test between the four conditions consistently
302 showed that mean scores for fast music playing on weekends and slow music playing on weekdays
303 were statistically significant with $p < .001$ on 3 aspects: 1) the liking for coffee, 2) the perceived
304 quality of coffee and 3) the intentions to re-purchase coffee at this café. In summary, those
305 customers who listened to music (regardless of its tempo) on weekdays liked their coffee better with
306 the coffee they were drinking compared to customers who listened to music on weekends.
307 Secondly, slow-tempo music on weekdays (vs. slow/fast music on weekends) resulted in a more
308 positive perception of the quality of coffee. Thirdly, slow-tempo music on weekdays (vs. slow/fast
309 music on weekends and fast music on weekdays) encouraged re-purchase intentions.

310

311 A one-way ANOVA was conducted to determine whether fast/slow-tempo music on
312 weekdays/weekends affected customers' liking for the music. There was a significant; albeit small
313 effect ($F(3, 396) = 4.72, p < .05, \eta^2 = .035$). Specifically, there were no significant differences
314 between groups of customers who listened to slow-tempo music on both weekdays and weekends.
315 When listening to fast-tempo music, however, results showed that customers were preferred to
316 listen to up-tempo music on weekdays (vs. weekends) (see Table 2).

317

318 [Table 2 approx. here]

319

320 Finally, a chi-square test was carried out to determine whether the tempo of music playing for both
321 weekdays and weekends was associated with the customers' duration of stay. The result was
322 significant ($\chi^2(6, N = 400) = 104.36, p < .001$). In short, weekend customers to the café who heard
323 slow-tempo music playing in the background stayed the longest (see Table 3).

324 [Table 3 approx. here]

325

326 Discussion and conclusions

327 Three main findings emerge from the present study: Firstly, and perhaps most interestingly, music
328 in the background, regardless of the tempo, induced a liking for the coffee consumed by those
329 coffee drinkers who may have been motivated by utilitarian (weekday) vs. hedonic (weekend)
330 needs. Furthermore, playing slow-tempo music on weekdays (vs. fast music on weekdays and
331 slow/fast music on weekends) led to higher purchase intentions. The findings here are in contrast to
332 an online study by Ding and Lin (2012), whereby the authors found that background music tempo
333 had no impact on customers shopping for utilitarian (vs. hedonic) products. The study argued that
334 although background music was able to affect customers' arousal, it was only able to do so when
335 shopping for hedonic products. Along similar lines, a lab-based study by Yeoh (2010) found that
336 participants were not affected by the genre of music playing when deciding between two choices of
337 utilitarian products. In fact, when consumers had a 'task motivational orientation' (e.g., shopping
338 for toiletries), arousal had a negative impact on the pleasantness of the shopping environment
339 (Kaltcheva & Weitz, 2006; see also Parlar et al., 2014; Yeoh & Spence, 2023). One plausible reason
340 for these results may be due to customers consuming and evaluating the product while listening to
341 the background music. Since utilitarian motivations would involve cognitive processing (Ding &
342 Lin, 2012; McGuire, 1974; Park & Young, 1986), customers listening to music on weekdays
343 (utilitarian motivations) would pay more attention to the product argument (in this case, coffee).
344 The opposite, therefore is also plausible in that customers who were drinking coffee as a hedonic
345 need were less involved in cognitive processing.

346 The reasoning here is further corroborated with customers making conscious decisions to
347 repurchase coffee when slow-tempo music was played during weekdays. Here, it could be
348 speculated that slow-tempo (low arousal) music allowed for a broader attentional focus. A study by
349 Feng et al. (2014) found that consumers find relief from maths anxiety (task orientation) when
350 slow-tempo classical music is played in the background as compared to fast-tempo music. Although
351 previous research in the area of coffee consumption suggests that fast (vs. slow) tempo music leads
352 to purchase intentions and enhanced evaluations of the food (e.g., Grossman & Rachamim, 2023;
353 Pantoja & Borges, 2021), it should be remembered that the majority of these studies have been
354 conducted under laboratory or virtual conditions or else online, and hence may not reflect the
355 holistic multisensory environmental experience of being in a café (see Bangcuyo et al., 2015;
356 Spence et al., 2019, for a review).

357 Second, the results reported here show that playing fast (high arousal) music on weekends was liked
358 least. One compelling argument that could be presented here is that fast-tempo music was
359 incongruent with the 'hedonic' weekend mood. When comparing the duration of stay between
360 customer groups, slow-tempo music on weekends resulted in customers lingering significantly

361 longer in the café. Coffee drinking on weekends represented a hedonic experience, and thus low
362 arousal (slow tempo) music was deemed to be congruent to the mood. This possibility is also
363 supported by a meta-analysis by Garlin and Owen (2006), in which music with a slower tempo was
364 found to result in consumers having a more favorable experience than when faster music was
365 played (see also Roschk et al., 2017). Similar to what has been documented in prior research and is
366 also seen here, slower music resulted in customers being willing to linger for longer in the café
367 (Caldwell & Hibbert, 1999; Soh et al., 2017).

368 Another possibility that could also be inferred from the results reported above is the color
369 scheme of the café. The EST café has what might well be considered a neutral color scheme
370 with white walls, beige furniture, and grey cement floors. Such achromatic color schemes have
371 been shown to exert the lowest effect on arousal (Jiang et al., 2021). Furthermore, research in
372 people's color preferences has revealed that although white and beige may be the most
373 preferred colors for work environments (Bakker et al., 2013; Kwallek & Lewis, 1991), they can
374 sometimes also be perceived as boring, monotonous, and simple (Coutinho & Akbay, 2023;
375 Öztürk et al., 2012; Spence, 2020). Thus, slow (rather than fast) tempo music would perhaps be
376 considered more congruent with this establishment's color scheme, leading to an overall
377 positive coffee experience. This argument also lines up with schema incongruity theory, in that
378 when faced with stimuli that are incongruent with expectations, individuals will engage in
379 more elaborative information processing (see Heckler & Childers, 1992, for a review), and such a
380 major mental effort would likely result in more negative evaluations. Nevertheless, since this
381 study did not take into consideration the furniture and color scheme of the café prior to the
382 experiment, the argument put forth here represents merely a post-hoc suggestion regarding the
383 study.

384 The results of the present study give rise to three key implications: first and in contrast to prior
385 research, background music regardless of tempo is able to induce liking for a food product when
386 consumed with a utilitarian mindset. Second, background music playlists should be designed in a
387 way which is congruent with the environment. This supports of an emerging body of empirical
388 research (see North & Croeser, 2006; Samoggia & Reidle, 2018; Spence, 2021) that has shown the
389 subtle, yet influential, multisensory experience is able to affect perceptions (Spence et al., 2014).
390 Finally, when customers are in a hedonic mindset, low arousal background music would lead to
391 customers lingering longer in an establishment. Consumption decisions, as shown here, are highly
392 complex and are motivated by multiple factors. Future studies may want to consider the possibilities

393 of having customized music as coffee is being consumed (e.g., Jeon et al., 2016). It is likely that
394 customers would have different playlists for different needs/motivations. The study reported here
395 also examined lone drinkers, and future studies could replicate this study on groups of friends
396 drinking together, or even working together as ‘coffice’. It is possible that coffee evaluations and
397 motivations might differ under such conditions. This study was also conducted at only a single café,
398 and the customer base here may not be truly representative of all types of customers. Future
399 research may consider conducting similar studies at more popular coffee franchises. Moreover, this
400 study did not take into account the availability of power outlets or the number of seats available. It
401 might be possible that customers would linger longer if they were seated nearer to power outlets
402 when working.

403
404 In conclusion, the present research adds to the burgeoning literature on music and consumer
405 behaviour and highlights the complexities surrounding the effects of background music, which must
406 be considered in light of consumers’ motivations.

407
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409
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417
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