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When gamification backfires: the impact of perceived justice on online community contributions

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ABSTRACT

While online communities may enhance firm performance, they commonly fail to retain members. To address this challenge, scholars and managers call for the use of gamification. However, despite gamification's growing use in online communities, insight into its effect on member experience and behaviours remain limited. We hypothesise that gamification affects member-perceived distributive and procedural justice. In experimental studies, we assess the impact of in-gamification perceived justice on member contributions. We find that while high in-gamification perceived procedural justice acts as a necessary prerequisite for member contributions, high distributive justice can reduce game-related uncertainty, thereby rendering gamified practices less fun, particularly for low-engaged community members that tend to value rewards. We add to the literature by (a) pinpointing the core role of perceived justice in the persistence of online communities, and (b) unveiling that high distributive justice can lead gamification to backfire in online communities by affecting member experience and contributions.

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Introduction

Commentators agree that technology and technological innovation have generated a fundamental shift in the areas of communication, media, and the ways companies interact with their (prospective) customers (Brodie et al., 2013). Given technology's transformative impact on our lives, technological research has rapidly evolved over the last few decades. Within this field, social media has made an important contribution to development of virtual communities (Hollebeek & Chen, 2014; Kaplan & Haenlein, 2010), where virtual communities denote 'specialized, non-geographically bound online communities based on social communications and relationships among a brand's consumers' (De Valck et al., 2009, p. 185).

The growing popularity of online communities has revolutionised the nature of company-customer and consumer-to-consumer interactions (Johnson & Lowe, 2015; Muniz &

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O' Guinn, 2001; Singh & Sonnenburg, 2012). In these communities, members are able to make proactive contributions to brands, including by offering product reviews or helping other users (Benoit et al., 2016; Mačiulienė & Skaržauskienė, 2016; Mandl & Hogreve, 2020). Here, members also have the opportunity to socialise, co-innovate solutions, refer brands, or share brand-related knowledge (Baldus et al., 2015; Weijo et al., 2019).

On the dark side, researchers have also emphasised potential negative effects of online communities both for individuals (e.g., cyber-bullying) and organisations (e.g., negative electronic word-of-mouth; Chou et al., 2015; Marticotte et al., 2016). In addition, a lack of understanding surrounds many communities' relatively low sustained participation rates, as manifested through such issues as infrequent usage (thus contributing to *ghost-town* communities), the *lurking* phenomenon where users view content, but do not contribute to new content creation, and high churn rates (Bhattacherjee, 2001; Coussement et al., 2017; Debaere et al., 2018; Fullwood et al., 2019). Consequently, a need exists to better understand these channels, their design, and the value they provide to individuals and organisations, thereby helping to optimise their performance and longevity (Ludwig et al., 2014; MSI, 2018; Ostrom et al., 2015; Sarner, 2008).

To minimise these issues and garner sustained community participation, gamification has been suggested as an important tool (Harwood & Garry, 2015; Robson et al., 2014). Consequently, gamification, which denotes the 'use of game mechanics in non-game contexts' (e.g., contests; Deterding et al., 2011, p. 3), is receiving growing interest from practitioners and researchers. To implement gamification, practitioners commonly apply gaming-related principles to create more enjoyable, game-like experiences, which are expected to uplift community usage, stickiness, and positive evaluations (Robson et al., 2014; Zichermann & Cunningham, 2011).

However, despite its wide adoption, the mechanics of gamification's implementation to create, maintain, or optimise consumer contributions (while minimising risk) in online communities remain nebulous (Harwood & Garry, 2015; Leclercq et al., 2017). To address this issue, recent research has emphasised the role of in-gamification *perceived justice* – an individual's evaluation of the appropriateness of a person's treatment by others – as a key driver of participation (Chebat & Slusarczyk, 2005; Gebauer et al., 2013; Jiang & Wagner, 2015). Though this observation implies that gamification's performance is influenced by its particular required contribution/reward rate (which in turn is associated with a degree of user-perceived justice), little remains known regarding gamification's effect on member contributions and hence, its effectiveness (Hofacker et al., 2016; Huotari & Hamari, 2017).

To address this gap, we examine the effects of in-gamification perceived distributive/procedural justice on user contributions in online communities. Distributive justice refers to fairness in the distribution of an outcome (e.g., reward; Adams, 1965), while procedural justice focuses on fairness in the decision-making process (Lind & Tyler, 1988). We distinguish the effects of these justice subtypes by assessing member profiles and community contributions, as gauged through users' community engagement (Hollebeek et al., 2017). We define community engagement as members' resource investment in their community interactions (Hollebeek et al., 2019; J. Kumar & Nayak, 2019), which they – in line with social exchange theory – make in anticipation of expected benefits from these interactions (Algesheimer et al., 2005; Hollebeek, 2011a).

Specifically, we assess the extent to which community engagement moderates the effect of in-gamification perceived justice on consumers' online community contributions. To achieve this aim, we explore the following research questions: *What are the effects of in-gamification perceived distributive/procedural justice on members' online community contributions? How does community engagement moderate the effects of in-gamification perceived justice on members' community contributions?*

To answer these questions, we develop a series of social exchange theory-informed hypotheses that we investigate through three experimental studies (Homans, 1958). Our results show that in-gamification perceived procedural justice positively affects members' intent to contribute to the community. They also suggest that in-gamification distributive justice reduces perceived uncertainty. We note that in the gaming context (*un*like many others), user-perceived uncertainty is commonly favourably evaluated (e.g., game-related excitement/stimulation). Consequently, reduced uncertainty renders a gamified experience *less* intrinsically enjoyable, thus harming consumer intentions to make further contributions (Anselme, 2010; Costikyan, 2013; Malone, 1981; Shen et al., 2019). Low-engaged users, in particular, perceive only limited benefit from their community interactions *beyond* their gamification rewards.

This study makes several contributions. First, though existing research has explored the impact of gamification on consumer/firm interactions (Berger et al., 2018; Hofacker et al., 2016), we extend this stream of literature by investigating the role of consumer-perceived distributive/procedural justice in driving their intent to make future community contributions, which remains nebulous to-date (Deterding, 2019; Landers, 2019). Our findings highlight the key role of these justice subtypes on gamification performance by securing users' future participation. Second, by highlighting a potential negative effect of distributive justice on consumer intentions to continue making community-related contributions, our findings supplement existing social exchange theory-based insight that is typically focused on positive outcomes. Specifically, we show that in-gamification distributive justice adversely affects users' intent to contribute to the community due to reduced perceived uncertainty. We also offer managerial insight regarding gamification's capacity to retain community users over time.

The paper's remainder is organised as follows. We next review relevant online community and gamification literature, in addition to the social exchange theory discourse, culminating in the development of our research hypotheses. To test the hypotheses, we conduct three empirical studies, on which we report in the next section. We conclude with a discussion of our findings and deduce key managerial implications and future research avenues that arise from our analyses.

Theoretical background and hypothesis development

Community member contributions

The explosion in Internet usage and the emergence and rise of social media represent important enabling factors for online communities, which are specialised, non-geographically bound Internet-based platforms where members share common product- or brand-related interests through social communications and relationships (Autio et al., 2013; De Valck et al., 2009). Such communities have transformed customer/firm interactions, communication, and

dialogue. While traditional media have largely facilitated one-way communications (e.g., via television), Web 2.0 and beyond technologies enable two-way interactions, thus offering consumers the opportunity to engage increasingly proactively (vs. reactively) with particular brands, firms, or other users (Baldus et al., 2015; Brodie et al., 2013; Hollebeek & Chen, 2014).

Online communities offer a means to strengthen consumers' brand identification and facilitate the development of emotional brand- and community bonds and attachment, thereby raising consumers' perceived brand-related value (Algesheimer et al., 2005). Through virtual communities, members may also socialise or co-innovate new product/service solutions, share brand-related information, or help one another (Hollebeek et al., 2017). Prior research thus outlines the strategic role of online communities in the firm's strategic agenda (Algesheimer et al., 2005), including in the areas of customer relationship management (Carlson et al., 2019) and innovation (Gebauer et al., 2013).

To facilitate online community success, it is pivotal to motivate consumers to participate in it (J. Kumar & Nayak, 2019; Zhou et al., 2013). *Community participation* refers to member contributions in the community's activities, including through online posts, replies, information exchange, or helping other users (Chen et al., 2015; Sun et al., 2014), which are found to enhance members' community-related tenure and commitment, as well as brand purchase intent and loyalty (Carlson et al., 2019; J. Kim & Lee, 2017; Malinen, 2015; Tsai & Pai, 2012). Beyond individual contributions, a highly-participative community is characterised by a significant degree of members' group-level (e.g., information sharing) intentions, yielding elevated community cohesiveness (Dholakia et al., 2004). Conversely, low-participative communities reveal members' low motivation to contribute to what they perceive as ghost-town communities (e.g., characterised by limited rich dialog on a given subject; Coussement et al., 2017).

While many firms make substantial investments to develop their own, company-initiated communities, many are challenged to maintain an adequate participation level, thus impairing community performance and contributing to its decline or eventual demise (Bengtsson & Ryzhkova, 2013; Gambetti & Graffigna, 2015; Langner & Seidel, 2015; Ludwig et al., 2014). In response to this challenge, prior research highlights the importance of experiential value in facilitating members' community commitment (Nambisan & Baron, 2009). However, little remains known regarding the optimal mechanisms to foster members' long-term contributions (Breidbach et al., 2014; Leclercq et al., 2017). Here, gamification offers a compelling technique to nurture members' community-related experience and positively drive their desirable brand-related behaviours (Eppmann et al., 2018; Leclercq et al., 2017), as discussed further in the next section.

Gamification

Gamification offers a popular, widely-adopted technique in contemporary business (Werbach & Hunter, 2012). It has been defined as 'the introduction of game mechanics and elements (vs. full-fledged games) [in] non-game contexts' (Deterding et al., 2011, p. 5). Gamification thus comprises game-*like* aspects, objectives, or structures that are incorporated to desirably influence user behaviour (Werbach & Hunter, 2012; Zichermann & Linder, 2013).

Gamification's impact resides in the user domain, as gauged by consumers' willingness to play particular gamified communications (e.g., advertisements) and continue playing over

time. Gamification performance is therefore contingent on the extent to which it elicits desired (e.g., heightened brand engagement, satisfaction) – versus undesirable (e.g., negative word-of-mouth) – user behaviours (Berger et al., 2018; Harwood & Garry, 2015; Robson et al., 2015). However, scholars remain in the dark about the nature of gamification *best practices*, reflecting the relatively ad-hoc developmental state of gamification research (Landers, 2019; Leclercq et al., 2020), particularly given the relative scarcity of empirical enquiry to-date (Deterding, 2019; Hamari et al., 2014), as therefore addressed in this study.

Recent research emphasises that gamification's effectiveness is contingent on the user experience afforded by gamification design (Huotari & Hamari, 2017), thereby highlighting the role of gamification's intended experience (i.e. gamification experience *by* design). However, other factors may also affect the user experience, including the perceived quality of peer-to-peer interactions (Insley & Nunan, 2014). Consequently, a key gamification challenge lies in the extent to which companies are able to drive the development of desirable user behaviours through game-related experiences (Eppmann et al., 2018). We hypothesise:

H1: *Gamification's effect on member contributions to online communities is mediated by the quality of their experience*.

Consumer experience comprises the user's cognitive, affective, emotional, social, and physical responses to a given stimulus (Lemon & Verhoef, 2016; Schmitt, 1999). It is subjective and co-created by users through their firm- or peer interactions (Bolton et al., 2014; Chandler & Lusch, 2015). In line with social exchange theory, consumer experience is driven by a user-perceived cost/benefit trade-off arising from particular interactions (Homans, 1958). This balance between one's perceived experiential benefits and their associated costs reveals experience quality (Lemon & Verhoef, 2016) which in turn positively affects beneficiaries' behaviours (Nambisan & Baron, 2009). Social exchange theory postulates that consumers will reciprocate positive thoughts, feelings and behaviours towards an object (e.g., a community) when they receive specific perceived benefits (value) from interacting with it (Blau, 1964).

Social exchange thus gives rise to unspecified obligations, where consumers are motivated by some future return from their interactions (e.g., rewards; Hollebeek, 2011b), in exchange for which they may offer such benefits as loyalty or commitment to the object. Under social exchange theory, exchange partners are thought to strive for balance in the relationship and, if imbalance occurs, balance-restorative attempts will be made (Hollebeek, 2011b, p. 557). For a consumer, what is given may be perceived as a cost, while what is gained is seen as a benefit, and the user's behaviour is modified as the balance between the two alters (Homans, 1958). The extent of what consumers are willing to give – or invest (i.e. engage) – depends to an important extent on their exchange-related perceived *justice* (Adams, 1963; Hollebeek & Macky, 2019). To motivate or maintain consumers' enduring desirable behaviours, the use of gamification has been suggested (Leclercq et al., 2020). However, as it offers potential rewards in exchange for contributions, gamification can affect members' sense of community-related justice and thus affect their experience, engagement, and intention to make further community contributions.

In-gamification justice

Prior research reports on a positive impact of perceived justice on customer satisfaction, trust, behavioural intent, and loyalty, including in such contexts as service recovery and pricing (Barakat et al., 2015; Kuester et al., 2015; Kwak et al., 2017; Urueña & Hidalgo, 2016). In this discourse, the literature focuses on three justice subtypes: Distributive-, procedural-, and interactional justice.

First, *distributive justice* reflects the extent to which an individual perceives a situation as fair when comparing their input/output in interactions with a focal object (e.g., a community; Patterson et al., 2006). Second, *procedural justice*, which is defined as an individual's perceived fairness of the rules applied to a decision-making process (Folger & Greenberg, 1985), complements distributive justice by addressing the way in which outcomes are determined and distributed (Greenberg, 1990; N. Kumar et al., 1995; Luo, 2007). Third, *interactional justice* refers to an individual's perceived fairness of interpersonal treatment during interactions, thus highlighting the notions of respect, politeness, honesty, and dignity (Bies & Moag, 1986; Luo, 2007).

Interactional justice may be considered an extension of procedural justice (Harvey & Haines III, 2005). Jiang and Wagner (2015) underscore the role of distributive- and procedural justice as key drivers of consumer decision-making as to engage further in, or defect from, a community. Moreover, while distributive- and procedural justice reflect an individual's perceived balance of their investments/benefits, interactional justice centres on *inter*-actor interaction quality. Consequently, we focus on the former (i.e. distributive- and procedural justice) in this research.

In gamification, procedural justice gauges the extent to which users believe the gamification process to treat all participants equally (Krawczyk, 2011; Tsui et al., 1997). High perceived procedural justice is expected to contribute to the clarity of the challenge at hand, where participants understand how/what to perform in order to receive a reward (C. W. Kim & Mauborgne, 1998; Sánchez-Pagés & Vorsatz, 2007). A gamified context characterised by high procedural justice offers an efficient platform for resource investments that is in turn rewarded by the provision of some pre-specified benefit. Here, participants will tend to experience a suitable perceived cost/benefit balance, rendering them more motivated to maintain their community-based relationships. Consequently, gamified settings typified by high procedural justice tend to promote user experience quality and stimulate participants' intent to make further community contributions. We postulate:

H2: *In-gamification procedural justice has a positive impact on members' experience quality and ensuing intentions to further contribute to the online community*.

In the gamification context, distributive justice refers to the extent of user-perceived fairness in terms of the rewards received, relative to one's efforts (costs) exerted to win the reward (Krawczyk, 2011; Tsui et al., 1997). Offering gratification (e.g., through financial/social incentives), gamification impacts user-perceived distributive justice (Yang et al., 2018). In accordance with social exchange theory, users of high- (vs. low-) distributive justice gamification, suggesting higher rewards or lower efforts, are expected to perceive a more favourable cost/benefit ratio. From that perspective, distributive justice gamification affects users' utilitarian value, thereby incentivising them to make further community contributions.

However, gamification contains an implicit challenge that participants seek to complete. A *challenge* is described as 'an initiative requiring participants to achieve a task by overcoming specific obstacles' (Poncin et al., 2017, p. 323). These obstacles render task achievement uncertain, which can induce stress owing to its associated risk (Anselme, 2010). While risk has been addressed as perceived challenge in prior literature (Holt & Laury, 2002; Newman & Mochon, 2012; Simonsohn, 2009), in gamification it can be seen as a pleasant experience (e.g., thrill in trying to overcome/resolve uncertainty; Goldsmith & Amir, 2010; Hsee & Ruan, 2016; Ruan et al., 2018). Likewise, Shen et al. (2019) argue that uncertainty can *positively* affect individuals' short- or long-term behaviours when they value risk reduction more than receiving rewards. Consequently, they prefer the pleasant experience generated by an uncertain situation over a more certain one, even if it offers fewer rewards. To overcome gamification challenges, users may thus choose to invest resources (i.e. engage) in an attempt to reduce stress or regain control (Costikyan, 2013; Leclercq et al., 2020), which they perceive as an arousing or fun experience (Anselme, 2010). We consequently postulate that gamified contexts characterised by high distributive justice unfavourably affect gamification performance by reducing or minimising gamification-related uncertainty, thereby rendering the user-perceived challenge less fun and exciting. Accordingly, we propose the following hypothesis:

H3: *In-gamification distributive justice has a negative impact on members' experience quality and ensuing intentions to further contribute to the online community*.

Though these hypotheses shed initial light on the effects of gamification on members' online community contributions, they assume that members form a relatively homogeneous group. However, studies in the domain of online communities have emphasised the existence of multiple, differing member profiles that yield various (i.e. heterogeneous) contribution levels (Kozinets et al., 2008, 2010). Capturing the resources already invested in the community, community engagement is viewed as a suitable variable to distinguish or segment members (Leclercq et al., 2017), as discussed next.

Moderating role of community engagement

The *engagement* concept has received considerable attention over the last decade (Brodie et al., 2011; V. Kumar & Pansari, 2016). Engagement describes a consumer's resource investment in particular brand interactions (Hollebeek et al., 2019; V. Kumar et al., 2019), reflecting his/her proactive (vs. passive) stance. Given its focus on consumers' (e.g., community-based) *interactions*, engagement differs from involvement – a consumer's perceived relevance of an object based on inherent needs, values, and interests (Zaichkowsky, 1985) – and commitment – the desire to maintain a valued relationship with the object (Moorman et al., 1993). The attainment of an engaged user base has been advocated as an important strategic imperative, given these users' typically elevated levels of trust, positive brand-related affect, satisfaction and loyalty, which in turn motivate their ongoing engagement (Hollebeek et al., 2014; Hollebeek & Macky, 2019; Van Doorn et al., 2010).

While much of the established consumer/user engagement literature focuses on dyadic interactions (Brodie et al., 2011), there is a growing recognition of engagement's

networked nature that explicitly acknowledges actors' linkages to and interdependencies with others, including family, peers, or institutions (Alexander et al., 2018; Black & Veloutsou, 2017; Chandler & Lusch, 2015; Hollebeek et al., 2018). In online communities, members' focal engagement object (i.e. what they engage *with*) is the community that can centre on a particular brand, firm, activity, etc. (Algesheimer et al., 2005; Baldus et al., 2015; Hollebeek, 2011a). Correspondingly, *community engagement* fits within the emerging *beyond*-dyadic perspective of engagement. Highly-engaged community members are confident in the benefits derived from their community-based interactions *beyond* their particular gamification rewards (Algesheimer et al., 2005; Leclercq et al., 2017). We deduce:

H4: *When members are highly (vs. less) engaged in an online community, the negative impact of in-gamification distributive justice on their experience quality and ensuing contributions is reduced*.

An overview of our hypotheses is shown in Figure 1.

Research design

To test the hypotheses, an initial experiment was performed to assess the impact of in-gamification distributive- and procedural justice on user experience and their intent to make further community contributions *independent* of the particular online community context (Study 1a). To this end, four contests were launched. Each presented different participant instructions, through which we manipulated in-gamification procedural/distributive justice. In-gamification procedural justice was manipulated by adjusting process clarity, which led to the receipt of a reward. For instance, in contests characterised by high (vs. low) in-gamification procedural justice, the instructions indicated a process where all submissions are treated equally (vs. no information on the winner selection process). We manipulated in-gamification distributive justice by adjusting random contest aspects. For instance, in contests typified by high in-gamification distributive justice, the instructions indicated that submissions would be rewarded based on their quality as determined by an external panel of experts (vs. random draw to select the winners). We first pre-tested these manipulations, followed by measurements of (a) participants' experience quality by using Verleye's (2015) scale, and (b) intent to

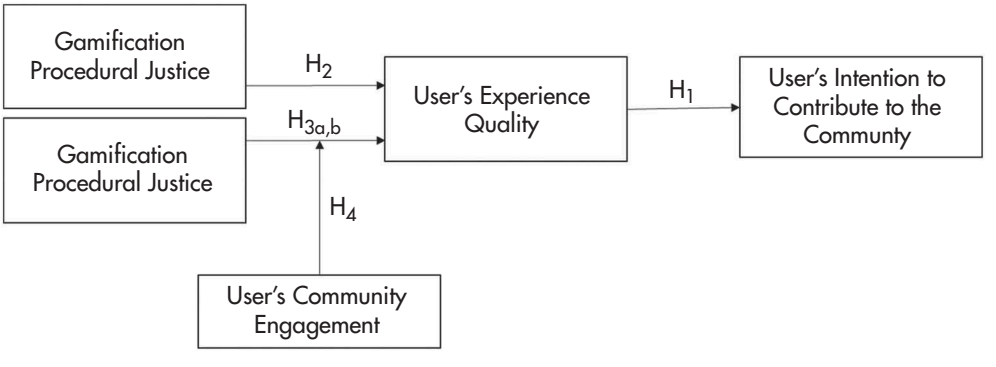

Figure 1. Conceptual model.

make further community contributions by administering a newly-developed ad-hoc scale based on V. Kumar et al. (2010). A second experiment was also carried out in Study 1b. Its objective was to provide further evidence to our postulations regarding the effect of in-gamification justice on experience quality and intent to further contribute to the community.

Next, a field experiment using similar manipulations as in Study 1a was conducted to assess our proposed gamification-related effects on member experience quality and future community-related contribution intent (Study 2). We performed this experiment through four contests organised in an online lifestyle/consumption-related community. We tested the extent to which the negative effect of in-gamification distributive justice on member experience quality is moderated by members' prior online community engagement, as measured by Algesheimer et al.'s (2005) instrument. We again tested the effect of participants' experience quality on their intent to make further community-related contributions.

Study 1a

To test H_1, H_2 and H_3, we investigated the effects of in-gamification perceived justice on member experience quality and their intent to make further online community contributions. To do so, an experiment was conducted, as reported on in the following subsections.

Design and procedures

We recruited 294 participants (49% female, M_{age} = 35 years) from Amazon Mechanical Turk (MTurk). Research has shown that MTurk responses are similar to responses provided in laboratory experiments, including in terms of rejection rates, statistical power, and distribution (Barone & Jewell, 2014; Goodman et al., 2013). Hulland and Miller (2018) also emphasise the suitability of MTurk samples for research studying effect differences across experimental conditions. We randomly assigned the respondents to a 2 (gamification characterised by a high vs. low distributive justice level) × 2 (gamification typified by a high vs. low procedural justice level) between-subjects experimental design. We considered cases in which gamification was associated with either low or high levels of distributive and procedural justice.

The experiment began by inviting the participants to help a startup company by naming a new smoothie brand in exchange for a potential financial reward. The announcement explained that the contest was initially opened to brand community members, which is now extended to non-members. Hereby, participants were given the opportunity to submit their ideas. No information about the contest rules was displayed before respondents agreed to participate. Once respondents agreed to participate, we exposed them to the experimental treatment and informed them of the general instructions, which varied according to the four experimental conditions. The first condition suggested that the contest winner would be randomly drawn, reflecting a high level of procedural justice and low distributive justice. Here, high procedural justice was inferred by the fact that the random draw ensures that every participant is treated equally during the contest, yet the receipt of a reward is independent from participants' input (i.e. low distributive justice).

Our second condition indicated that winners would be elected by members from an online community dedicated to the consumption of that product, reflecting low procedural

justice and high distributive justice. Here, low procedural justice is inferred by participants not being part of the particular community, though other contestants were suggested to be members of that community; that is, community members may be viewed as privileged in the contest. Further, the receipt of a reward depends on participant input (i.e. high distributive justice). The third condition specified that the winner would be selected by an external jury panel (i.e. high procedural/distributive justice). The last condition comprised a control group in which the participants may be rewarded for their contributions without any information regarding the selection criteria (i.e. low procedural- and distributive justice). The displays presented to our participants are shown in Appendix 1.

Pre-Test

We pretested the questionnaire (experimental treatment and measurement scales) for comprehensibility and assessed manipulations by drawing on a sample of 125 participants (37% female, M_{age} = 36 years) recruited through an MTurk panel. In the pre-test, we randomly assigned each participant to one of the four conditions. After naming the new smoothie brand, respondents were invited to complete a questionnaire that consisted of measures of in-gamification distributive and procedural justice. We adapted Ting and Yu (2010) scale and measured in-gamification distributive justice through the following items: 'The contest produces desirable results for all participants without any bias' and 'The contest delivers reasonable results according to all participants' contributions' (Cronbach's α = .824). For in-gamification procedural justice, we used the following items (Ting & Yu, 2010): 'The contest will designate the winners without any bias' and 'The procedure used to designate the winners is consistent across participants' (Cronbach's α = .700). We also assessed respondents' perceived likelihood of winning ('The likelihood of winning is [very high–very low]'). The time invested in the contest was ultimately captured through Qualtrics metrics as a proxy for participants' efforts.

As expected, the pre-tests revealed significant differences regarding the extent to which participants perceived in-gamification distributive and procedural justice across the four conditions. Those participating in activities for which they were able to exert an influence through their behaviour reported greater perceived distributive justice than those in the other groups ($F(df_1; df_2) = 7.51(1;124)$; $p < .01$). In contrast, the groups participating in the activity that emphasised contest process-related equity (i.e. in which the best proposition is selected by an external jury, vs. the winner being randomly drawn) reported greater perceived distributive justice than the other groups ($F(df_1; df_2) = 11.49$ (1;124); $p < .01$). No significant differences were identified with regard to the perceived likelihood of winning or engagement in the activity.

Measures

Immediately after confirming their participation, respondents received the questionnaire. We operationalised member experience quality using established multi–item scales (see Appendix 2). Member experience quality was measured by using Verleye's (2015) 19-item scale, which captures four dimensions: Social- (5 items), pragmatic- (6 items), cognitive- (5 items), and hedonic experience (3 items). All dimensions showed high reliability, with Cronbach's alphas considerably exceeding the recommended cut-off value of .70 (Nunnally & Bernstein, 1994)

and high composite reliabilities (CRs). The reported CR values ranged from .87 to .94, with the average variance extracted (AVE) values ranging from .58 to .85, thus exceeding the critical thresholds of .6 and .5, respectively (Bagozzi & Yi, 1988; see Appendix 3).

Intent to make further community contributions was measured by drawing on a four-item ad-hoc scale that comprised items of V. Kumar et al.'s (2010) four value types, including Customer Lifetime Value (CLV), Customer Knowledge Value (CKV), Customer Referral Value (CRV), and Customer Influential Value (CIV). Collectively, these capture any consumer contribution to an object (e.g., community; V. Kumar et al., 2010). Consequently, their amalgamation reveals an individual's community engagement level (Pansari & Kumar, 2017). First, CLV represents consumer-generated value by continuing their community interactions over time. Second, CRV is defined as the extent to which consumers initiate positive community-related word-of-mouth. Third, CIV refers to the influence exerted by an individual on other consumers' community-related behaviours, thus reflecting users' effect on community-based strength-of-ties. Finally, CKV denotes the knowledge that consumers provide to the community. Overall, the measure revealed suitable reliability (Cronbach α = .89; CR = .93; AVE = .76). Finally, a manipulation check was performed for in-gamification distributive (2 items, Cronbach's α = .784) and procedural justice (2 items, Cronbach's α = .771).

Findings

We collected a total of 294 complete questionnaires. No significant differences were found among the four experimental conditions in terms of prior participation in similar contests. For the manipulation checks, respondents assigned to the conditions characterised by high in-gamification distributive justice reported greater perceived distributive justice ($F(df_1; df_2) = 36.15(1; 292)$; $p < .001$), as expected. Similarly, participants assigned to the conditions typified by high in-gamification procedural justice reported greater perceived procedural justice ($F(df_1; df_2) = 24.52(1; 292)$; $p < .001$).

Analyses were conducted based on Preacher and Hayes (2008) Macro-Process (Model 7, bootstrapped samples = 5 000). A moderated mediation model was tested to assess the impact of in-gamification distributive and procedural justice on member experience quality and intent to make further community contributions. Table 1 details the results.

In a regression using member experience quality as the dependent variable, the main effect of in-gamification procedural justice was significant and positive ($\beta = .21$; $t = 2.34$; $p < .05$), thus supporting H_2. Further, the main effect of in-gamification distributive justice was significant, but negative ($\beta = -.35$; $t = -3.95$; $p < .001$). This result provides support for H_3's prediction that in-gamification distributive justice reduces perceived uncertainty, thereby lowering participants' experience quality. No significant moderating effects were identified regarding the implementation of gamification that combines high procedural/distributive justice, as is the case for contests in which the winner is selected by an external jury. Thus, the results highlight a significant, positive effect of member experience on their intent to make further community contributions ($\beta = 1.04$; $t = 13.30$; $p < .001$), thereby supporting the mediating role of experience quality in the relationship between gamification and participants' intention to make further contributions, as suggested in H_1.

Overall, these findings indicate the existence of a mediating effect of member experience quality on gamification's efficiency in terms of member intentions to make further community contributions. We show that in-gamification procedural justice contributes to

Table 1. Results study 1a.

	Dependent variables			
	Experience Quality		Intention to further contribute the community	
	beta	SE	beta	SE
Model 1				
Constant	3.99***	.06		
In-gamification distributive justice	.-35***	.09		
In-gamification procedural justice	.21*	.09		
In-gamification distributive justice × in-gamification procedural justice	.17	.17		
R2 =.13; F = 13.96; *p-value* <.001				
Df1 = 3; Df2 = 290				
Model 2				
Constant			−.41	.33
Experience quality			1.04***	.08
In-gamification distributive justice			−.10	.24
R2 =.40; F = 97.98; *p-value* <.001				
Df1 = 2; Df2 = 291				

* p <.05; ** p <.01; *** p <.001.

member-perceived clarity of the rules and requirements underlying the game's provision of rewards, thereby yielding a superior experience and consequently heightening members' intention to make further community contributions.

By contrast, gamification characterised by high distributive justice can backfire by decreasing members' perceived game-related uncertainty, thereby negatively affecting their experience quality and reducing their intent to make further community contributions. This finding supports our hypothesis suggesting that gamified settings characterised by high distributive justice reduce member-perceived uncertainty, thus rendering the experience less fun and less intrinsically motivating. To confirm our rationale regarding user-perceived uncertainty's role in driving gamification efficiency, we conducted Study 1b.

Study 1b

This study was designed to test our hypothesis (H3), which suggests that gamification characterised by high distributive justice reduces member-perceived uncertainty, thereby lowering participants' experience quality and consequently reducing their intent to make further community contributions.

Study design and sample

The experimental design was a one-factor, two-level between-subjects design (high vs. low in-gamification distributive justice). A total of 100 participants (49% female, M_{age} = 31 years) agreed to participate in the study. Respondents were recruited from *Prolific* and were randomly assigned to one of the four conditions.

Procedure

Participants were invited to help a startup company launch a new product by naming a new ice cream flavour and proposing an associated slogan, in return for a potential financial

reward. No information about reward rules or types was provided before respondents agreed to participate in the study, in order to minimise self-selection bias. We next exposed respondents to the experimental treatment, in which they were informed of the instructions. These varied according to the experimental conditions (high vs. low in-gamification distributive justice). Similar to Study 1a, in the condition of high distributive justice, the instructions indicated that the best submissions would be rewarded, suggesting that rewards are given out based on submission quality. Conversely, in the low distributive justice condition, the instructions indicated that contest winners would be randomly drawn (i.e. rewards independent from submission quality). After reading the instructions, respondents were invited to submit their ideas.

Measures

After participating in the contest, respondents accessed an online questionnaire, which included experience quality and perceived uncertainty measures. We adapted Verleye's (2015) 18-item scale to measure the contest's experience quality. Then, a two-item measure was created to assess contest-related perceived uncertainty, which comprised the following items: 'Winning this contest is uncertain for me' and 'I cannot predict if I will be rewarded or not through this contest' (rated on 5-point Likert-type scales, where 1 = 'strongly disagree,' to 5 = 'strongly agree'). Both measures met established scale reliability criteria, as reported in Appendix 3.

Findings

We tested for perceived uncertainty's potential mediating effect in the association of in-gamification distributive justice and participant-perceived experience quality by deploying Hayes and Preacher (2013) Macro-Process (Model 4; bootstrapped samples = 5 000). To do so, it was introduced in the model as a dummy variable (1 = 'high distributive justice,' 0 = 'low distributive justice'). Experience quality was used as the dependent variable, while perceived uncertainty was deployed as mediating variable. Table 2 outlines the results.

Table 2. Results study 1b.

	Dependent variables			
	Perceived Uncertainty to Win		Experience Quality	
	beta	SE	beta	SE
Model 1				
Constant	2.37***	.17		
In-gamification distributive justice	−.55***	.23		
R2 =.05; F = 5.61; *p-value* <.05				
Df1 = 1; Df2 = 98				
Model 2				
Constant			1.81***	.14
In-gamification distributive justice			.02	.11
Perceived uncertainty to win			.17***	.05
R2 =.11; F = 6.07; *p-value* <.01				
Df1 = 2; Df2 = 97				

* p <.05; ** p <.01; *** p <.001.

The direct effect of in-gamification distributive justice on participants' experience quality appeared to be non-significant (β = .02; SE = .11; n.s.). However, our results also showed that in-gamification distributive justice has a negative, significant impact on participant-perceived uncertainty to win the contest (β = −.55; SE = .23; $p < .05$), which in turn positively affected participants' experience quality (β = .17; SE = .05; $p < .001$).

These findings therefore offer further support for our hypothesis H_3, as they show that one's perceived uncertainty to win provides a valid explanation of the negative effect of in-gamification distributive justice on participants' experience quality. While the first two studies provide evidence of the effects of in-gamification justice on members' experience quality and their intent to make further community contributions, these were not implemented in online communities. Accordingly, they do not take into account the various member profiles suggested in prior literature (e.g., Kozinets et al., 2008), as addressed in Study 2. We thus further examine the moderating effect of members' community engagement on the negative association between in-gamification distributive justice and experience quality and ensuing intent to make further community further contributions, as detailed in the next section.

Study 2

To confirm our findings attained in Study 1 and test H_4, a field experiment was conducted to assess the moderating effect of members' community engagement on the negative effect induced by in-gamification distributive justice on members' intent to make further community contributions. Study 2 also complements the previous studies by testing our hypotheses in a real online community context.

Design and procedures

The field study was conducted in collaboration with the female-only online community *So Girly*, where women share knowledge and information on lifestyle topics. One week before Valentine's Day 2016, we launched a community contest that invited members to publish a picture representing 'Love.' The contest's general description did not reveal any information about the study purpose to the participants. To avoid self-selection bias, the rules associated with the various conditions were presented after members agreed to participate. Each participant was randomly assigned to one of the four conditions.

Similar to Study 1, while the first condition suggested that the potential contest winner would be randomly drawn (i.e. high procedural justice, low distributive justice), the second condition indicated that the winner would be elected by other community members (i.e. low procedural justice, high distributive justice). The third condition suggested that the winner would be selected by an external jury (i.e. high procedural/distributive justice). The last condition included a control group (i.e. low procedural/distributive justice). After participating in the contest, participants were invited to complete a questionnaire.

Measures

Like in Study 1a, the questionnaire included multi–item scales measuring member experience quality (Verleye, 2015) and intent to make further community contributions, based on V.

Kumar et al. (2010). Since our experiment was operationalised in a real-world community, we also gauged members' community engagement to assess its moderating impact on the negative effect of in-gamification distributive justice on members' intent to make further community contributions. To measure community engagement, we used Algesheimer et al.'s (2005) four-item scale. Items were rated on five-point Likert scales ranging from 1 ('strongly disagree') through to 5 ('strongly agree'). All scales showed high reliability, with Cronbach's alphas ranging from .79 to .89. In addition, CRs ranged from .86 to .93, and the AVE ranged from .54 to .80, indicating acceptable scores. Appendices 2–3 list the items and scale reliability statistics, respectively.

Findings

A total of 233 completed questionnaires was collected in our field experiment. The participants' mean age was 23 years, and all of them were female, thus aligning with this online community's profile (Hollebeek et al., 2017). No significant differences were identified among the four conditions in terms of community tenure or seniority.

To analyse the data, we used Preacher and Hayes (2008) Macro-Process (Model 9, bootstrapped samples = 5000). A moderated mediation model was also tested to assess the (1) relationship between member experience quality and their intent to make further community contributions; (2) impact of in-gamification procedural and distributive justice on member experience quality; and (3) moderating effect of member community engagement on the negative impact induced by in-gamification distributive justice on member experience quality. Table 3 details the results.

In a regression that deployed member experience quality as the dependent variable, the main effect of in-gamification procedural justice was significant and positive ($\beta = .22$; $t = 2.54$; $p < .05$). In addition, a significant, but negative main effect was observed for in-gamification

Table 3. Results study 2.

	Dependent variables			
	Experience Quality		Intention to further contribute to the community	
	beta	SE	beta	SE
Model 1				
Constant	2.08***	.18		
In-gamification distributive justice	−.91***	.25		
In-gamification procedural justice	.22*	.09		
Consumer's level of community engagement	.36***	.06		
In-gamification distributive justice × in-gamification procedural justice	.04	.13		
User's level of community engagement × in-gamification distributive justice	.21*	.08		
R2 =.45; F = 37.66; *p-value* <.001				
Df1 = 5; Df2 = 227				
Model 2				
Constant			1.22***	.24
Experience quality			.77***	.07
In-gamification distributive justice			.05	.09
R2 =.34; F = 58.15; *p-value* <.001				
Df1 = 2; Df2 = 230				

* $p < .05$; ** $p < .01$; *** $p < .001$.

distributive justice ($\beta = -.91$; $t = -3.60$; $p < .001$). No significant moderating effects were reported for the implementation of gamification that combines distributive and procedural justice. The moderating effect of member community engagement on the relationship between in-gamification distributive justice and member experience quality was significant and positive ($\beta = .21$; $t = 2.46$; $p < .05$), thereby supporting H_4. Similar to Studies 1a-1b, member experience quality and their intent to further contribute were significant and positive ($\beta = .77$; $t = 10.42$; $p < .001$). The direct impact of in-gamification distributive justice on members' intent to make further community contributions was non-significant ($\beta = .05$; n.s.). Collectively, these findings support H_2, H_3 and H_4.

Overall, our findings indicate that in-gamification distributive justice negatively affects member experience quality, in turn weakening their intent to make further community contributions. However, this effect varies based on members' community engagement level. Indeed, as members become increasingly engaged with the community, they progressively value their community-based peer interactions, rather than potential gamification rewards.

Discussion and implications

Theoretical implications

Dynamic online communities are an important pillar of the success of firms' or brands' online strategy (J. Kumar & Nayak, 2019). However, though gamification represents a popular approach to enhance users' experience and prolong their participation in this environment (Wolf et al., 2020), our results offer a caveat regarding its implementation. In this research, we investigated the role of in-gamification distributive/procedural justice in affecting online community members' experience quality and their intent to make further community contributions in three experimental studies. While procedural justice refers to gamification process-related perceived fairness, distributive justice denotes the member-perceived balance between their invested resources in gamified interactions and the potential rewards obtained.

In line with social exchange theory, our findings reveal the important role of securing high in-gamification perceived procedural justice (in identifying the contest winner), which exerts a significant effect on members' experience quality and their intent to make further community contributions. Indeed, gamified settings characterised by high procedural justice indicate to members that the process in which they invest their resources in return for potential rewards is efficient and transparent, thereby favourably affecting their community-related perceptions. That is, any community member, regardless of their engagement level, expects and values in-gamification procedural fairness.

By contrast, we also identify a potential detrimental effect of in-gamification distributive justice on members' experience quality and intent to make further community contributions, thereby serving as an important caveat for gamification's implementation. Specifically, our findings highlight that high distributive justice can negatively affect member-perceived uncertainty, thereby lowering their experience quality and intent to make further community contributions. A plausible explanation lies in members' gamification-related anticipation and thrill, which diminishes under decreasing uncertainty.

This finding therefore confirms the central role of user-perceived uncertainty in gamification performance (Leclercq et al., 2020). We infer from this result that participants' gamification engagement will be lengthened by striving to reduce game-related uncertainty in reaching their game-related goals (Costikyan, 2013). When they succeed at this task, we deduce that they are likely to feel a sense of achievement, thus raising their gamification-related experience and intent to make further community contributions. Therefore, based on our findings, the strategic inclusion of a level of gamification-related uncertainty represents an important ingredient for its performance (Shen et al., 2019), thereby offering an important theoretical contribution to the (service) marketing literature.

The opposing effects of in-gamification procedural and distributive justice may be linked to the notions of extrinsic vs. intrinsic participant motivations to take part in gamified activities (Wolf et al., 2020). While extrinsic motivation focuses on participants' desire to receive a potential gamification reward, intrinsic motivation reflects players' desire to participate in gamification activity for its own sake (e.g., for its playful experience; Dale, 2014).

Thus, while gamification characterised by high procedural justice tends to predominantly tap into users' extrinsic motivations (e.g., by promoting a perceived acceptable cost/benefit ratio), those revealing low distributive justice more directly tap into consumers' intrinsic motivations. Relatedly, our findings show that highly-engaged community members are driven more by their meaning-laden community-based relationships (Hollebeek et al., 2017), rather than the fun or playful gamification experience *per se*. That is, they are less intrinsically motivated by gamified settings' implementation (e.g., look, feel, challenge). This finding is consistent with prior research that emphasises gamification's effectiveness to be contingent on member profiles (Leclercq et al., 2017, 2020), suggesting that one gamification size does not fit all. Specifically, those consumers displaying high (vs. low) community engagement were found to place greater value on in-gamification distributive justice. In other words, we expect gamification to be more effective for relatively low-engaged community users (e.g., newcomers), who tend to be more focused on the receipt of rewards (Leclercq et al., 2017).

Managerial implications

This research also raises important managerial implications. Specifically, our findings suggest that gamification should be used with caution, as its implementation with high perceived distributive justice can in fact harm members' experience quality and intent to make further community contributions. Our results also indicate that the incorporation of gamification-related uncertainty (e.g., through challenge) is important, as it drives fun, gameful experiences, particularly for those displaying low community engagement.

Moreover, we emphasise the importance of in-gamification procedural justice, which reflects the consumer's belief that the gamification process treats participants equally. Procedural justice is required *regardless* of user profile or community engagement. Given the significance of user-perceived transparency in fostering procedural justice, we advise managers to consistently offer clear, unambiguous gamification-related information to their users (e.g., by explicitly stating its rules/procedures and providing a reference repository where users can look up or verify the information at their convenience).

In line with our findings, we recommend the development of unique gamification targeting approaches for different engagement-based member segments. Overall, our findings provide

novel evidence that high distributive justice gamification can backfire in terms of negatively affecting members' experience quality and intent to make further community contributions, thereby posing a risk to gamification's effectiveness (Shen et al., 2019).

Conclusions, limitations, and further research

In today's increasingly competitive business environment, promoting consumer participation in online communities is a highly rewarding, yet challenging, task (Bengtsson & Ryzhkova, 2013; Coussement et al., 2017; Gambetti & Graffigna, 2015). Therefore, new techniques are continuously being developed to stimulate user contributions and maintain their engagement over time. Here, gamification is one of the approaches that has been praised for its potential to drive desirable consumer behaviours (Wolf et al., 2020).

However, despite its broad and growing range of applications, understanding of the process by which gamification affects consumer behaviour remains limited (Landers, 2019). Moreover, while gamification's adoption may seem attractive to encourage member participation, little remains known about its effect on user-perceived experience quality. To address these gaps, we explore the use of gamification in online communities, with a particular focus on the effects of in-gamification perceived procedural/distributive justice on user-perceived experience quality. Through our three-study approach, we thus respond to Deterding's (2019) call to further develop scholarly understanding of how gamification can be used to create, boost, and maintain consumers' online community contributions and experience. In addition, by developing understanding of in-gamification procedural and distributive justice, we respond to Harwood and Garry (2015) call to scrutinise gamification's effectiveness and identify its limits (Hamari et al., 2014; Lucassen & Jansen, 2014), thereby making an important contribution to the gamification literature.

Our results identify the key role of high in-gamification procedural justice in driving consumer experience quality and their intent to make further community contributions. However, the use of high in-gamification distributive justice can backfire, as it may reduce consumer-perceived uncertainty, thereby adversely impacting perceived gamification playfulness and fun, and yielding important theoretical and managerial implications, as discussed.

Despite our multi-study approach, several inherent limitations exist in our work, thereby necessitating further research in this growing area. First, to enhance generalisability of our findings, further study is needed to verify our results in different contexts, including other online communities, offline communities, or sectors. For instance, insight into gamification's adoption in vulnerable consumer contexts (e.g., patients, children) currently lags behind, which may be implemented through educational/serious games.

Second, while we studied the role of in-gamification procedural/distributive justice (as moderated by community engagement), other important variables exist that may affect gamification performance (e.g., consumers' attitude towards gamification, need-for-escapism; Jeng & Teng, 2008), which merit further scrutiny. Relatedly, other plausible moderating factors (e.g., consumer brand engagement, other gamification-related factors e.g., badge systems) may be incorporated in future research designs. Further, as different member profiles (e.g., high/low community engagement) may require unique gamification approaches, it is of interest to conduct further study into differing segments' gamification responses and corresponding best marketing practices to meet each segment's needs (Kozinets, 1999).

Third, this research emphasises gamification's implementation for community members. While member-to-member interactions develop over time, our research investigates gamified actions by means of a cross-sectional research design. Therefore, further research is needed that explores gamification's effect on community member behaviours across interactions over time (e.g., through longitudinal research). In such longitudinal study, the development of insight into gamification-related *satiation* offers a worthwhile research avenue (Galak et al., 2012). Satiation occurs when a gamified stimulus uses all of an individual's available resources (e.g., attention, time), leaving them feeling drained or bored, thereby affecting their future participation.

Finally, we identify member-perceived procedural justice and uncertainty as key drivers of their gamification-related experience quality and intent to make further community contributions. Further academic efforts could explore how different reward types may affect these dynamics (e.g., how do members value gamification-related uncertainty under higher rewards?; Shen et al., 2019).

Disclosure statement

No potential conflict of interest was reported by the authors.

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APPENDICES

Appendix 1. Display study 1a

		In-gamification distributive justice	
		Low	High
In-gamification procedural justice	Low		
	High		

Appendix 2. Measurement scale items

Constructs	Items
Experience quality	
Hedonic dimension	*It was a nice experience.*
	It was fun.
	I enjoyed it.
Cognitive dimension	*I can improve my skills.*
	I gain new knowledge/expertise.
	I can test my capabilities.
	It allows me to keep up with new ideas and innovations.
	It enables me to come up with new ideas.
Social dimension	*The interaction was pleasant.*
	I was able to connect with other people.
	I can make others aware of my knowledge and ideas.
	I can make a good impression on other people.
	I meet others with whom I share similar interests.
Pragmatic dimension	*I received compensation according to the effort made.*
	I received a fair return.
	I received an appropriate reward in return for my input.
	I had control over the quality.
	The quality was in my hands.
	I had an impact on the degree to which my preferences were met.
Community Engagement (Algesgheimer, Dholakia and Hermann, 2005)	
	I benefit from following this community's rules.
	I am motivated to participate in this community's activities because I feel better afterwards.
	I am motivated to participate in this community's activities because I am able to support other members.
Intentions to make further community contributions (based on V. Kumar et al., 2010)	
	I will say positive things about this community to other people (CRV)
	I will encourage people to join the community (CIV)
	I will suggest ideas to the community (CKV)
	I will continue to participate in the activity of the community (CLV)

Appendix 3. Measurement scale statistics

	Study 1a			Study 1b			Study 2		
	Cronbach α	CR	AVE	Cronbach α	CR	AVE	Cronbach α	CR	AVE
Experience Quality									
Hedonic dimension	.96	.94	.85	.90	.94	.93	.88	.92	.80
Cognitive dimension	.85	.89	.63	.76	.84	.52	.81	.87	.57
Social dimension	.92	.87	.58	.80	.86	.57	.79	.86	.55
Pragmatic dimension	.89	.91	.64	.82	.88	.60	.83	.87	.54
Intent to Make Further Community Contributions	.89	.93	.76	NA	NA	NA	.76	.93	.77
Member Community Engagement	NA	NA	NA	NA	NA	NA	.89	.93	.76