

# **Encouraging altruistic user-generated content in gamified review platforms**

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## Abstract

**Purpose:** This study proposes and tests a model to analyse whether achievement, social and immersion motivational affordances embedded in gamified review platforms motivate consumers to altruistically create content in the post-consumption stage.

**Design/method/approach:** We used data from a sample of 343 reviewers and employed SmartPLS to test the research model.

**Findings:** Findings revealed that, while achievement affordances (i.e., points, levels and badges) have no significant effect, immersion affordances (i.e., avatars) and, more especially, social affordances (i.e., receiving helpful votes from readers and having followers) are key for review platforms, as they drive consumers to develop pure, reciprocal and competitive forms of altruism, which, in turn, motivate them to create content.

**Research limitations/implications:** This study examines the antecedents and consequences of altruistic purpose in the context of gamified review platforms by proposing research questions aimed at eliciting the effects of achievement, social, and immersion affordances on altruism, and by providing the first empirical evidence for these paths.

**Practical implications:** This study provides practical guidance on how review platforms can implement social and immersion affordances to foster altruism and, ultimately, promote user-generated content in the form of comments, photos, and videos.

**Originality:** To the best of the authors' knowledge, the current study is the first to develop a model to predict whether gamification affordances promote forms of altruism

that result in user-generated content. The findings will improve practitioners' strategies by focusing on social and immersion motivational affordances.

**Keywords:** Gamification; Motivational affordances; Altruism; User-generated content; Online reviews

## 1. Introduction

User-generated content has become the most important source of inspiration for consumers (Wu, 2019). Whether deciding on new smartphones, restaurants, or hotels, people consult online reviews to get inspiration and guidance from altruistic consumers with previous experience of products and services. However, once they have experienced the products or services themselves, most consumers do not continue the virtuous circle by providing their first-hand experiences. Instead, as creating content is a time-consuming and effortful voluntary behaviour and consumers see online reviews as ‘a type of privately provisioned public good’ (Liang *et al.*, 2022, p. 1693), they tend to free ride on others’ contributions.

Sales performances of products are increasingly dependent on online reviews. As a result, companies need to understand which factors drive people to generate this content and, based on this understanding, create engaging and high-quality user-generated-content environments. Some sellers ask for reviews and even compensate consumers in exchange. However, as this tactic can result in fake reviews, it is not well received by consumers or review platforms. Amazon, for instance, banned paid reviews in its sellers’ terms of service and TripAdvisor removed 1 million fake reviews from its platform (Hart, 2022). An alternative strategy with great potential to encourage users to generate content is gamification.

Gamification refers to the use of motivational affordances to enhance the services organisations provide by creating experiences similar to those created by games (Hamari *et al.*, 2014). Yelp, for instance, uses badges, levels and leaderboards to motivate users to write reviews, upload photos and check in at locations, whereas TripAdvisor uses numerous gamification affordances, such as points, badges and helpful votes, to make the reviewing experience more game-like and motivate consumers to contribute for free in post-consumption stages. Similarly, in Amazon, reviews with the most helpful votes are displayed more prominently and badges provide a visual representation of users’ contributions and status.

Despite extant research acknowledging that reviewing and sharing opinions is an entirely voluntary, altruistic behaviour that takes time but provides no external tangible rewards, altruism has not yet been analysed thoroughly as a mechanism that can explain the effects of gamification on the creation of user-generated content. Only the work of Labsomboonsiri *et al.* (2022) analysed the impact of one specific gamification affordance

–rewards– on reviewing continuity through the desire to help others. In addition, while gamification has been analysed in altruistic contexts such as crowdsourcing (Na and Han, 2023) and cooperation (Riar *et al.*, 2022), there is a need to investigate which specific gamification affordances help to validate altruistic sentiment (Riar *et al.*, 2020). In fact, it is important to note that, of the millions of people around the world who freely and altruistically write reviews on Amazon or share reviews, photos and experiences of hotels, restaurants and attractions in platforms such as TripAdvisor or Yelp, some have the sole objective of helping others (Oliveira *et al.*, 2020), while others may act in this way as a form of reciprocity (Kumar *et al.*, 2021), or to improve their reputation (Belarmino and Koh, 2018). That is, the origin of altruistic behaviours can vary greatly among individuals, which raises interesting questions: How can gamification address these different altruistic perspectives? Are some forms of altruism better able than others to motivate users to generate content?

Previous research into the impact of gamification on review platforms is scarce and suffers from limitations. Most studies on this phenomenon have focused on analysing whether gamification affordances affect consumers' reviewing behaviours, such as the length of their reviews (Hlee, 2021; Moro *et al.*, 2019; Moro and Stellacci, 2023) and the ratings they award (Hlee *et al.*, 2021). By contrast, how gamification motivates consumers to generate content has scarcely been investigated. Furthermore, although gamification is a form of motivational design (Deterding *et al.*, 2011), there is a lack of theoretical foundation to explain the motivational effects of gamification in the specific context of review platforms (Bravo *et al.*, 2021).

Drawing on gamification literature (Koivisto and Hamari, 2019), affordance theory (Gibson, 1977) and altruism theories (Batson and Shaw, 1991; Roberts, 1998; Trivers, 1971), this study attempts to bridge these knowledge gaps by empirically exploring the role of gamification (differentiating between achievement, social and immersion motivational affordances) in stimulating user-generated content through different altruistic perspectives: pure altruism (based on the desire to help others), reciprocal altruism (reciprocation for help received), and competitive altruism (enhancing one's reputation).

This research contributes to the existing literature in several ways. First, it extends existing knowledge by explaining consumers' motivations to create content; that is, are consumers' 'altruistic' behaviours performed truly to benefit others, or really to benefit

themselves? To the best of the authors' knowledge, this is the first study to examine the relationships between gamification affordances and consumers' pure, reciprocal and competitive altruism that lead to the creation of user-generated content. Second, rather than focusing on the isolated effect of only one specific game element (e.g., Fang *et al.*, 2018; Han *et al.*, 2022; Labsomboonsiri *et al.*, 2022), this study examines simultaneously the effects of various elements within the three most commonly featured motivational affordances in gamification: achievement-oriented affordances, social-oriented affordances and immersion-oriented affordances (Koivisto and Hamari, 2019). This broader approach is needed to obtain insights into which specific gamification affordances are more effective for motivating reviewers to perform the desired behaviours. Third, it responds to calls to explain how gamification motivates consumers to make contributions during the post-consumption phase (Bravo *et al.*, 2021; Moro *et al.*, 2019). Finally, the study offers suggestions for practitioners about which affordances to focus on.

## **2. Literature review**

### *2.1. Gamification affordances and online reviews*

Gamification refers to 'a design approach of enhancing services and systems with affordances for experiences similar to those created by games' (Koivisto and Hamari, 2019, p. 193) to change individuals' behaviour. According to Hamari *et al.* (2014), gamification can be conceptualised as a continuous three-stage process articulated into the 'affordances–psychological outcomes–behavioural outcomes' framework, which involves gamification affordances incorporated into a service or a system, psychological outcomes caused by the gamification affordances, and behavioural outcomes supported by gamified systems and motivated by psychological outcomes.

The term 'gamification affordances' is based on Gibson's (1977) concept of affordance, which describes actionable properties between an object and an actor. Motivational affordances 'comprise the properties of an object that determine whether and how it can support one's motivational needs' (Zhang, 2008, p. 145). Based on this notion, some researchers consider that gamification affordances should focus on understanding what individuals perceive they can do with gamified services or systems (Suh and Wagner, 2017), and differentiate this term from specific game elements or features that are implemented in gamified technology design (Tang and Zhang, 2019; Xu *et al.*, 2022).

This study follows Koivisto and Hamari (2019, p. 193), which defined the concept of affordances in the context of gamification as the ‘various elements and mechanics that structure games and aid in inducing gameful experiences within the systems’.

As a very well-established concept within the gamification field, motivational affordances can be considered as stimuli designed with the intent of provoking different psychological states, opening the possibility for the occurrence of experiences or behaviours (Huotari and Hamari, 2017). In particular, gamification design involves the use of a wide range of motivational affordances (Huang and Zhou, 2021). Koivisto and Hamari (2019) provided a comprehensive review of the motivational affordances that exist in gamification research, independent of the study context, and concluded that these can be classified, from more to less common, into achievement-oriented affordances, social-oriented affordances, immersion-oriented affordances and, to a lesser extent, non-digital and miscellaneous. Achievement affordances are oriented towards progression in gamified services or systems and are focused on achieving specific goals and challenges; they prevail in gamification implementations because they are easily applicable to various contexts and types of existing systems (Koivisto and Hamari, 2019). Social affordances allow social interactions among users of gamified services or systems through cooperation, competition and social relatedness (Koivisto and Hamari, 2019). Finally, immersion affordances help users of gamified services or systems immerse themselves in gamified scenarios, making them more engaging (Koivisto and Hamari, 2019). This classification of gamification affordances into achievement, social and immersion affordances has been widely validated in subsequent research not only as a means of classifying gamification affordances in systematic literature reviews (e.g., Fernández Galeote *et al.*, 2021; Lehtoranta *et al.*, 2024; Yang *et al.*, 2023b), but also as the conceptual framework for analysing gamification effects in different contexts, especially in technology-mediated environments (e.g., Bitrián *et al.*, 2020, 2021, 2023; Hassan *et al.*, 2020; Wallius *et al.*, 2023; Xi and Hamari, 2019, 2020; Zhang *et al.*, 2024).

While alternative frameworks like MDA (Mechanics, Dynamics, Aesthetics) (Hunicke *et al.*, 2004) and Octalysis (Chou, 2019) provide valuable insights into game design and user motivation, Koivisto and Hamari’s (2019) classification specifically addresses the practical application of motivational affordances in different fields and offers a clear structure for understanding how these affordances influence user behaviour. In addition, as noted by Tang *et al.* (2024, p. 4.), it ‘enables the design and implementation of

gamification strategies tailored to individual preferences and organizational objectives'. Thus, Koivisto and Hamari's (2019) classification is particularly well-suited for research studies focusing on exploring the specific impact of gamification on altruism and user-generated content.

In the specific context of online review platforms, consumers can adopt two different roles: readers (before consumption, to get inspiration) and reviewers (after consumption, to share their experiences). Although gamification affordances have the potential to affect both (Moro *et al.*, 2019), existing research has mostly focused on the pre-consumption stage, that is, analysing the role of consumers as readers (Bravo *et al.*, 2021). For example, some studies have examined aspects important to readers, such as review helpfulness, credibility or informativeness (Liang *et al.*, 2022; Lo and Yao, 2019), and gamified elements with which readers can interact, such as helpful votes. On the one hand, various studies have focused on determining which review characteristics are associated with receiving helpful votes from readers, such as review length (Fan *et al.*, 2022), review depth (Lee and Park, 2022), review readability (Fang *et al.*, 2018), review informativeness (Mahdikhani, 2023), extremity of opinions (Han *et al.*, 2022), and review sidedness (Fan *et al.*, 2022). On the other hand, several studies have investigated which reviewer characteristics attract helpful votes from readers for a particular review. These characteristics include the number of fans or followers they have (Li *et al.*, 2021) and their level of expertise (Lee and Park, 2022).

To a lesser extent, other studies have focused on the role of consumers as reviewers – that is, in the post-consumption stage – by analysing whether gamification impacts reviewing behaviours (Hlee, 2021; Moro *et al.*, 2019). Reviewers with fewer badges tend to write fewer words per review because they are eager for quick promotion (Liu *et al.*, 2018). Similarly, reviewers with high-level badges dislike giving extreme ratings and tend to be relatively moderate (Schuckert *et al.*, 2016). The level reached by reviewers has also received attention in the literature, with studies indicating that higher levels are associated with longer reviews (Hlee, 2021) and more replies (Fang *et al.*, 2018). Likewise, higher-level reviewers tend to impose stricter penalties when service quality is below their expectations by awarding lower ratings (Hlee, 2021). In this line, Chen *et al.* (2022) analysed whether hierarchical privilege levels and non-hierarchical incentives stimulate continued knowledge contribution, and found that improved reputation and being granted badges (i.e., non-hierarchical incentives) help to maintain knowledge contribution,



whereas closeness to the next hierarchical privilege level has a curvilinear relationship with continued knowledge contribution.

To the best of our knowledge, very little scholarly work has evaluated the motivational mechanisms through which gamification may influence reviewing behaviours. In this regard, Bravo *et al.* (2021) found that, while user-generated content is not directly affected by the number of points obtained, interaction with gamification affordances directly increases controlled motivation and indirectly increases autonomous motivation to create content through the satisfaction of basic psychological needs. More recently, Labsomboonsiri *et al.* (2022) analysed the interrelationships of rewards, helping motivations and reviewing continuity, and they found that recognition rewards motivate reviewers to help other consumers more than monetary rewards, and that helping other consumers as well as service providers predicts reviewing continuity.

## *2.2. Motivating online reviewing: the role of pure, reciprocal and competitive altruism*

Voluntary contributions of consumers are the core of user-generated online reviews. Given the vital importance of consumers' contributions, Zhang *et al.* (2020, p. 1) formulated a 'million-dollar question': 'Why [do] users devote their valuable time and effort to voluntarily contribute new content and help strangers?'

Previous research has demonstrated that voluntary contributions do not always happen naturally; on the contrary, as online reviews are perceived as a type of public good, individuals tend to free ride on others' contributions (Liang *et al.*, 2022). As Wu (2019, p. 1) indicated, 'online reviewing is a type of prosocial behaviour that is costly to reviewers and primarily benefits other consumers'. Therefore, the vast majority of consumers are lurkers. Nielsen (2006) anticipated this, coining the '90-9-1 rule', which states that in online communities, such as review platforms, 90% of users are lurkers who never contribute, 9% of users contribute a little, and 1% of users account for almost all the action. While these percentages might differ somewhat among platforms, it has been widely proven that the majority of reviews are created by a minority of consumers (Zhang *et al.*, 2020).

Altruism, which involves benefitting others at a cost to oneself (Batson, 1998), may at least partially explain why some consumers are willing to generate content (see Table I). Hennig-Thurau *et al.* (2004) proposed that consumers' desire to help others prompted them to invest time and effort to create content from a purely altruistic perspective. *Pure*

*altruism*, also known as true altruism, is a motivational state that drives individuals to promote others' welfare (Batson and Shaw, 1991). It involves helping others with no expectation of receiving benefits or rewards in return, even at potential cost to oneself. In consumption contexts where people rely heavily on others' comments and suggestions, consumers often share their experiences to help other individuals by recommending worthwhile products and services, and to prevent them from undergoing negative experiences (Munar and Jacobsen, 2014).

While pure altruism exists, for certain individuals, performing altruistic behaviours might also be an investment strategy; that is, they engage in altruistic behaviours in the hope that recipients will return the favour. This is known as *reciprocal altruism* (Trivers, 1971). Reciprocal altruism is supported by social exchange theory (Blau, 1964), which posits that individuals' perceptions of reciprocity shape their willingness to cooperate in relational exchanges. In review platforms, while information exchanges about products and services take place between strangers, there is evidence of reciprocal supportiveness (Wang and Fesenmaier, 2004). Thus, while consumers might offer help to the community from a purely altruistic perspective, they might also share their experiences as a form of reciprocation for help received in the past, and/or with expectations of future help (Wu, 2019).

However, as Roberts (1998) suggested, the stability of reciprocity might be problematic in situations where some individuals fail to reciprocate. In particular, in review platforms, reciprocity may not apply because online reviews benefit a broad audience rather than specific individuals (Ke *et al.*, 2020). In those situations, if individuals help strangers, they must benefit in some way, such as by gaining the respect of others. *Competitive altruism* refers to altruism that is not directly reciprocated, but can provide benefits through reputation building (Roberts, 1998). As altruism enhances the status and reputation of the giver, individuals compete in terms of generosity (Hardy and Van Vugt, 2006). In a public good dilemma, such as the provision of online reviews, Hardy and Van Vugt (2006) anticipated that high contributors would do worse in terms of immediate outcomes than low contributors because altruism is costly for the individual in the short run; however, as their status and reputation increase, high contributors gain compensating benefits in the long run. Thus, for competitive altruism to occur, the altruistic behaviour must be publicly visible, so that others can evaluate and respond to it (Hardy and Van Vugt, 2006). Accordingly, consumers might contribute to review platforms to enhance

their reputation. Competitive altruism is consistent with social exchange theory (Blau, 1964), which holds that individuals engage in social interactions in the expectation that their participation will lead to higher status, approval and respect. However, it is important to differentiate consumers who are motivated by competitive altruism from those who are motivated by egoistic reputation, or status-seeking. While both can lead to the same prosocial behaviour, the goal that motivates competitive altruism is associated with benefitting others (e.g., helping other consumers) and gaining status is just an additional, secondary benefit for the individual, whereas the final goal in egoism is associated with benefitting the self (e.g., gaining status and reputation) and helping others constitutes an additional, secondary benefit for the community (Riar *et al.*, 2024).

Besides the motivation derived from altruism, review platforms also motivate consumers to contribute more and higher quality content by offering various incentives (Zhang *et al.*, 2020). One of these incentive mechanisms corresponds to gamification and the rewards it provides, which have been predicted to increase participation and reduce lurking behaviours in online communities (Bishop, 2012), such as review platforms.

[Table I here]

### **3. Proposed model**

This paper draws on the ‘motivational affordances–psychological outcomes–behavioural outcomes’ paradigm used in previous research to investigate the effects of gamification on individuals’ behaviours (e.g., Bitrián *et al.*, 2021; Bravo *et al.*, 2021; Huang and Zhou, 2021; Mulcahy *et al.*, 2020; Shi *et al.*, 2022). As an initial exploratory step to address the research gaps and considering the lack of empirical evidence on the proposed relationships, the present study poses research questions to analyse the effect of motivational affordances on psychological outcomes – pure altruism, reciprocal altruism and competitive altruism. Then, the effects of psychological outcomes on the desired behavioural outcome – user-generated content – are hypothesised. Figure 1 depicts the proposed model.

[Figure 1 here]

#### *3.1. Research questions: Do gamification affordances foster altruism?*

Following Koivisto and Hamari’s (2019) classification of gamification affordances, the most commonly featured ones are those related to achievement and progression, such as

points, levels, badges, performance graphs, leaderboards and rankings. The inclusion of achievement affordances in gamified systems is associated with different psychological outcomes, such as basic psychological needs satisfaction (Bitrián *et al.*, 2021; Hsu, 2022; Xi and Hamari, 2019), intrinsic motivations (Feng *et al.*, 2018), and perceptions of enhanced value (Shi *et al.*, 2022). In particular, rewardability and visibility of achievement have been found to increase the perceived hedonic value of gamified systems, which subsequently enhances the quality and quantity of knowledge contribution (Suh and Wagner, 2017). Likewise, Chen *et al.* (2022) found that individuals with greater reputation gains and more achievement badges tend to engage more in knowledge contribution.

In the specific context of review platforms, the main idea behind gamifying these platforms is to directly recognise consumers' online contributions, so they include motivational affordances oriented towards consumers' achievements. In particular, gamified review platforms usually provide reviewers with clear goals (e.g., ratings, writing reviews, posting photos), and achievement of these goals is recognised in some way. While specific provision of achievement affordances might vary among different review platforms, leaders agree on three specific achievement affordances: points, levels and badges. For instance, TripAdvisor reviewers can receive 1 point for casting helpful votes for others' reviews, and up to 100 points for posting a review or a travel article, whereas Google My Business reviewers can receive 1 point per rating up to 15 points per place added. The more points consumers earn, the higher the level they reach in the review platform, which ranges from Level 1 (300 points) to Level 6 (10,000 points) in the case of TripAdvisor, or from Level 2 (15 points) to Level 10 (100,000 points) in the case of Google My Business. Review platforms also include various kinds of badges. For example, Yelp recognises contributors who have gone the extra mile in their reviews by awarding them the Elite badge, and access to the Yelp Elite Squad, whereas Amazon provides a Real Name badge to encourage consumers to post reviews with their real identities. All this information is displayed on reviewers' profiles as a demonstration of their expertise.

Except for Labsomboonsiri *et al.* (2022), who analysed the relationship between receiving recognition rewards and helping other consumers by sharing knowledge, the relationships between achievement affordances and pure, reciprocal and competitive altruism have not been sufficiently explored in previous research. One could argue that achievement

affordances might induce consumers to display forms of altruism for various reasons. Achievement affordances provide feedback about success and progress in task performance (Sailer *et al.*, 2013). More specifically, achieving more points, higher levels, and more badges are directly related to higher contributions to review platforms; every interaction with achievement affordances may give consumers the feeling they have helped other consumers by sharing their experiences (i.e., pure altruism), thus repaying help received in the past (i.e., reciprocal altruism). Moreover, achievement affordances allow for comparisons among reviewers (Sailer *et al.*, 2017). As this information is usually displayed on reviewers' profiles, those with more points and badges could be seen as having more expertise than other reviewers in the community, enhancing their reputation (i.e., competitive altruism). Based on this, we pose the following research question:

***RQ1.** Do achievement affordances in review platforms foster the development of pure altruism (RQ1a), reciprocal altruism (RQ1b) and competitive altruism (RQ1c)?*

The second most common motivational affordances are those related to social aspects (Koivisto and Hamari, 2019). Common social affordances include cooperation, competition, social networking and having teammates, and they have been associated with various psychological outcomes in existing literature. In particular, they have been shown to increase the recognition that individuals receive, which encourages them to increase their use of gamified services/platforms (Huang and Zhou, 2021), and increases their intrinsic motivations for competence (Hsu, 2022; Xi and Hamari, 2019), autonomy (Xi and Hamari, 2019) and relatedness (Bitrián *et al.*, 2021; Hsu, 2022; Xi and Hamari, 2019).

In the specific context of review platforms, social affordances are materialised in voting and following. Gamified review platforms enable consumers to recognise reviewers' efforts by awarding them useful, funny and cool votes (on Yelp), helpful votes (on TripAdvisor), likes (on Google My Business and Amazon), or thumbs up emojis. Likewise, consumers can become followers or friends of reviewers on platforms.

In review platforms, social affordances are particularly interesting since information exchanges take place between strangers. In the literature on recommendations, the strength of social ties between individuals sharing information and recipients has been

considered a critical aspect (Jin *et al.*, 2024), since it is an important predictor of potential purchasing intentions towards recommended products or services (Koo, 2016). While recommendations from strong ties are influential within a closed social network (Brown and Reingen, 1987), recommendations from people with weak or no ties can also be influential across social groups in providing information that the inner circle does not possess (Granovetter, 1973; Steffes and Burgee, 2009). Indeed, weak tie strength motivates individuals to recruit more mental resources in social recommendation (Jin *et al.*, 2024). Therefore, social affordances embedded in gamified review platforms, such as consumers' votes and followers or friends, can be used to turn no-tie relationships into weak ties, since recommendations from people with weak ties are more credible than those from people with no ties (Koo, 2016).

Although there has been insufficient research on whether social affordances influence pure, reciprocal or competitive altruism, positive effects can be predicted for the following reasons. First, votes in review platforms are usually given by consumers to recognise when specific reviews have been especially helpful (Filieri *et al.*, 2019; Liu and Park, 2015). Therefore, receiving votes for their contributions tells reviewers how much they are helping consumers by sharing their knowledge (i.e., pure altruism). Additionally, when other consumers become their followers or friends in the platform, reviewers might feel that their contributions to the community are really helping its members, thereby reinforcing their pure altruism. Second, since social affordances can induce feelings of relatedness (Xi and Hamari, 2019) and enable individuals to develop a sense of belonging to a group (van Roy and Zaman, 2019), reviewers might also want to reciprocate and give back to the community (i.e., reciprocal altruism) if they become friends with or are followed by more consumers in the platform. Finally, interactions with social affordances have the potential to make consumers feel more empowered (Ryan and Deci, 2000). Thus, as the number of votes and the number of followers or friends are usually displayed on reviewers' profiles, receiving more votes and attracting more followers or friends than other reviewers might enhance their reputation in the community (i.e., competitive altruism). Indeed, Goes *et al.* (2014) found that reviewers on platforms that allow users to subscribe to other reviewers' content tend to increase their reviewing efforts as they become more popular. Thus, we pose the following research question:

**RQ2.** *Do social affordances in review platforms foster the development of pure altruism (RQ2a), reciprocal altruism (RQ2b) and competitive altruism (RQ2c)?*

Finally, the third most commonly implemented affordance in gamified systems is immersion (Koivisto and Hamari, 2019). Immersive affordances create in individuals the sense of ‘being there’ in the experience and include virtual worlds, narrative, meaningful stories, and customisation, among other tactics. In previous academic literature, immersion gamification affordances have been associated with increased knowledge (Mulcahy *et al.*, 2020) and the satisfaction of individuals’ basic psychological needs for autonomy (Xi and Hamari, 2019) and relatedness (Bitrián *et al.*, 2021). Likewise, Shi *et al.* (2022) found that they increase the functional, social and emotional value of online travel agencies.

In the specific context of review platforms, the most common immersive affordances are customised avatars or virtual identities through which reviewers represent themselves on the platform (Sailer *et al.*, 2013). These avatars/profiles can be personalised by choosing names/nicknames, pictures, geographical locations, etc. Although insufficient evidence has been offered on the influence of immersion affordances, such as avatars, on pure, reciprocal and competitive altruism exhibited by reviewers, we can expect positive relationships for the following reasons. In online reviews, the source of information is not physically present, so providing identity cues about reviewers through their avatars or profiles can be particularly useful to reduce consumers’ uncertainty and help them infer the credibility of the source. Carefully constructed profiles might suggest to other consumers that the reviewer is a reliable source of data (Moro *et al.*, 2019), and so enhance the reviewer’s reputation (i.e., competitive altruism). At the same time, this might help and reassure consumers as they seek out information to plan their purchases. Indeed, previous research has demonstrated that when reviewers customise their avatars and disclose their identity through real names, profile photos and information about their geographical origin, their reviews are more helpful for readers (Filieri *et al.*, 2019; Liu and Park, 2015; Liu *et al.*, 2019), thereby inducing pure altruism. Additionally, previous studies in online communities have also demonstrated that using real profile pictures for virtual identities positively affects reciprocity, as individuals are more likely to engage in social interactions if they can process social cues in human faces (Teubner and Camacho, 2023). We therefore pose the following research question:

**RQ3.** *Do immersion affordances in review platforms foster the development of pure altruism (RQ3a), reciprocal altruism (RQ3b) and competitive altruism (RQ3c)?*

### 3.2. Research hypotheses: From altruism to user-generated content

In the pure altruism context, individuals might engage in altruistic behaviours primarily to help others (Batson and Shaw, 1991). Previous research has identified that the wish to help other consumers is a motive to engage in word-of-mouth, and that individuals who are motivated to help others tend to contribute more to consumer-managed sites (Bronner and de Hoog, 2011). When consumers are motivated by altruism, they also display increased intention to share their knowledge (Li *et al.*, 2022) and create word-of-mouth (Bakshi *et al.*, 2019; Wang *et al.*, 2022), particularly in online travel communities such as TripAdvisor. Yang *et al.* (2023a) recently demonstrated that when consumers experience unfavourable accommodations, they may share their genuine experience by means of rational negative electronic word-of-mouth. In addition, Oliveira *et al.* (2020) showed that altruism is positively associated with sharing experiences, such as writing reviews about hotels (Belarmino and Koh, 2018). Similarly, Chang *et al.* (2020) found that enjoyment derived from helping others increases community identification and reduces social loafing – that is, failing to contribute to online communities.

The theory of reciprocal altruism proposes that individuals engage in altruistic behaviours with the expectation they will be reciprocated; that is, favours will be returned (Trivers, 1971). Previous research has demonstrated that when individuals are motivated by the expectation that their behaviours will be reciprocated, they are willing to share their knowledge with others (Kumar *et al.*, 2021; Pai and Tsai, 2016), which reduces the perceived effort associated with posting online reviews (Bakshi *et al.*, 2019).

Finally, the theory of competitive altruism proposes that individuals might also perform voluntary behaviours to improve their social status and gain social approval (Vesterlund, 2006). Behind this lies the concept of self-enhancement, ‘the desire to be positively recognised by others’ (Belarmino and Koh, 2018, p. 2734). Previous research has shown that achieving recognition and enhancing one’s status are important motivations for sharing photos, and that the desire to impress others and enhance one’s reputation motivates individuals to post online reviews (Belarmino and Koh, 2018; Bronner and de Hoog, 2011). Similarly, Oliveira *et al.* (2020) associated competitive altruism with personal fulfilment and self-actualisation and found that it was positively related to the sharing of actual experiences.

Based on these arguments, we propose that pure, reciprocal and competitive altruism positively influence user-generated content in review platforms. In particular, instead of



assessing consumers' intention or willingness to create content, as most prior research has done (e.g., Bakshi *et al.*, 2019; Belarmino and Koh, 2018; Kumar *et al.*, 2021; Li *et al.*, 2022; Wang *et al.*, 2022), this study assesses actual experience-sharing reported by consumers, which has received less attention in the literature (e.g., Bravo *et al.*, 2021; Oliveira *et al.*, 2020).

*H1. Pure altruism positively influences user-generated content.*

*H2. Reciprocal altruism positively influences user-generated content.*

*H3. Competitive altruism positively influences user-generated content.*

Table II presents a summary of the research questions and research hypotheses, and the supporting literature.

[Table II here]

## **4. Methodology**

### *4.1. Data collection and participants*

The proposed model was empirically tested in the context of TripAdvisor. TripAdvisor is a review platform focused on the travel and leisure industry. It was selected for several reasons. First, compared with other review platforms whose core functionalities are based on e-commerce (e.g., Amazon), searching (e.g., Google) or social networking (e.g., Facebook), the core functionality of TripAdvisor is helping consumers discover and review local businesses. Second, it operates across several countries and in several languages. Third, in 2022, it passed a historic milestone: 1 billion reviews (TripAdvisor, 2022), thus taking the second position in the top 25 best review platforms (Trustindex, 2024). Finally, regarding gamification design, TripAdvisor includes all motivational affordances of other main gamified review platforms (e.g., Yelp, Google My Business, Amazon), such as the ability to create profiles or avatars to represent users; use of points, levels, and badges to recognise reviewing efforts; and the opportunity to become friends or followers of other reviewers and vote on or like their reviews (see a detailed description about the use of gamification in TripAdvisor in Appendix 1).

To test the model, we used survey data collected during September 2022 from registered TripAdvisor reviewers based in the United Kingdom. The data were collected using Prolific, a crowdsourcing platform used to recruit online human subjects for academic

research, which has been shown to provide data quality comparable to Amazon's Mechanical Turk.

We used a Prolific screening question ('On which of the following consumer review websites do you have a personal user account?') to identify registered reviewers. Only Prolific participants with an approval rate of 95% or higher were allowed to take part in the survey. The online survey took 6 minutes, on average, to complete, and each participant was paid £1.40. The survey included attention-checking and control questions. Only data from participants who correctly answered the attention-checking and control questions were used for the analysis. After eliminating 34 incomplete and invalid questionnaires, 343 valid responses were obtained.

We assessed the appropriateness of the sample size through the software G\*Power v3.1.9.7. Using the effect size of 0.15 as the average, the alpha error probability of 0.05, and statistical power of 95%, we found that a total sample size of 119 would be required. The number of valid responses was 343, which exceeds the minimum requirement, confirming the appropriateness of the sample size.

Table III presents the participants' demographic information.

[Table III here]

#### 4.2. *Measurement instrument*

The survey used well-established scales adapted from the literature to fit the study context (see Table IV). In all cases, we used 7-point Likert-type scales. In gamification literature, motivational affordances are usually conceptualised as a whole (i.e., testing the effect of each type or category of gamification affordance – achievement, social and immersion – on target dependent variables) to investigate the phenomenon in a more latent and broad manner (e.g., Bitrián *et al.*, 2020, 2021, 2023; Xi and Hamari, 2019, 2020). However, as Xi and Hamari (2020, p. 457) indicated, such a modelling strategy does not provide granularity, and, therefore, more studies should 'investigate the effect of each single gamification element individually'. Therefore, in this study, achievement affordances were represented by points, levels and badges; social affordances materialised in votes and followers; and avatars stood for immersion affordances. In all cases, affordances were measured by a single item representing the importance that reviewers attached to each game element, based on Xi and Hamari (2019). Cheah *et al.* (2018) indicated that global single items that capture the essence of a construct (as is the case for gamification

affordances), yield a sufficient degree of predictive and convergent validity while offering practical advantages, such as reduced survey length, which encourages higher response rates and increases data quality due to mindful response behaviour. Pure altruism was measured following Munar and Jacobsen (2014) and Chang *et al.* (2020), reciprocal altruism was measured following Pai and Tsai (2016) and Chang *et al.* (2020), and competitive altruism was measured following Chang *et al.* (2020). Finally, regarding user-generated content, three items were adapted from Bravo *et al.* (2021) to measure whether reviewers wrote reviews, posted photos and posted videos, and an additional item was added to measure whether reviewers gave votes to others' content. These four actions correspond to the main behaviours that are recognised by gamified review platforms.

[Table IV here]

#### *4.3. Common-method bias assessment*

We used procedural and statistical methods to assess common-method bias (Podsakoff *et al.*, 2003). Regarding procedural methods, participation in the study was voluntary, and participant anonymity and data confidentiality were assured. To prevent respondents from inferring cause–effect relationships, the dependent and independent variables also appeared on different screens. For statistical methods, Harman's single-factor test was applied. The first factor explained 39.06% of the covariance among the constructs. As this value is less than the recommended 50% threshold, it can be concluded that common-method bias did not affect the data (Podsakoff *et al.*, 2003). In addition, we used the marker variable approach (Lindell and Whitney, 2001). A theoretically irrelevant marker variable, which measured how frequently individuals exercised while travelling, was introduced into the model. This returned the low value of 0.049 (4.9%) as the maximum shared variance with other variables. These approaches indicated that there was no significant common-method bias in the data.

## **5. Analysis and results**

Partial least squares structural equation modelling, with SmartPLS 3.0 software, was used to test the model.

### *5.1. Measurement model analysis*

The proposed model includes reflective and formative constructs. First, we analysed the reflective measurement model (see Table V). Individual item reliability for all factor

loadings was confirmed as they were all above 0.70, and statistically significant at 1%. In addition, the constructs were all shown to be internally consistent, as their composite reliabilities were greater than 0.70, and showed convergent validity, as their average variance extracted values were above 0.50. Finally, to verify discriminant validity, as Table VI shows, we confirmed that all heterotrait-monotrait (HTMT) values were below the threshold of 0.90, and that the bootstrap confidence intervals did not contain the value 1 (Henseler *et al.*, 2015).

[Table V here]

[Table VI here]

Thereafter, we analysed the formative measurement model (see Table VII). We assessed the collinearity between the formative items by analysing the variance inflation factors (VIFs). A VIF value of 5 or higher indicates a potential collinearity problem (Hair *et al.*, 2011). The VIF values ranged from 1.499 to 2.146, lower than the threshold of 5, which indicates the model does not suffer from multicollinearity problems. We analysed external validity by assessing the indicators' weights. All indicators showed statistically significant weights, so they have external validity (Hair *et al.*, 2017).

[Table VII here]

Since affordances were measured using single-item constructs, they were neither formative nor reflective. As Hair *et al.* (2021) indicated, for single-item constructs, the direction of the relationships between the construct and the indicator is not relevant, as construct and item are equivalent. Thus, since the constructs are equal to their measures, the indicators' loadings and weights are 1.00, making convergent validity and external validity assessments unnecessary.

## 5.2. Structural model analysis

The structural model was evaluated using the explained variation ( $R^2$ ) criteria and the degree of significance of the path coefficients, assessed by a bootstrapping technique with 5,000 iterations. The results revealed that the model explains 49.8% of the variance of user-generated content. To assess predictive relevance, a Stone–Geisser test was conducted; the  $Q^2$  values were all positive. Finally, as the standardised root mean square residual returned a value of 0.056, which is lower than the threshold of 0.08, we can conclude that the model has good fit (Hu and Bentler, 1998).

In relation to RQ1, the findings revealed that receiving points for contributions does not foster the development of pure altruism ( $\beta = -0.093$ ;  $p\text{-value} = 0.190$ ), reciprocal altruism ( $\beta = -0.029$ ;  $p\text{-value} = 0.391$ ), or competitive altruism ( $\beta = -0.084$ ;  $p\text{-value} = 0.254$ ). Similarly, reaching new levels does not promote pure altruism ( $\beta = 0.126$ ;  $p\text{-value} = 0.167$ ), reciprocal altruism ( $\beta = 0.007$ ;  $p\text{-value} = 0.478$ ), or competitive altruism ( $\beta = 0.108$ ;  $p\text{-value} = 0.221$ ). Likewise, collecting new badges has no significant effect on pure altruism ( $\beta = -0.079$ ;  $p\text{-value} = 0.255$ ), reciprocal altruism ( $\beta = -0.019$ ;  $p\text{-value} = 0.435$ ) or competitive altruism ( $\beta = -0.051$ ;  $p\text{-value} = 0.327$ ). In sum, we can conclude that achievement affordances do not promote altruistic sentiment.

As to RQ2, the findings showed that receiving votes from readers has a positive impact on pure altruism ( $\beta = 0.203$ ;  $p\text{-value} = 0.005$ ), although it does not foster reciprocal altruism ( $\beta = 0.066$ ;  $p\text{-value} = 0.211$ ) or competitive altruism ( $\beta = 0.040$ ;  $p\text{-value} = 0.284$ ). In contrast, gaining followers contributes to reciprocal altruism ( $\beta = 0.293$ ;  $p\text{-value} < 0.001$ ) and competitive altruism ( $\beta = 0.412$ ;  $p\text{-value} < 0.001$ ), although it has no significant effect on pure altruism ( $\beta = 0.031$ ;  $p\text{-value} = 0.330$ ).

As to RQ3, the findings showed that, while having personalised avatars fosters the development of competitive altruism ( $\beta = 0.196$ ;  $p\text{-value} = 0.018$ ), it does not significantly affect pure altruism ( $\beta = 0.081$ ;  $p\text{-value} = 0.188$ ) or reciprocal altruism ( $\beta = 0.118$ ;  $p\text{-value} = 0.097$ ).

Finally, as hypothesised, the findings revealed that pure altruism ( $\beta = 0.248$ ;  $p\text{-value} < 0.001$ ), reciprocal altruism ( $\beta = 0.209$ ;  $p\text{-value} = 0.001$ ) and competitive altruism ( $\beta = 0.207$ ;  $p\text{-value} < 0.001$ ) positively influence the creation of user-generated content, supporting H1, H2 and H3, respectively.

Figure 2 shows the structural model results.

[Figure 2 here]

## 6. Discussion

User-generated content through online reviews has become the most important source of inspiration for consumers (Wu, 2019) and voluntary contributions of consumers are at its core. However, these voluntary contributions do not always happen naturally (Liang *et al.*, 2022). To motivate altruistic behaviour of online reviewing, sellers can use incentive mechanisms such as gamification to promote altruism as well as intrinsic compensation (Bishop, 2012).

The findings of this study reveal that consumers can be encouraged to generate content by three types of altruism that come from a pure, reciprocal or competitive origin. These findings are consistent with previous studies that found that the desire to help others (e.g., Oliveira *et al.*, 2020; Wang *et al.*, 2022), the desire to reciprocate (e.g., Kumar *et al.*, 2021; Pai and Tsai, 2016), and the desire for an enhanced reputation (e.g., Belarmino and Koh, 2018; Bronner and de Hoog, 2011) are key motivators for the creation of user-generated content.

This study responds to the call of Riar *et al.* (2020) to examine which specific gamification affordances help validate altruistic sentiment, a topic that has received insufficient attention in previous research. Based on the study's findings, we can conclude that social affordances and, to a lesser extent, immersion affordances might be key to review platforms' success, although it is possible that not all of these affordances are equally effective in promoting all types of altruism among reviewers. The implications of these findings are discussed in the following section.

### *6.1. Theoretical contributions*

This study makes several theoretical contributions to the existing gamification literature in general, and to the literature examining the ability of gamification to promote user-generated content in review platforms in particular.

After a decade of gamification research, there is consensus that gamification can change individuals' behaviours (Koivisto and Hamari, 2019). However, as some studies have shown that gamification has counterproductive effects (Leclercq *et al.*, 2020), both the conditions under which gamification succeeds and the processes through which it motivates behavioural change still need to be explored in more depth. Most studies have drawn on self-determination theory (e.g., Bitrián *et al.*, 2020; van Roy and Zaman, 2019) to provide theoretical support for the mechanisms through which gamification prompts individuals to undertake target behaviours. However, to date, altruism theories have not been proposed as mechanisms for explaining the effects of gamification.

In contexts where the desired outcomes are entirely voluntary altruistic behaviours, such as posting content in review platforms, designers of gamified systems need to understand the role of altruism and which specific gamification affordances support the different forms of altruism (Riar *et al.*, 2020). The present study responds to the recent call to 'examine the antecedents and consequences of altruistic purpose' in gamified contexts

(Bravo *et al.*, 2021, p. 8). In particular, drawing on the gamification literature (Koivisto and Hamari, 2019), affordance theory (Gibson, 1977), and theories of pure altruism (Batson and Shaw, 1991), reciprocal altruism (Trivers, 1971) and competitive altruism (Roberts, 1998), this study bridges this gap by proposing research questions designed to elicit the effects of achievement, social and immersion affordances on altruism, and by providing the first empirical evidence for these paths.

First, the findings reveal that reviewers who are motivated by pure altruism believe that receiving votes from other consumers (i.e., social affordance) is important. The reason behind this might be that pure altruism in review platforms reflects the desire to help other consumers (Hennig-Thurau *et al.*, 2004; Munar and Jacobsen, 2014), and votes are the most salient tool that any consumer (including lurkers) has to inform reviewers of whether their reviews have been useful and helpful (Filieri *et al.*, 2019; Liu and Park, 2015), thereby validating pure altruism.

Second, this study demonstrates that reviewers motivated by reciprocal altruism believe that having more followers or friends (i.e., social affordance) is key. Individuals crave meaningful social connections with others (Ryan and Deci, 2000), and followers/friends in review platforms are a powerful signifier of these connections. According to reciprocal altruism, individuals engage in altruistic behaviours, such as online reviewing, with the expectation that the favour will be returned and they will benefit from others in the future, if they have not already benefitted from them in the past (Trivers, 1971). In review platforms, while votes can be given by anyone who sees reviews, only registered users can follow or become friends with reviewers. Thus, the chances that users contribute to the community are higher, which might repay reviewers for their time and effort.

Finally, reviewers who are motivated by competitive altruism believe that having more followers or friends (i.e., social affordance) and having customised avatars (i.e., immersion affordance) are crucial. Following others in review platforms is not such a common behaviour among consumers. Thus, since the number of followers or friends is displayed in reviewers' profiles, being able to attract more followers might be seen as a signifier of status and reputation, which are at the core of competitive altruism (Hardy and Van Vugt, 2006), consistent with previous research (Goes *et al.*, 2014; Huang and Zhou, 2021). Furthermore, reviewers use avatars to provide cues about their credibility to consumers (Liu and Park, 2015). Therefore, reviewers can improve their reputation and status by displaying carefully constructed avatars or virtual identities, making others

perceive them as more reliable sources of information than their counterparts (Moro *et al.*, 2019).

Contrary to our predictions, the results reveal that, while achievement affordances – points, levels and badges – are the most common motivational affordances adopted to gamify systems (Koivisto and Hamari, 2019), they do not prompt altruistic sentiment to motivate user-generated content in the context of review platforms. This may be because receiving points and being awarded with badges benefit reviewers but not consumers; therefore, one could argue that these gamification affordances induce egoism, which is a motivational state with the ultimate goal of increasing one's own welfare (Batson and Shaw, 1991), rather than altruism.

While a plethora of gamification-focused studies have emerged from a wide variety of domains, Koivisto and Hamari (2019) showed in their systematic literature review that only three domains – education/learning, health/exercise, and crowdsourcing – accounted for 70% of empirical research. This represents an unbalanced view of how gamification actually works. While gamification's potential for motivating individuals to create content has recently gained researchers' attention, the findings of extant studies are inconclusive, which suggests the phenomenon is not fully understood. Most empirical studies that have analysed gamification in online reviews have used visible, objective data directly gathered from review platforms using data mining techniques, such as web scrapers and web crawlers. Only a handful of studies have analysed the subjective experience of consumers when interacting with motivational affordances. Of these, most have focused on the role of consumers as readers, during the pre-consumption stage, and analysed whether the specific motivational affordances displayed on reviewers' profiles (e.g., real profile picture, level achieved, helpful votes received) make them more credible and trustworthy (Lo and Yao, 2019). To date, only Bravo *et al.* (2021) and Labsomboonsiri *et al.* (2022) have investigated whether interacting with gamification affordances impacts consumers' motivations to create user-generated content in the post-consumption stage. However, Bravo *et al.* (2021) analysed the impact of gamification as a whole, without differentiating among the various types of motivational affordances, whereas Labsomboonsiri *et al.* (2022) focused on only one specific affordance, rewards. Therefore, this study contributes to the existing literature by analysing data that are not directly observable –i.e., opinions expressed by consumers– and exploring whether their interactions with achievement (points, levels and badges), social (votes and followers)



and immersion affordances (avatars) motivate them to create user-generated content through pure, reciprocal and competitive altruism.

### *6.2. Managerial contributions*

This study raises several practical implications. Review platforms' target behaviour is the creation of user-generated content in the form of comments, photos, videos, etc. Our results suggest that pure, reciprocal and competitive altruism foster the creation of user-generated content. A question arises then: How can review platforms motivate these forms of altruism among consumers? This study has demonstrated that social and immersion affordances are key to fostering altruism and promoting user-generated content.

On the one hand, gamification has rules that shape social interactions (Ciuchita *et al.*, 2023), which are key among reviewers and consumers. Regarding votes, review platforms could offer different types of votes for every review. In addition to consumers giving helpful/useful votes or likes to reviews, product and service providers could also recognise well-informed reviews by awarding, for instance, 'accurate' votes. Such recognition may promote posters' reputations as reviewers in the platform. As to avatars, as the exchanges of information take place through the weak ties that exist between strangers, review platforms might enable reviewers to link their avatars/profiles on the platform with their profiles on other social networking sites, such as Facebook or Instagram, so they can share their latest contributions to benefit not only strangers but also their inner circles.

On the other hand, as immersion affordances – personalising avatars – promote competitive altruism as well as user-generated content, review platforms should consider including additional immersion affordances, or improving those that exist, for instance, by developing more elaborate avatars to represent reviewers. Nowadays, in most review platforms, such as TripAdvisor, Yelp or Google My Business, reviewers are represented by names/nicknames and profile pictures. In the future, these platforms might enable reviewers to develop 3D avatars with different characteristics (e.g., skin tone, hair colour, eye colour) that will provide more realistic virtual representations. Similarly, review platforms should consider joining the metaverse and allowing reviewers to use digital avatars to enhance their customer experience (Buhalis *et al.*, 2023).

### *6.3. Limitations and future research lines*

This study has some limitations that offer opportunities for future research. First, the study focused on one specific review platform: TripAdvisor. While choosing a single platform for an empirical study is common practice, and TripAdvisor is worthy of research for being the world's largest travel review platform, in the context of user-generated content, characteristics of the platform, such as atmosphere, positioning, users' demographics or content formation, might affect user engagement. Future studies should offer a cross-platform approach using other gamified review platforms to confirm the role of gamification in promoting altruism and creating user-generated content. Second, as the research model was tested using data from users based in the United Kingdom only, the sample would have carried biases. In particular, a recent study suggested that countries with more individualistic values, such as the United Kingdom, have higher levels of altruism (Rhoads *et al.*, 2021). Future studies should test the model using a cross-platform, cross-country approach incorporating multiple cultural dimensions to enhance the generalisation of the results and validate the role of gamification in generating altruism and user-generated content across different cultures. Third, this study focused on determining the impact of gamification on user-generated content from a quantitative point of view; that is, analysing whether reviewers write more reviews, post more photos or videos, or give more votes to others' content when the platform is gamified. However, additional aspects of user-generated content were neglected. Future studies should expand this line of research by analysing whether and how gamification interacts with descriptive characteristics of reviews, such as length of the review, and also with more subjective aspects related to review content, such as review sentiment, extremity or usefulness for readers. In addition, the Prolific panel itself has limitations, such as self-selection bias, lack of information about non-respondents, and an unknown response rate. Finally, as the data were collected using a one-time questionnaire, determining the long-term effects of gamification on the creation of user-generated content was not possible. Thus, it would be interesting if future studies could use longitudinal data to determine gamification's effectiveness in the long run.

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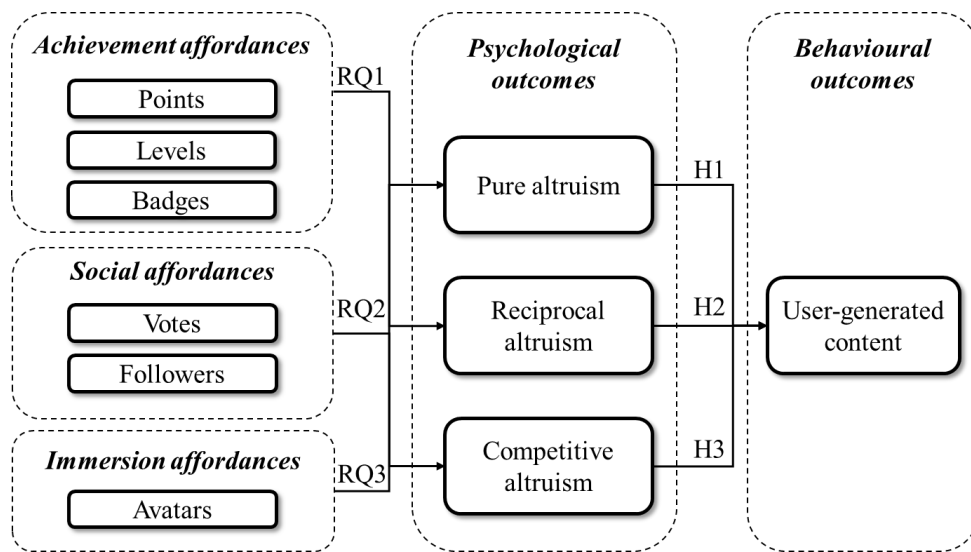
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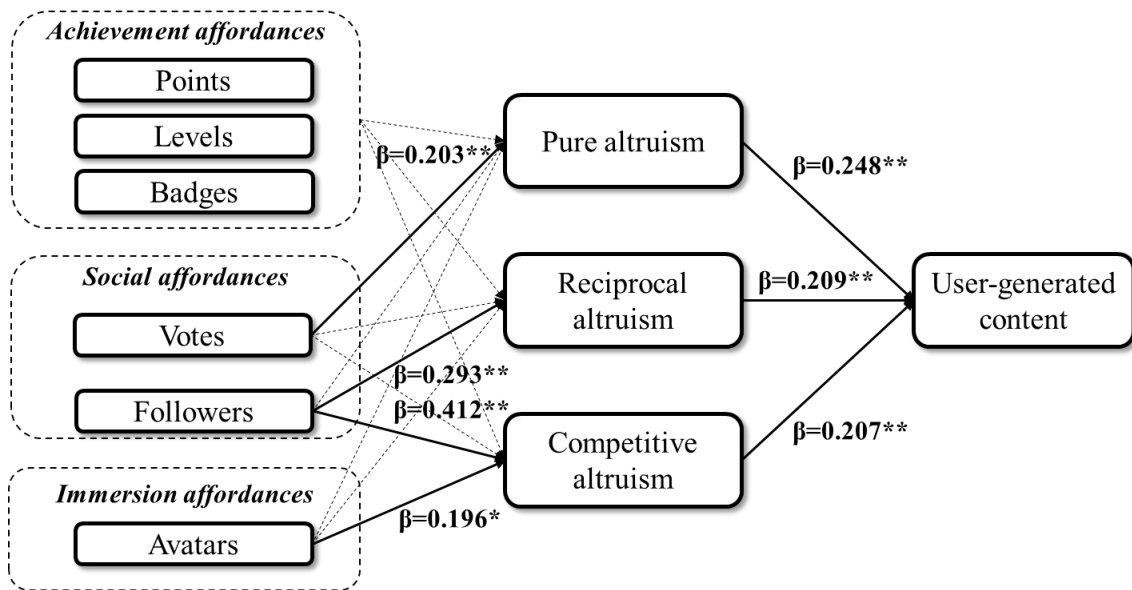
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Figure 1. Proposed model



Source: Authors own work

Figure 2. Structural model results



Note: \* $p < 0.05$ ; \*\* $p < 0.01$ ; Non-significant relationships are represented by dashed lines

Source: Authors own work

*Table I. Summary of altruism types*

<b>Concept</b>	<b>Definition</b>	<b>What individuals offer</b>	<b>What individuals receive</b>	<b>How it applies to review platforms</b>
Pure altruism	It drives individuals to act altruistically to promote others' welfare with no expectation of receiving benefits in return (Batson and Shaw, 1991).	Prosocial behaviour	Enjoyment and satisfaction from helping others	Consumers spend their time writing online reviews to share their experiences with others, without expecting any form of compensation. They simply recommend worthwhile products and services and criticize negative ones for the sake of helping other consumers with their shopping experiences.
Reciprocal altruism	It occurs when individuals act altruistically in hopes of equal-value repayment through reciprocation (Trivers, 1971).	Prosocial behaviour	The expectation of future help	Consumers spend their time writing online reviews to help others with their shopping experiences, motivated by past benefits they received from reviews or the expectation of benefiting from them in the future.
Competitive altruism	It occurs when individuals act altruistically if they receive benefits through reputation building (Roberts, 1998).	Prosocial behaviour	Status, approval and respect	Consumers spend their time writing online reviews because they gain status among other consumers on the review platforms.

Source: Authors own work

*Table II. Summary of research questions, research hypotheses and supporting literature*

<b>Research question / Research hypothesis</b>	<b>References</b>
RQ1. Do achievement affordances in review platforms foster the development of pure altruism (RQ1a), reciprocal altruism (RQ1b) and competitive altruism (RQ1c)?	Labsomboonsiri <i>et al.</i> (2022), Sailer <i>et al.</i> (2013), Sailer <i>et al.</i> (2017)
RQ2. Do social affordances in review platforms foster the development of pure altruism (RQ2a), reciprocal altruism (RQ2b) and competitive altruism (RQ2c)?	Filieri <i>et al.</i> (2019), Goes <i>et al.</i> (2014), Liu and Park (2015), Ryan and Deci (2000), van Roy and Zaman (2019), Xi and Hamari (2019)
RQ3. Do immersion affordances in review platforms foster the development of pure altruism (RQ3a), reciprocal altruism (RQ3b) and competitive altruism (RQ3c)?	Filieri <i>et al.</i> (2019), Liu and Park (2015), Liu <i>et al.</i> (2019), Moro <i>et al.</i> (2019), Teubner and Camacho (2023)
H1. Pure altruism positively influences user-generated content.	Bakshi <i>et al.</i> (2019), Belarmino and Koh (2018), Bronner and de Hoog (2011), Chang <i>et al.</i> (2020), Li <i>et al.</i> (2022), Oliveira <i>et al.</i> (2020), Wang <i>et al.</i> (2022), Yang <i>et al.</i> (2023a)
H2. Reciprocal altruism positively influences user-generated content.	Bakshi <i>et al.</i> (2019), Kumar <i>et al.</i> (2021), Pai and Tsai (2016)
H3. Competitive altruism positively influences user-generated content.	Belarmino and Koh (2018), Bronner and de Hoog (2011), Oliveira <i>et al.</i> (2020)

Source: Authors own work



*Table III. Characteristics of the respondents (N=343)*

<b>Item</b>	<b>Category</b>	<b>Frequency</b>	<b>Percentage</b>
Gender	Male	132	38.5%
	Female	194	56.5%
	Prefer not to say	17	5.0%
Age	18 – 25	35	10.2%
	26 – 41	175	51.0%
	42 – 57	74	21.6%
	58 – 76	42	12.2%
	Prefer not to say	17	5.0%
Education	No formal education	1	0.3%
	GCSE	43	12.5%
	A-levels/ BTEC	77	22.4%
	Bachelor's degree	135	39.4%
	Postgraduate degree	70	20.4%
	Prefer not to say	17	5.0%

Source: Authors own work

Table IV. Variables and items

Variables	Items	Sources
<b>Points</b>	<i>Gami1</i> . It is important to receive points for my contributions.	Adapted from Xi and Hamari (2019)
<b>Levels</b>	<i>Gami2</i> . It is important to reach new levels.	
<b>Badges</b>	<i>Gami3</i> . It is important to collect badges.	
<b>Votes</b>	<i>Gami4</i> . It is important to receive helpful votes from others.	
<b>Followers</b>	<i>Gami5</i> . It is important to have followers.	
<b>Avatars</b>	<i>Gami6</i> . It is important to personalise my avatar.	
<b>Pure altruism</b>	<i>PUR1</i> . I want to help others with my own experience.	Chang <i>et al.</i> (2020), Munar and Jacobsen (2014)
	<i>PUR2</i> . I want to help others by sharing my knowledge.	
	<i>PUR3</i> . I want to prevent people from having a bad experience.	
<b>Reciprocal altruism</b>	<i>REC1</i> . When I receive help from others' previous experiences, I feel it is only right to give back and share my experiences.	Chang <i>et al.</i> (2020), Pai and Tsai (2016)
	<i>REC2</i> . I expect to receive information in return when necessary.	
	<i>REC3</i> . I believe that my future requests for information will be answered if I share my experiences.	
<b>Competitive altruism</b>	<i>COM1</i> . I earn respect from others by sharing my experiences.	Chang <i>et al.</i> (2020)
	<i>COM2</i> . I feel that sharing my experiences improves my status.	
	<i>COM3</i> . I share my experiences to improve my reputation.	
<b>User-generated content</b>	<i>Reviews</i> . I write reviews.	Bravo <i>et al.</i> (2021)
	<i>Photos</i> . I post photos.	
	<i>Videos</i> . I post videos.	
	<i>Evaluation</i> . I evaluate others' content (e.g., give helpful votes).	

Source: Authors own work

*Table V. Analysis of reliability and validity*

<b>Constructs</b>	<b>Items</b>	<b>FL</b>	<b>CR</b>	<b>AVE</b>
Pure altruism	PUR1	0.937	0.933	0.823
	PUR2	0.938		
	PUR3	0.843		
Reciprocal altruism	REC1	0.770	0.867	0.686
	REC2	0.838		
	REC3	0.873		
Competitive altruism	COM1	0.941	0.968	0.911
	COM2	0.970		
	COM3	0.952		

**Note:** FL: Factor loading; CR: Composite reliability; AVE: Average variance extracted

Source: Authors own work

Table VI. Heterotrait-monotrait (HTMT) ratios

	Points	Levels	Badges	Followers	Votes	Avatars	Pure altruism	Reciprocal altruism	Competitive altruism
<b>Points</b>	-								
<b>Levels</b>	0.865 [0.823;0.900]	-							
<b>Badges</b>	0.794 [0.739;0.837]	0.877 [0.835;0.909]	-						
<b>Followers</b>	0.578 [0.504;0.645]	0.639 [0.569;0.704]	0.673 [0.606;0.730]	-					
<b>Votes</b>	0.616 [0.547;0.674]	0.652 [0.589;0.707]	0.641 [0.583;0.694]	0.614 [0.554;0.670]	-				
<b>Avatars</b>	0.667 [0.596;0.734]	0.697 [0.629;0.759]	0.751 [0.695;0.804]	0.630 [0.561;0.692]	0.642 [0.578;0.699]	-			
<b>Pure altruism</b>	0.160 [0.074;0.240]	0.196 [0.106;0.277]	0.180 [0.088;0.262]	0.192 [0.113;0.260]	0.263 [0.174;0.345]	0.210 [0.116;0.295]	-		
<b>Reciprocal altruism</b>	0.285 [0.178;0.383]	0.315 [0.207;0.411]	0.331 [0.222;0.424]	0.435 [0.355;0.509]	0.339 [0.236;0.434]	0.359 [0.251;0.458]	0.663 [0.581;0.731]	-	
<b>Competitive altruism</b>	0.372 [0.277;0.457]	0.428 [0.336;0.514]	0.438 [0.352;0.521]	0.561 [0.484;0.626]	0.415 [0.332;0.493]	0.474 [0.388;0.550]	0.163 [0.075;0.253]	0.620 [0.552;0.681]	-

**Note:** The values in brackets represent the 95% confidence interval of the HTMT values

Source: Authors own work

*Table VII. Formative measurement model*

<b>Construct</b>	<b>Items</b>	<b>VIFs</b>	<b>Weights</b>	<b>p-values</b>
User-generated content	Reviews	1.798	0.516	0.000
	Photos	2.146	0.227	0.003
	Videos	1.715	0.214	0.013
	Evaluation	1.499	0.287	0.000

Source: Authors own work

## Appendix 1. Summary of TripCollective functionality

To motivate users to contribute, TripAdvisor has fully gamified the reviewing experience through TripCollective (<https://www.tripadvisor.com/TripCollective>). In this Appendix, we revise the gamification affordances included in TripCollective.

To begin their journey as reviewers in TripCollective, users need to create a profile or avatar (see Figure A1) and personalise it by choosing a name, a username/nickname and a city, and by adding a website and a brief description of themselves. They can also include a profile photo and a cover photo. For users who have connected their Facebook and TripAdvisor accounts, TripCollective shows their Facebook name and picture to their friends, while anyone who is not a friend of the reviewer on Facebook sees only the TripCollective displayed name and avatar.

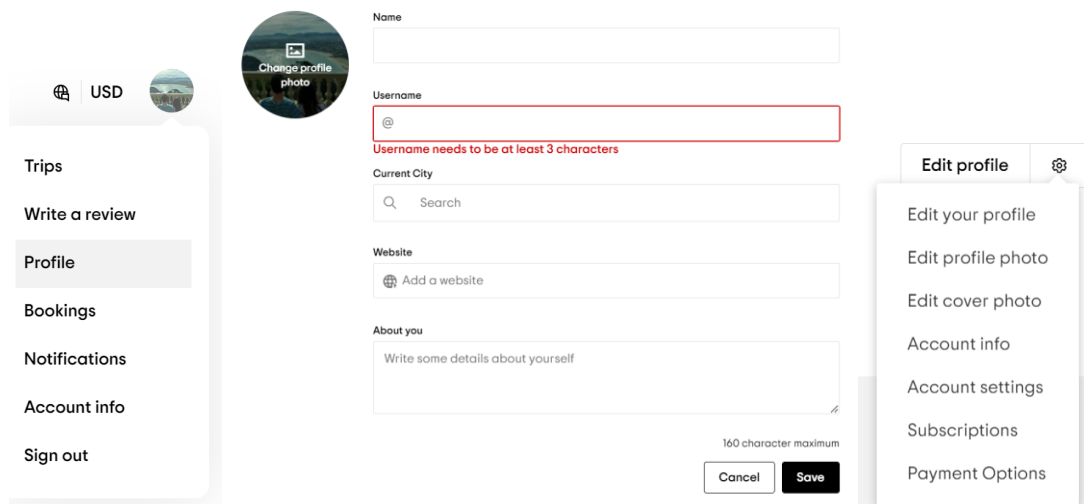


Figure A1. TripCollective profile (source: TripAdvisor)

Once reviewers have created their profiles, they can start contributing to the gamified platform. Every time reviewers contribute, they receive TripCollective points (see Figure A2). In particular, reviewers can receive 1 point for casting helpful votes on others' reviews and up to 100 points for posting a review or a travel article. The more points reviewers earn, the higher the level they reach in TripCollective (see Figure A2), which ranges from Level 1 (from 300 points) to Level 6 (from 10,000 points).









 Review	100 points	Level 6	10,000 points
 Photo	30 points	Level 5	5,000 points
 Video	30 points	Level 4	2,500 points
 Forum Post	20 points	Level 3	1,000 points
 Rating	5 points	Level 2	500 points
 Traveler Article Creation	100 points	Level 1	300 points
 Traveler Article Edits	5 points		
 Helpful Vote	1 point		

Figure A2. TripCollective system for points and levels (source: TripAdvisor)

TripCollective also features various kinds of badges that recognise reviewers' unique knowledge and expertise in three main categories: Hotels, Things to Do, and Restaurants (see Figure A3). Badges are earned by writing reviews and uploading photos in these categories. For each category, there are different milestones associated with specific review goals, so that once reviewers reach the goal number of reviews, photos or views, they unlock and earn that badge. As reviewers contribute more, their milestone tier progresses to reflect their expertise. For instance, for the Reviews badge, reviewers can go from a First-timer (for their first review) up to a Superstar (for their 100th review), with the stops in between being celebrated too (see Figure A4).

## Your badges

Show off your interests and keep sharing to unlock even more.

### Hotels

---



3/5  
**Hotel Explorer**  
Write 5 hotel reviews



0/3  
**B&B Insider**  
Write 3 B&B reviews



0/3  
**Resort All-Star**  
Write 3 resort reviews



2/3  
**Luxury Seeker**  
Write 3 luxury hotel reviews

### Things to Do

---



2/5  
**Experience Explorer**  
Write 5 experience reviews



0/3  
**Beach Lover**  
Write 3 beach reviews



0/3  
**Museum Buff**  
Write 3 museum reviews



0/3  
**Nature Guide**  
Write 3 nature or national park reviews

### Restaurants

---



5/5  
**Restaurant Explorer**  
Wrote 5 restaurant reviews



3/3  
**Fine Dining Fan**  
Wrote 3 fine dining reviews



2/3  
**Cafe Collector**  
Write 3 cafe reviews



2/3  
**Bakery Boss**  
Write 3 bakery reviews



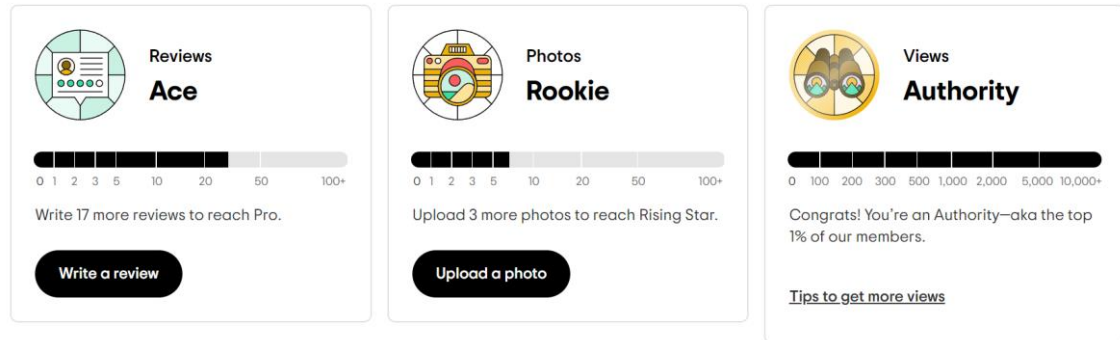
1/3  
**Bar Crawler**  
Write 3 bar or pub reviews

Figure A3. TripCollective badges (source: TripAdvisor)



## Your milestones

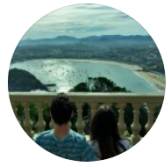
Unlock new milestones and (bonus!) help travelers along the way.



- **First-timer:** 1 review/photo
- **Newbie:** 2 reviews/photos
- **Beginner:** 3 reviews/photos
- **Rookie:** 5 reviews/photos
- **Rising Star:** 10 reviews/photos
- **Ace:** 20 reviews/photos
- **Pro:** 50 reviews/photos
- **Superstar:** 100+ reviews/photos

Figure A4. Milestones associated with badges (source: TripAdvisor)

Finally, TripCollective includes a series of elements through which travellers' contributions can be recognised by other travellers, who can become their followers (see Figure A5) and give them helpful votes for their reviews (see Figure A6). All this information is displayed on reviewers' profiles, as a demonstration of their expertise (see Figure A7).



**NAME**

@thatsmereviewing

Contributions  
**40**

Followers  
**0**

Following  
**0**

Figure A5. Followers (Source: TripAdvisor)



**NAME** wrote a review  
Today



**Best Italian pizzas in town!**

“Best pizzas in town! It was great to know that they have lots of pasteurised cheeses apt for pregnant women and they can make pasteurised carbonara too. I have ...”

Date of visit: May 2024



**La Parthénopé**  
●●●●○ 99 reviews  
Zaragoza, Spain



1 Helpful vote

Helpful Save Share

Figure A6. Helpful votes for a review (source: TripAdvisor)

**My TripCollective Dashboard** ?

Total Points	Total Helpful Votes	Current Level	Next Level
<b>3,897</b>	<b>50</b>		<b>5</b>
			1,103 points to go

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**TripCollective** Badge Collection

You've earned **26** badges

Figure A7. Reviewers' dashboard (source: TripAdvisor)