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Tassiello, V, Viglia, G and Anna S., M

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## Highlights

- Handwriting during the tourism experience reduces subsequent online negative rating scores
- Emotional empathy is the psychological mechanism that explains the relationship between handwriting and subsequent online rating score
- Customer's orientation (business vs. leisure) moderates the handwriting effect
- Fostering bonding with guests helps traditional hospitality operators to more effectively compete with peer-to-peer platforms

## **How handwriting reduces negative online rating scores**

### **Abstract**

This research investigates whether handwriting during the tourism experience reduces subsequent negative and extreme online rating scores. We portray that handwriting, due to a more deeply rooted elaboration of information, activates emotional empathy. Study 1, a field experiment in the hospitality context, suggests that handwriting reduces the extremeness of subsequent online rating scores. Study 2 compares handwritten vs. typed and complements the initial findings by clarifying the mediating role of emotional empathy on this relationship. We discuss the boundary conditions for the effect and offer practical implications on how to nudge tourists to reduce negative online rating scores. Hotel operators should use their enhanced emotional bonding with tourists when competing with peer-to-peer operators.

**Keywords:** handwriting, negative online rating score, emotional empathy, field experiment, tourists

## 1. Introduction

Online reviews represent an interesting research context where customers simultaneously write, rate, and use technologies. Digital platforms aggregate reviews, so customers may post a written comment in combination with numerical rating scores, independently from their reason for accessing the service (e.g., business vs. leisure) and their relationship status (e.g., repeat vs. occasional customers).

Posting a review or rating an experience is a human behavioural process that is rooted in several domains, such as psychology, linguistics, cognitive processes, and familiarity with technology (Belk, 2013; Wu, Mattila, Wang, & Hanks, 2016). Online rating scores, however, serve as a new kind of digital institution, helping to foster reviews' helpfulness (Park & Nicolau, 2017). Although previous literature has recognized the influence and the advancement of new technologies, there is a lack of understanding on the impact of the digital medium on the rating process. This research shows the existence of behavioural differences depending on whether consumers *handwrite* vs. *type* a review during their stay. Customers primed with a handwriting task (i.e., writing a review) are more likely to leave a higher online rating score subsequently. We portray - and provide experimental evidence for it - that the process underlying that different behavior is the activation of emotional empathy, which is recognized as an important factor within the tourism industry (see Tucker, 2016 for a review). Investigating the role of handwriting in altering subsequent online ratings is a novel topic. Interestingly, Ren, Xia and Du (2018) have found that when tourists are welcomed with handwritten messages (vs. print) they report a higher level of satisfaction. Psychologically, handwritten messages enhance the likelihood of building a positive relationship with the hotel, but only in the case of positive experiences (Ren, Xia & Du, 2018). It is then worth investigating what are the psychological drivers involved in

handwriting and whether this activity can be used as a managerial lever to avoid subsequent tourists' negative and extreme online rating scores.

According to Batson et al., (1995, p. 629) “empathic emotions induce altruistic motivation to benefit the specific individual(s) for whom empathy is felt”. Investigating the concept of empathy in the context of online ratings contributes to prior research in consumer psychology. Emotional empathy differs from, for instance, the concept of honesty which has been adopted with handwriting tasks in experimental settings (see Chou, 2015 and Shu et al., 2012). Contrary to honesty, which involves a personal and selfish process, emotional empathy enables a vicarious experience in the shoes of another person. Therefore, in this research, emotional empathy is seen as a feeling that helps the guest taking the perspective of the target of the review. Guided by previous work, our research question is: *does a handwritten review lessen extremity and negativity in subsequent online rating scores?*

In Study 1, we find evidence that handwritten reviews increase the likelihood of more benevolent subsequent online rating scores, and that the purpose of the stay (business vs. leisure) moderates such an effect. In Study 2, we show the activation of emotional empathy is the underlying mechanism explaining such effects. This research makes several contributions. First, it provides a theoretical perspective based on emotional empathy to understand how customers elaborate online rating scores (Sparks & Browning, 2010). Second, from a managerial standpoint, the identification of boundary conditions allows for a deeper understanding of the context under which customers can be gently nudged to post less impulsive and less negative online ratings. Priming guests with a handwritten review during their stay can improve the *ex post* elaboration of the experience. Further, evoking emotional empathy enhances the reflexivity of the reviewer and the rating scores. Shifting up scores through the activation of emotional empathy offers a strategic tool for traditional hospitality operators. Specifically, compared to their sharing economy counterparts, traditional

hospitality operators often lack an emotional connection with their customers (Zervas, Proserpio & Byers, 2017). Handwriting might be used to facilitate offline human connections in tourism, thus improving subsequent online rating scores.

## **2. Conceptual background**

In traditional business models, the customer and the service provider interact in an institutional setting. The mediation of computers during conversations inevitably influences human behaviors (Watts, 2007; MacKay & Vogt, 2012). According to Lazer et al. (2009), computational social science has highlighted barriers that bound human conduct due to both limited physical interactions and technological infrastructure. In this paper we propose that the use of handwritten comments can induce emotional empathy, thus reducing the likelihood of highly negative subsequent online ratings and potential barriers that arise when customers communications are only mediated by computers. Customers construct different semantic meanings and cognitively represent their experiences depending on the setting (i.e. physical vs. digital; Jones & Christensen, 1999). Lurie et al. (2016) suggest that digital devices depotentiate the effort in elaborating meanings and in producing constructive comments. In a similar vein, Sweeney et al. (2007) show that feelings of empathy are reduced when customers post online reviews. Previous research in psychology shows that people tend to deeply elaborate on handwritten information (Mueller & Oppenheimer, 2010). Shu et al. (2012) demonstrate that, compared to a typed signature, a handwritten signature on a tax return induces honest behaviours and makes the action more salient for the writer. In consumption domains handwriting has been seen as a prime for enhanced customers' engagement in activities, influencing customers' behaviour (Kettle & Häubl 2011). Based on the aforementioned findings, we suggest that the psychological mechanism that explains the relation between handwriting and less extreme online rating score is the activation of

emotional empathy. Empathy is defined as an intellectual cognitive capacity to undertake the perspective of another person, understanding its internal state (Wieseke, Geigenmüller & Kraus, 2012). Previous research has adopted multiple conceptualizations of empathy, referring to morality, emotions, social functions, self-esteem and sensitivity (Hogan 1969; Davis, 1980: 1983). According to Hogan (1969), empathy is the result of a moral action. Davis (1983) considers “empathy” as a socio-psychological mechanism linking the individual and the target on the basis of social functions. Batson et al. (1995) propose that empathy is a psychological mechanism that is activated externally. Specifically, the resulting emotional process provokes a vicarious experience that benefits the specific individual for whom empathy is felt.

Tourism research calls for more studies to understand what is the role played by emotional empathy and how taking the perspective of others influences people’s own experiences (Caton, 2014). Inserting an empathic statement in online responses was shown to increase customer satisfaction in tourism (Min, Lim, & Magnini, 2015). Emotional empathy is a fundamental pre-requisite to build a close relationship between the parties involved (Tucker, 2016). Once empathy is activated, tourists are more engaged in their actions (Kluegel & Smith, 1986). Finally, it is important to account for conditions that might lessen the role of emotional empathy in the tourism and hospitality context. According to Arnold and Reynolds (2003), the person’s goal orientation (e.g., business vs. leisure) provokes different emotional states. Similarly, prior experiences can influence customers’ relational bonding with the service provider (Mattila 2004).

### **3. Hypotheses development**

#### *3.1. Handwriting and online rating score*

Handwriting is defined as “a physical process with an expressive and silent gesture; [...] that divulges information about the writer’s unconscious feelings and psychological state” (Kacker & Maringanti 2012, p. 94). As supported by cognitive models (see Rapp et al., 2002), handwriting activities involve several processes starting by sensory information until visual output of orthographic lexicon, facilitating the access to semantic and cognitive systems. Prior research in education and mental cognition demonstrates the differential impact of handwriting and typing on recognition accuracy and the way people connect with the external environment (Longcamp, Zerbato-Poudou, & Velay, 2005).

In digital settings, online reviewers are likely to leave extreme rating scores because they believe extreme information is more enjoyable and useful for others (Ladhari & Michaud, 2015). However, such scores are often inflated and do not necessarily reflect reality (Park & Nicolau, 2015). Furthermore, while handwriting movements increase positive and emotional actions (Chou, 2015), digital interfaces are associated with detached and possessive feelings (Brasel & Gips, 2014). Accordingly, Brasel and Gips (2015) suggest that online devices affect the foci of customer attention (e.g., rationalization) and related behaviors. On the opposite, handwriting elicits customers’ self-presence, increasing attachment and intimacy, consequently preventing cheating behaviors (Chou 2015). Interestingly, Lurie et al. (2016) have shown that consumers who deal with digital settings and tools are more likely to be affected by psychological heuristics with respect to non-digital settings. Specifically, Chou (2015) postulates that when people write by hand, they experience a more intense level of engagement than their counterparts reporting the same information on a laptop.

Taken together, these findings suggest that handwriting promotes honesty and helping behaviors (Kettle & Häubl, 2011). Therefore, we argue that handwritten reviews reduce extremity and negativity in subsequent online rating scores. Formally,



*H1a: Handwriting (vs. control) lead to less negative subsequent online rating scores.*

*H1b: Handwriting (vs. control) lead to less extreme subsequent online rating scores.*

### *3.2. Handwriting and customer-orientation (C.O.)*

Previous research in tourism has identified two main types of C.O., leisure-oriented or business-oriented (Jani & Han, 2011). Tourists are mainly motivated by pleasure while business travelers tend to focus on the essentials (Ryu, Han, & Jang, 2010) and have quite different priorities when it comes to hotel experiences (Dolnicar, 2002). C.O. has also direct effects on related behaviors such as mental elaboration of the experience or willingness to share a review (Babin & Attaway, 2000; Kim, 2012). We portray that, compared to tourists, business travelers will be more emotionally detached and thus less influenced by handwriting. Formally,

*H2: Being a business-oriented traveler reduces the positive impact of handwriting on subsequent online rating scores.*

### *3.3. Handwriting and repeat customers*

The frequency of interactions with the target of the review represents a boundary condition that attenuates the positive effect of handwriting. Previous research shows that familiarity among the parties involved in the communicational exchange, promotes positive behaviors and feelings (Cialdini et al., 1997), and enables better perspective taking by the observer (Preston & de Waal, 2002). Prior studies further suggest that frequency of visits has an impact on post-experience evaluations (McKercher & Chan, 2005; Morais & Lin, 2010, Holbrook, 1999). Archak, Ghose and Ipeiritis (2011) found that occasional (i.e., non-repeat)

customers are more likely to meticulously review their experience reporting, for example, peculiar details that corroborate their view. Moreover, first-time customers are more sensitive in reviewing products and services, in particular in case of negative experiences (Gyung, Wang & Mattila, 2010). Repeat customers have already established a relationship with the service provider. According to Barsky and Nash (2002), frequent guests' post-experience feelings encourage them to revisit the hotel, recommend it and to post a higher rating score. This segment of customers, furthermore, manifests a higher level of trust and better mutual relations with the service provider (Bowen & Shoemaker, 2003). Repeat visitors have more stable preferences with respect to first time visitors (Reid & Reid, 1994) and have a closer relationship with the company itself (Hess, Ganesan & Klein, 2003). Hence, we suggest that the impact of handwriting is minimal given that repeat customers tend to process information based on affect. Accordingly, we theorize that first time customers will be more affected by the specific experience and be more sensitive toward emotional empathy (Gyung, Wang & Mattila, 2010). In other words, the effect of handwriting on subsequent online rating score is lessened for customers with an established relationship with the target of the review.

Formally,

*H3: The positive impact of handwriting on subsequent online rating score is reduced among repeat customers.*

### *3.4. Handwriting and empathy*

Handwrite facilitates the manner in which information is mentally encoded and, in turn, activates a greater engagement with the action undertaken (Mueller & Oppenheimer, 2014). On a psychological perspective, handwriting (vs. typing) stimulates long-term memory and enables a better recognition of past actions (Smocker, Murphy and Rockwell,

2009). Notably, a recent study has shown that handwriting induces higher levels of engagement and benevolent feelings (Chou, 2015) and that physical and haptic experiences can activate empathy (Wang, Zhu, & Handy, 2016). According to Berry, Siders and Grewal (2002), empathy induces feelings of compassion and motivates consumers to protect others. Furthermore, empathy reduces social differences between consumers and the staff (Beatty et al. 1996) due to higher sensitivity to the worker's status (Gremler & Gwinner, 2008). This is evident in tourism, where empathy has been shown to reduce the distance between an employee and the customer (Lee et al., 2017).

Cuff et al. (2014) found that while empathy may stem from latent and hidden mechanisms it can also be mechanically triggered affecting behavioral outcomes such as electronic word-of-mouth (Bickart & Schinder, 2001). Indeed, research in neuroscience conveys that empathy influences subsequent behaviors (Singer et al., 2004). Wang, Zhu, and Handy (2016) argue that physical experiences (e.g., touching) have an impact on mental associations. Specifically, the authors showed that haptic experiences enhance the salience of actions and engender a higher degree of empathy. Accordingly, we propose that handwriting triggers emotional empathy and that emotional empathy is the underlying mechanism explaining the impact of handwriting on online ratings.

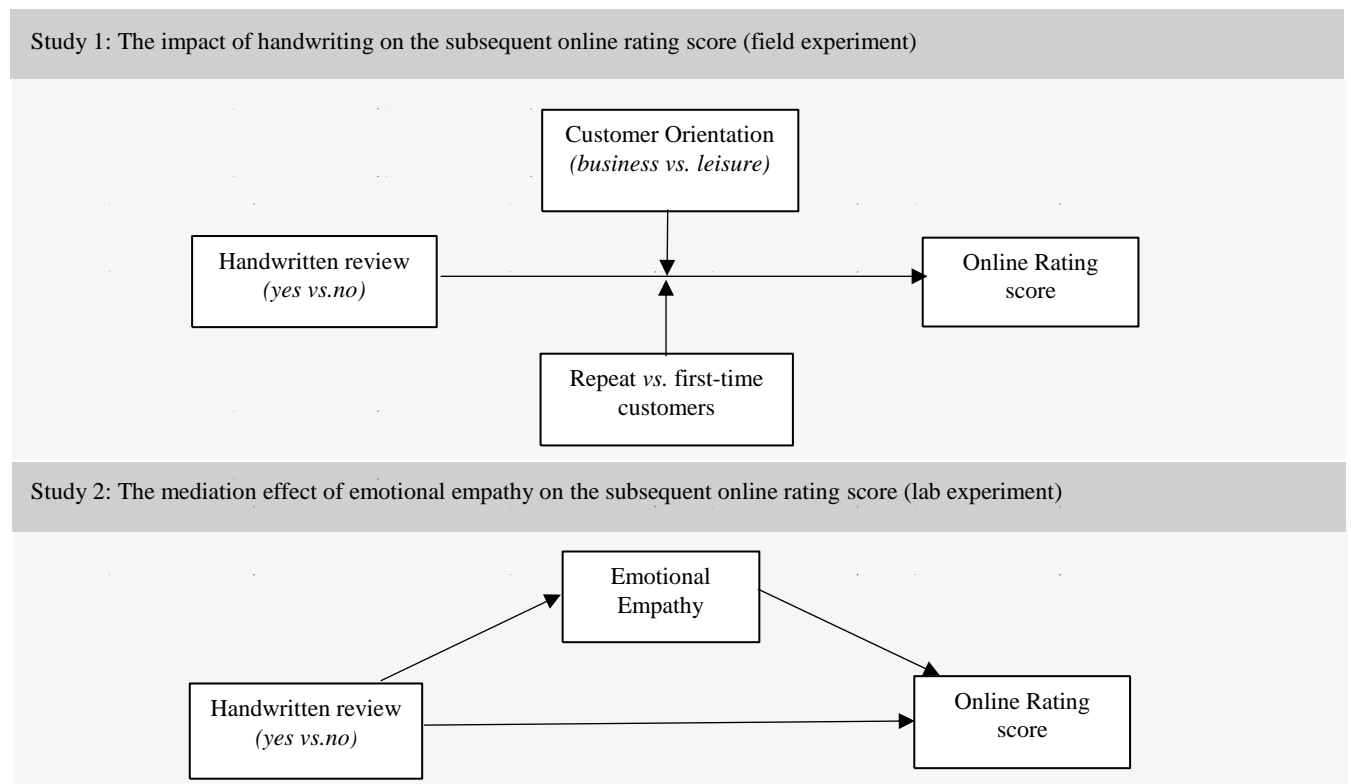
*H4: Emotional empathy mediates the relationships between handwriting and subsequent online rating scores.*

#### **4. Overview of the studies**

Our conceptual framework is shown in Figure 1. We argue that handwriting activates benevolent behaviours, thus leading to less negative and less extreme online ratings. We suggest that the relationship behind handwriting and subsequent online rating score is the

activation of emotional empathy. Customer orientation (business vs. pleasure) has a differential impact on the aforementioned relationships, i.e., business customers are less affected by handwriting. Moreover, relationship status (repeat vs. first-time customer) is also expected to moderate the impact of handwriting on subsequent online rating score, i.e., first time customers more affected by handwriting.

**Figure 1. The conceptual framework**



Study 1 investigates whether having an opportunity to handwrite a review has an impact on subsequent online rating scores. It also suggests boundary conditions (C.O. (business vs. pleasure) and repeat vs. first-time customers) for the effect to take place. Given some recent calls to capture actual behaviors in tourism (see Dolnicar et al. 2017), Study 1 was conducted in the field. Study 2 further examines the role of the writing mode,

handwritten vs. typed, on the subsequent online reviews, testing the mediating role of emotional empathy.

The logic to present both studies in the same paper is the following. A field experiment (Study 1) focuses on observed behaviour, thus limiting researchers' ability to investigate the psychological processes underlying that behavior (Fong, Fang and Luo, 2015). As discussed in Gneezy (2017), there is the need to complement the fieldwork with a laboratory experiment (Study 2) to look at processes underlying the main effect.

#### *4.1. Study 1*

*Data collection and sample.* The study was run in a midscale hotel group in the UK. The management allowed us to examine one hundred and twenty online rating scores posted by consenting customers ( $M_{age} = 42$ ; female 53%) who booked through Booking.com. All participants received similar services (e.g., room type and breakfast).

*Design and Procedure.* Data on age, gender and country of origin were retrieved from the ID during the check-in, after guests had signed a consent form that stated that personal data were used in aggregate for research purposes only. Customers who did not exist in the hotel database were categorized as first-time guests. To measure the effect of handwriting on the subsequent online rating score, we had two conditions ( $n_{handwrite} = 58$ ;  $n_{control} = 62$ ). In the handwriting condition guests were invited to handwrite a review (i.e., only a comment, without a rating score) on a survey form at the end of their stay. Such a request was absent in the control condition. To avoid time effects, the handwriting and control conditions were alternated across bookings during the two-week period. At the end of their stay, guests in both conditions were asked to fill out a short survey capturing socio-demographics. They were also asked to provide their username on Booking.com, and invited to rate their stay on

Booking.com. The handwritten review was done in an isolated corner away from the employees to avoid bias and to guarantee privacy during the writing process. The review space mirrored the open-ended structure on Booking.com. We then linked the usernames with the subsequent online ratings (2.5= very bad; 10= very good).

*Results and discussions.* Table 1 shows statistics for the variables related to the online review ratings given by guests, divided into the two conditions.

**Table 1. Online average evaluation by condition**

Variable	Mean Handwritten	Mean Control	Test of Difference
Online Rating Score	7.32	6.77	***
C.O. (business)	6.70	6.85	n.s.
C.O. (leisure)	7.78	6.71	***
Repeat	7.46	7.06	*
First-time	7.23	6.60	***

\*\*\* $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

Main descriptive statistics shows, approximately the same proportion of guests were assigned to the handwriting (51%) and control (49%) conditions. Slightly less than half of the customers were business travelers (43%) while 37% of customers were repeat customers. Table 1 indicates that online ratings were different between the two conditions ( $p < 0.01$ ), showing an average increase of 7.5% in the handwriting condition. This difference does not hold in the business segment (*n.s.*). For repeat customers, the difference in ratings between the handwriting and the control group was marginally significant ( $p < 0.10$ ).

Table 2 presents the results of an OLS regression analysis with online rating score as dependent variable. The explanatory variables in the full regression model include all the variables in Table 1, as there were no issues of multicollinearity by means of variance inflation factor (VIF below 2.5 for all the pairwise correlations). To test for the moderation

effects between handwriting and overall online ratings, the interaction between business travelers and handwriting (Handwrite  $\times$  C.O. Business) and between repeat customers and handwriting (Handwrite  $\times$  Repeat) are included in the model.

**Table 2. Regression analysis**

<i>Online rating score (dependent variable)</i>	
Handwrite	1.27*** (0.51)
C.O. Business	0.25 (0.40)
Repeat	0.37 (0.43)
Handwrite $\times$ C.O. Business	-1.43** (0.57)
Handwrite $\times$ Repeat	-0.24 (0.59)
Age	0.05** (0.02)
Gender	0.26 (0.30)
Constant	4.86*** (0.79)
Observations	120
R-squared	0.23
Adjusted R-squared	0.20

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

Note: Robust standard errors in parenthesis

The regression results suggest that the presence of handwriting results in significantly higher overall online rating scores. This result is consistent with H1a and H1b. Being a business traveler was clearly a moderator of this effect, as shown by the significant Handwrite  $\times$  C.O. Business interaction. In other words, the difference between online ratings in the handwriting and control conditions was lower and of the opposite sign among business clients, in line with H2. However, we fail to find support for H3 in that customer status (first-time vs. repeat) fails to moderate the relationship between handwriting and online ratings. Looking at the simple effects in Table 1, we find that the presence of handwriting is irrelevant for business travelers' subsequent ratings.

Introducing control variables in the regression analysis helps to further explore potential determinants of online ratings. Only age proved to be significant, with older people posting higher scores. The adjusted R-squared value indicates that the model, which does not include any reputational or tangible characteristic of the hotel, is able to explain around 20% of the variation in online ratings.

Another important result is that the dispersion of the online ratings is significantly smaller in the handwriting condition ( $p < 0.05$ , Levene's test), which supports the idea that handwriting reduces review extremeness (H1b). Moreover, through a bootstrap estimation of the standard error at different levels of the distribution (Wilcox et al. 2014), we find that the proportion of negative ratings is lower in the handwriting (vs. control) condition ( $p < 0.01$ ).

#### 4.2. Study 2

This study tests the mediating role of emotional empathy on the relationship between handwriting and subsequent online ratings, explicating the psychological mechanism behind less negative and extreme online rating scores.

*Data collection and sample.* After an initial screening question to select only participants who were familiar with leaving online reviews, seventy-seven students enrolled in business courses in a large British university took part in two separate experimental sessions ( $M_{\text{age}} = 32.6$ ; male 50.6%). Participants were randomly assigned to one of the two conditions and were paid a fee of £5.

*Design and procedure.* The experiment took place in a room equipped with computers. One group was asked to fill out an online survey with a web link. The second group of participants had exactly the same survey questions but in a paper and pencil format. In both conditions,

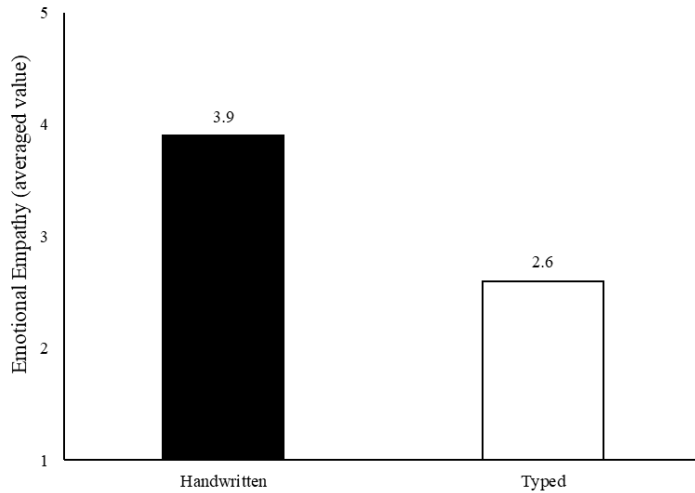


respondents were asked to recall the last time they had a negative experience when they went out. In order to increase the vividness of the experience, we asked them to indicate the type of business (i.e., hotel, restaurant, bar, etc.) and the city where they had the negative experience. Given the nature of participants (MBA students), negative experiences when going out are more frequent than specific hotel experiences. Asking to recall a negative experience was also useful for validating the proposed theoretical mechanisms and assessing the robustness of the findings from Study 1 (i.e., the positive effect of handwriting on reducing negativity of ranking through emotional empathy). Next, respondents had to type or handwrite their review based on the condition they were assigned ( $n_{\text{handwrite}} = 35$ ;  $n_{\text{type}} = 42$ ; coded as 1= handwrite and 0= type). Respondents were asked to assess their level of empathy adapted from Batson et al. (1995). Specifically, they were asked to what extent they felt the following emotions: softhearted, moved, compassionate, warmed and tender (Batson et al. 1995; 1= strongly disagree; 7= strongly agree). Appendix A presents the scale. The items were averaged and used as mediator in the final model ( $\alpha = .87$ ). Finally, both groups were asked to type their overall score on a separate tablet (on a scale from 2.5 (very bad) to 10 (very good)).

*Results and discussions.* Participants in the typed condition rated their experiences more negatively than their counterparts in the handwritten condition ( $M_{\text{handwrite}} = 4.4$ ;  $M_{\text{type}} = 3.5$ ;  $F(1,76) = 11.9$ ,  $p = .001$ ). To test H4, we employed a mediation model with bias-corrected method (Hayes, 2013; model 4; 5000 bootstrap). The model shows the existence of a positive and significant relation among the variables included in the model ( $F(2, 74) = 9.1$ ,  $p = .000$ ), and also a significant direct effect of the manipulated condition (handwritten vs. typed) on the rating score ( $\beta = .58$ ; 95% C.I. = .04, 1.13). The indirect effects are significant ( $\beta = .28$ ; 95% C.I. = .04, .68), indicating a mediation of empathy on the relationship between writing mode and rating score. These results lend support for H4. Overall, this study shows that priming

customers with handwriting (vs. typing) produces higher levels of emotional empathy ( $F(1, 76) = 18.6; p = .001$ ; see figure 2) which, in turn, results in higher online rating scores.

**Figure 2. Level of empathy per condition (handwritten vs. typed)**



## 6. Discussion and conclusion

The presence of customers' simultaneous behaviors (write and rate) on multiple settings is an opportunity to investigate new social science paradigms and to scrutinize the influence of computer-mediated conversations. One key area is the way in which consumers elaborate their experiences (handwriting vs. typing; Mueller & Oppenheimer, 2014). Specifically, this paper investigates how handwriting increases online rating scores by reducing negative extremeness. The general tendency in investigating online rating scores is based on the potential positive effects that such ratings have on companies and brands (i.e. Moe & Schweidel, 2012). The tourism industry is particularly influenced by online reviews (see Ye, Law & Gu, 2009). However, only a handful of studies had investigated the psychological path that is generated when consumers are involved in the actual process of rating their experience. Previous research shows that physical tools influence mental cognition and how people formulate their thoughts (see Chou 2015). This research probes whether there are differences in rating a hotel stay due to the mode of writing a review and

whether emotional empathy can be externally activated through handwriting's prime effect. Empathy has been found as one of the main driver of peer-to-peer communities, inducing supportive reactions even with negative events (Hajibaba, Karlsson and Dolnicar, 2017). However, there is no research that has investigated the mechanical arousal of emotional empathy and the behavioral effects of it on online rating scores.

The findings from the field experiment (Study 1), suggest that handwriting diminishes negative and extreme online rating scores. Our findings also suggest that customer's orientation (business vs. leisure) moderates the handwriting effect. Study 2 further examines the impact of the writing mode on online rating scores showing that handwriting (vs. typing) results in less negative subsequent ratings of the recalled experience. Our mediation analyses indicate that emotional empathy is the underlying effect explaining the impact of the writing mode on rating scores. Given our direct measurement of emotional empathy (see Batson et al, 1985) we were able to verify that handwriting (vs. typed) evoked higher levels of emotional empathy. More specifically, due to enhanced emotional empathy respondents in the handwritten (vs. typed) condition were more likely to rate their experiences in a more benevolent manner.

Our study provides several theoretical contributions. This research links handwriting and emotional empathy, suggesting that emotional empathy is the psychological mechanism explaining the impact of writing mode on online ratings. Batson et al. (2002), for example, demonstrate that once activated empathy influences personal attitudes and this effect may persist over time. This is consistent with prior research demonstrating that empathy influences consumers' online ratings (Bickart & Schindler, 2001; Min et al., 2015; Davis et al., 2017) and implicitly increases customer satisfaction. While extant research has tried to understand the motives for posting reviews and online ratings (e.g., Devoe & Heath, 2005), this research offers clear guidelines on how to trigger less negative and extreme online rating

scores.

Finally, the package of studies offers evidences on the conditions that weaken the effect of handwriting. Our results are peculiar to tourists in that being a business traveler reduces the positive shift of handwriting on the subsequent online rating score (e.g., Babin & Attaway, 2000; Gyung, Wang & Mattila, 2010).

### *Managerial Implications*

In addition to its theoretical contributions, this research has three clear implications for hospitality and tourism practitioners. First, hotels might want to encourage and facilitate *in loco* handwriting, improving listening to their customers and enhancing quality controls. This process will create psychological closeness through the activation of emotional empathy between travelers and the target of the review. Our study findings support the idea of a multi-faceted nature of eWOM (Ring et al., 2016), suggesting an interplay between offline and online dimensions. Specifically, using a system of internal incentives, customers can be motivated to leave handwritten messages during their stay (Ren, Xia & Du 2018). For instance, hotel managers can provide customized postcards and guest books where customers handwrite their thoughts.

Second, nudging customers with handwriting might reduce the likelihood of negative online ratings on web platforms and social media, thus alleviating the detrimental effects of a poor online reputation. This is particular relevant because online rating scores are perceived as salient information by most customers (Kim, Lim & Brymer, 2015). The valence of online reviews influences tourists' decision-making processes and final choices (Vermeulen & Seegers, 2009). A positive shift toward higher online ratings will help traditional hotels to more effectively compete with their sharing economy counterparts, which tend to receive extremely high ratings due to enhanced relational experiences (Abrate & Viglia, 2017; Pera

& Viglia, 2016). Reducing the negativity of online ratings will avoid further negative reviews by other tourists who tend to adjust their judgment based on previous reviews, in line with social comparison theories (e.g., Gruen, Osmonbekow, & Czaplewski, 2006; Lee & Watkins, 2016) and extremeness of online rating scores (Park & Nicolau, 2015).

Third, the identified boundary conditions inform managers on how to deal with different groups of customers. Our findings indicate that priming travelers with a handwritten review improves the subsequent online review of leisure and first-time travelers. In this sense, hotel managers can make use of practical tools such as a farewell guest book where leisure and first-time travelers can handwrite their experience and gain rewards.

#### *Limitations and future research*

This research is not without limitations. There might be other pertinent moderators, such as the length of stay, which can influence the extent of the relationship observed in Study 1. While we did not find a significant effect of culture, social distance or other specific cultural factors might have additional explanatory influence. Further, customers were tracked in the field experiment (i.e. Study 1) to link their handwritten review to their subsequent online evaluation. Although the findings from Study 2 indicate that typed and handwritten comments result in significantly different online rating scores, the role of anonymity of reviews should be further examined in future studies. Finally, the ability to empathize is also conditioned by the tourist's location that has an influence in evoking and producing short-term tangible actions (Font, Garay & Jones, 2016). Although we expect these findings to apply to all the services characterized by a human connection between the service provider and the customer, investigating the impact of handwriting in different contexts would enhance the generalizability of our findings. For instance, contexts characterized by a lower level of customer involvement such as retail might be less affected by handwriting. The

current research offers several opportunities for future research. Whereas the field study used a “paper and pencil” format, it would be important to investigate whether digital interfaces such as digital signatures (e.g., tablets) reduce the handwriting effect. Future research may also want to investigate content differences through linguistic and sentiment analyses to gain more fine-grained evidence on the activation mechanism and on the existence of a causal relation between emotional empathy and customer satisfaction. While in this study we manipulate handwriting, manipulating directly either emotional empathy or different valenced service experiences (e.g., positive, neutral and ambivalent) might be interesting avenue for future research. Finally, it would be worthy to investigate whether companies should use handwriting to welcome customers in the hotel or to deal with customers in the case of service failure. Initial evidence by Ren *et al.* (2018) offers support for this.

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**Appendix A (adapted from Batson et al. 1995)**

I am feeling soft-hearted while I am reviewing my experience

I am feeling moved while I am reviewing my experience

I am feeling compassionate while I am reviewing my experience

I am feeling warmed while I am reviewing my experience

I am feeling tender while I reviewing my experience