**Research Article**

# Influence of Age on Relationship with Websites

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| ARTICLE INFO | ABSTRACT |
|---|---|
| | E-commerce has grown quickly, and companies seek to attract their target audiences to their websites. The differences in behavior between young people, as users of websites and other older people is real. Thus, this investigation aimed to present an investigation model in order to analyze the determinants of loyalty to the sites and test the influence of age in this relationship. Through a sample of 250 website users, we tested an investigation model, tested through PLS-SEM, which supports the hypothesis that age produces effects in the relationship with the websites. This study is relevant for website managers, since it identifies the need for differentiated users. As impediment and limitations of the study discussed throughout this work. |

## INTRODUCTION

Tourism is assumed today as a largely global phenomenon, Although the Internet is already a reality to which companies and consumers are not indifferent, new technologies do not replace the old ones; they live side by side and converge (Wind and Mahajan, 2002). The advantages that the online channel offers as availability and diversity of goods and services is incomparably greater than those that consumers have available offline.

Recognizing the importance of determinants of loyalty to a website, this study aims to study the determinants of loyalty in e-commerce. Thus, it will be important for companies to identify the critical factors to attract and retain the best customers, so there are several variables that have been studied in the literature for this purpose, such as the characteristics of the shop online, such as shop responsibility, website interactivity (Kim et al., 2015), the communication carried out by the website (Barreda et al., 2016; Xu et al., 2017) with satisfaction and trust acting as mediating factors (Kim et al., 2009). Starting from this contextualization, we sought to study the concepts under analysis in the literature in order to test a proposed research model.

## LITERATURE REVIEW

(Xu et al., 2017) describe that the services in the online channel are evaluated by the design of the website (Santo and Trigo, 2020), the possibility of making payments online (Augusto et al., 2020), the security of the purchase, the speed of delivery of the products (Fortes et al., 2020) customer support and the possibilities of refunding or returning products.

Interactivity on a website is defined as the communication that takes place on a website between people and technology (Santo and Cardoso, 2021) and arises when tools help foster user experiences (Barreda et al., 2016). Interactivity can help improve an organisation's web presence and greater interactivity affects consumer engagement and experience (Santos et al., 2021). It is through interactivity that consumers derive greater value and satisfaction from their online experience and contact with websites.

Thus, on the internet, companies try to seek to satisfy their customers' needs and establish and maintain a positive long-term relationship with their online buyers (Lim et al., 2016). Satisfaction and trust are dimensions of the quality of the relationship (Zehir et al., 2014) between business and consumers.

Consumer satisfaction is defined as a state of mind to emotional responses and the context of use and transaction. This state involves evaluations and judgments to a product or service (Santo and Marques, 2021) that can be considered basic for evaluating their performance (Alcántara-Pilar et al., 2018). Satisfaction occurs when perceived performance confirms consumers' expectations and dissatisfaction occurs when experiences and performance do not exceed expectations (Lim et al., 2016; Oliver, 1999).

A successful e-commerce website is one that attracts customers, makes them feel confident (Bilgihan, 2016). Trust arises through a relationship between two or more parties and is scientifically conceptualised as synonymous with belief, reliability, honesty and effectiveness and is an important antecedent of loyalty (Bilgihan, 2016). (Cyr et al., 2009) suggest that design variables are key antecedents of website trust so the quality of website design positively affects trust in an online shop, but to gain customers' loyalty, companies must first gain their trust (Bilgihan, 2016).

The experience is reflected through design promotes greater satisfaction  (Cyr et al., 2009). Given the above, our study sought to test the following research hypotheses:

- H1: Website interactivity has positive impacts on online satisfaction
- H2: Website interactivity has positive effects on online trust

The characteristics of the websites play a role in the way the consumer evaluates and perceives those characteristics. Thus, transactions depend on the response of the organization and the responsibility to send timely responses, develop positive consequences in consumers such as satisfaction and trust (Harris and Goode, 2004; Kim et al., 2009; Oliver, 1999). In this sense, our work will test the following research hypotheses:

- H3: Website Responsibility has positive impacts on online satisfaction
- H4: Website Responsibility has positive effects on online trust

The relationships of a website have at their genesis its communication and it is through the clarity of messages that relationships of trust are developed (Barreda et al., 2016). Moreover, in the online channel, where human interaction is reduced, it is communication that plays an important role in developing expectations. Thus, the study presented here aims to test the following research hypotheses:

- H5: Website Communication has positive effects on online satisfaction
- H6: Website communication has positive effects on online trust

(Mogilner and Aaker, 2009) mention that it is this feeling of satisfaction that establishes a relationship of loyalty and generates bonds of friendship and trust

- H7: Online satisfaction has a positive impact on online trust

Customer loyalty is a concept that arises in terms of repeat purchases (Moriuchi and Takahashi, 2016), purchase intention (Santo and Marques, 2021) or brand sponsorship (Eelen et al.,

2017) and is one of the key drivers of success in e-commerce (Liao et al., 2017). Loyal behaviour is explained by the belief that the value received from a company is superior to that which would be received in similar alternatives from other suppliers (Casaló et al., 2010), involving high levels of trust (Harris and Goode, 2004). In this context, (Santo and Marques, 2021) report that a consumer who is satisfied with the purchasing process in a particular online shop will feel comfortable to transmit his or her opinion to other potential customers, expressing a favorable opinion towards the online shop. Satisfaction does not affect the future intentions of loyal customers; however, for non-loyal customers, satisfaction is an important indicator of repurchase intention (Liao et al., 2017). Loyalty is a natural consequence of satisfaction with the system and with the company (Chen and Wang, 2016; Kim et al., 2015) and, in this relationship, trust plays a mediating role (Eelen et al., 2017). In this regard, our study will seek to test the following research hypotheses:

- H8: Online satisfaction has positive effects on online loyalty
- H9: Online trust has positive effects on online loyalty

The impact of website features has not always been positive. As an example, individuals of different ages evaluate online experiences differently. (Eelen et al., 2017) point out that age can be seen as influencing website ratings and it is the age variable that has explanatory power as a moderator in consumers' motivation to use online technology.  (Eelen et al., 2017) describe that age has negative correlations with online efficacy, perceived quality, perceived usefulness and intention to use in general. It is age that has an effect on individuals' behavioural intentions, even more so in the online context. In this sense, age is an important variable as a moderator, since young people are the ones who prefer to use technology and older individuals are more reluctant to use technological means.

In this regard, our study will test the following research hypothesis:

- H10: Age plays a moderating role in determining loyalty.
- Given the hypotheses deduced above the elementary hypotheses to be studied will be as follows:
- H10a: Age plays a moderating role in the relationship between website interactivity and online satisfaction;
- H10b: Age plays a moderating role in the relationship between website interactivity and online trust;
- H10c: Age plays a moderating role in the relationship between website responsibility and online satisfaction;
- H10d: Age plays a moderating role in the relationship between website responsibility and online trust;
- H10e: Age plays a moderating role in the relationship between website Communication and online satisfaction;
- H10f: Age plays a moderating role in the relationship between website Communication and online trust;
- H10g: Age plays a moderating role in the relationship between online satisfaction and online trust;
- H10h: Age plays a moderating role in the relationship between online satisfaction and online loyalty;
- H10i: Age plays a moderating role in the relationship between online trust and online loyalty;

**Table 1.** Demographic Characteristics of the Respondents

| Variable | Category | N | % |
|---|---|---|---|
| Gender | Male | 92 | 36,8 |
| | Female | 158 | 63,2 |
| Age | Less than 20 years | 10 | 4,1 |
| | 20 to 29 years | 92 | 37,7 |
| | 30 to 39 years | 81 | 33,2 |
| | 40 to 49 years | 48 | 19,7 |
| | 50 to 59 years | 13 | 5,3 |
| Income | < 1000 € | 57 | 23,1 |
| | 1001 € to 3000 € | 142 | 57,5 |
| | 3001 € to 5000 € | 30 | 12,1 |
| | >5000 € | 18 | 7,3 |
| Education | Basic | 4 | 1,6 |
| | Middle School | 43 | 17,3 |
| | University education | 201 | 81,1 |

**Table 2.** Results of the Measurements model[1]

| Constructs | Item | Average | Standard Deviation | λ | Cronbach α (> 0,7) | CR (> 0,7) | AVE (> 0,5) |
|---|---|---|---|---|---|---|---|
| Interactivity Website (INT) (Santo, 2014) | INT_01 | 3,94 | 0,946 | 0,865** | 0,826 | 0,896 | 0,743 |
| | INT_02 | 4,16 | 0,987 | 0,908** | | | |
| | INT_03 | 4,02 | 1,024 | 0,810** | | | |
| Responsability Website (RESP) (Santo, 2014) | RESP_01 | 3,82 | 0,965 | 0,875** | 0,854 | 0,911 | 0,774 |
| | RESP_02 | 3,75 | 1,025 | 0,855** | | | |
| | RESP_03 | 3,79 | 0,979 | 0,908** | | | |
| Website communication (COM) (Moriuchi and Takahashi, 2016) | COM_01 | 3,52 | 1,196 | 0,853** | 0,857 | 0,903 | 0,701 |
| | COM_02 | 3,35 | 1,094 | 0,865** | | | |
| | COM_03 | 3,36 | 1,062 | 0,842** | | | |
| | COM_04 | 3,52 | 1,210 | 0,786** | | | |
| Satisfaction (SAT) (Gracia et al., 2015) | SAT_01 | 4,22 | 0,953 | 0,912** | 0,898 | 0,936 | 0,831 |
| | SAT_02 | 3,66 | 1,015 | 0,918** | | | |
| | SAT_03 | 3,80 | 1,025 | 0,904** | | | |
| Trust (CONF) (Moriuchi and Takahashi, 2016) | CONF_01 | 4,02 | 0,988 | 0,948** | 0,950 | 0,968 | 0,910 |
| | CONF_02 | 4,04 | 0,924 | 0,951** | | | |
| | CONF_03 | 3,99 | 0,925 | 0,963** | | | |
| Loyalty (LEAL) (Moriuchi and Takahashi, 2016) | LEAL_01 | 4,20 | 0,948 | 0,941** | 0,916 | 0,947 | 0,856 |
| | LEAL_02 | 4,14 | 0,940 | 0,949** | | | |
| | LEAL_03 | 3,77 | 1,016 | 0,884** | | | |

## METHODOLOGY

Our research assumed transversal characteristics and the unit of analysis was the individuals who had made some type of online purchase in the last 12 months. Data collection was based on a questionnaire developed for this purpose, where the respondent had an initial question to indicate a website where he/she had made online purchases. The concepts under study were operationalised through items presented in **appendix A** and already tested by other authors. The items were measured using 5-point Likert scales ranging from (1) strongly disagree to (5) strongly agree. From data collection, we obtained 256 answers from respondents whose characterisation is presented in **Table 1**. The sample is made up of individuals who are mostly female (63.3%), aged between 18 and 59 years old, in most cases between 20 and 40 years old (70.9%). The average age is 32.98 years old. The household income of the respondents is in most cases less than 3000€ and these respondents have a higher education degree, representing 81.1% of the total respondents.

The data obtained were subject to an initial treatment through the analysis of outlier values, analysis of missing values and analysis of data normality. The possible existence of multicollinearity was also analysed through a VIF (Variance Inflation Factor) coefficient below 5 ($1.744 \leq VIF \leq 4.859$ as indicated in the literature (Marôco, 2014). In this sense, the parameter estimation will not be affected by multicollinearity problems.

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[1] λ - Standardized Loadings; AVE - Average Extracted Variance; CR - Composite Reliability; ** $p<0,01$

**Table 3.** Discriminant validity: criterion of (Fornell and Larcker, 1981)

|                              | INT   | RESP  | COM   | SAT   | CONF  | LEAL  |
|------------------------------|-------|-------|-------|-------|-------|-------|
| Interactivity Website (INT)  | 0,862 |       |       |       |       |       |
| Website Responsibility (RESP)| 0,623 | 0,880 |       |       |       |       |
| Website Communication (COM)  | 0,422 | 0,527 | 0,837 |       |       |       |
| Satisfaction (SAT)           | 0,702 | 0,686 | 0,512 | 0,911 |       |       |
| Trust (CONF)                 | 0,694 | 0,729 | 0,526 | 0,855 | 0,954 |       |
| Loyalty (LEAL)               | 0,698 | 0,668 | 0,491 | 0,901 | 0,836 | 0,925 |

**Table 4.** Discriminant Validity: correlation ratio of Heterotrait-Monotrait

|                              | INT   | RESP  | COM   | SAT   | CONF  | LEAL  |
|------------------------------|-------|-------|-------|-------|-------|-------|
| Interactivity Website (INT)  |       |       |       |       |       |       |
| Website Responsibility (RESP)| 0,737 |       |       |       |       |       |
| Website Communication (COM)  | 0,492 | 0,616 |       |       |       |       |
| Satisfaction (SAT)           | 0,809 | 0,779 | 0,582 |       |       |       |
| Trust (CONF)                 | 0,778 | 0,806 | 0,581 | 0,824 |       |       |
| Loyalty (LEAL)               | 0,799 | 0,752 | 0,554 | 0,890 | 0,895 |       |

**Table 5.** Results of Hypothesis Test

| Hypothesis | Relation to be tested | Std $\beta$ | $t$-Value | Value $p$ | Validation |
|------------|-----------------------|-------------|-----------|-----------|------------|
| H1 | INT→ SAT   | 0,425 | 5,379  | 0,000 | Confirmed     |
| H2 | INT→ CONF  | 0,117 | 1,994  | 0,046 | Confirmed     |
| H3 | RESP→ SAT  | 0,341 | 3,917  | 0,000 | Confirmed     |
| H4 | RESP→ CONF | 0,218 | 3,634  | 0,000 | Confirmed     |
| H5 | COM→ SAT   | 0,152 | 3,041  | 0,002 | Confirmed     |
| H6 | COM→ CONF  | 0,058 | 1,400  | 0,162 | Not confirmed |
| H7 | SAT→ CONF  | 0,594 | 9,438  | 0,000 | Confirmed     |
| H8 | SAT→ LEAL  | 0,692 | 12,538 | 0,000 | Confirmed     |
| H9 | CONF→ LEAL | 0,244 | 4,017  | 0,000 | Confirmed     |

## RESULTS

Following the previous data analysis, it was decided to estimate the model through the partial least squares structural equation analysis method (PLS-SEM). The analysis through PLS is divided into 2 stages (Avkiran and Ringle, 2018): analysis of the measurement model in terms of reliability and validity (Marôco, 2014) and analysis to the structural model through the evaluation of the structural path coefficients (*path coefficients*) and analysis of its significance.

### Assessment of the measurement model

The evaluation of the measurement model provides confirmatory information about the reliability, factor validity, convergent validity and discriminant validity of the constructs (Hair et al., 2015). In SMART PLS software version 3.3.2, the results obtained, for the measurement model, are shown in **Table 2**.

### Reliability and Validity of the constructs

Factor validity is assessed by analysing the standardized coefficients ($\lambda$) that are higher than 0.7 ($\lambda$>0.810) and their significance is *p*<0.01. In this study, convergent validity is also considered to exist given that the average variance extracted is greater than 0.5 (AVE>0.701). The reliability of the concepts was assessed through the composite reliability (CR), which is higher than 0.7 (CR >0.896), and by analysing the Cronbach's $\alpha$ values above the threshold value of 0.7 ($\alpha$ > 0.826) (Hair et al., 2015; Marôco, 2014).

The study of discriminant validity can be assessed using the Fornell and Larcker criterion and the Heterotrait-Monotrait correlation ratio (HTMT) analysis criterion (Fornell and Larcker, 1981; Henseler et al., 2015). The results obtained for the analysis of discriminant validity through the (Fornell and Larcker, 1981) are verified, given that the values of the square root of the AVE are, in all cases, higher than the square of the correlations between the respective constructs (**Table 3**). In the discriminant analysis study, the Heterotrait-Monotrait correlation ratio was also analysed. The values obtained shown in **Table 4** are lower than the limit values of 0.9 (Henseler et al., 2015).

### Analysis of the structural model

The second stage of the analysis of the model through structural equations by partial least squares (PLS) is the testing of the structural model. For this purpose, the bootstrapping resampling technique with 5000 sub-samples was used in order to have stability in the results obtained. This analysis allowed us to obtain the results that will be used to test the hypotheses under study (**Table 5**).

From the hypotheses test through structural equations by PLS estimation, it is confirmed that most of the research hypotheses are statistically significant. For these data, loyalty is explained in 82.7% (R²=0.827) by the variables included in the model, where, in the same model it is possible to confirm the explanation of satisfaction in 61.0% (R²=0.610) by website interactivity, website responsibility and website communication. The explanatory variables of trust are website interactivity, website responsibility and online consumer satisfaction.

**Table 6.** Results of Hypothesis Test (Individuals with ages < 33)

| Hypothesis | Relation to be tested | Std $\beta$ | $t$-Value | Value $p$ | Validation |
|---|---|---|---|---|---|
| H1 | INT→ SAT | 0,322 | 3,040 | 0,002 | Confirmed |
| H2 | INT→ CONF | 0,041 | 0,649 | 0,517 | Not confirmed |
| H3 | RESP→ SAT | 0,466 | 3,819 | 0,000 | Confirmed |
| H4 | RESP→ CONF | 0,224 | 3,051 | 0,002 | Confirmed |
| H5 | COM→ SAT | 0,102 | 1,382 | 0,167 | Unconfirmed |
| H6 | COM→ CONF | 0,073 | 1,401 | 0,161 | Unconfirmed |
| H7 | SAT→ CONF | 0,650 | 8,464 | 0,000 | Confirmed |
| H8 | SAT→ LEAL | 0,729 | 9,053 | 0,000 | Confirmed |
| H9 | CONF→ LEAL | 0,209 | 2,342 | 0,019 | Confirmed |

**Table 7.** Results of Hypothesis Test (Individuals with ages >33)

| Hypothesis | Relation to be tested | Std $\beta$ | $t$-Value | Value $p$ | Validation |
|---|---|---|---|---|---|
| H1 | INT→ SAT | 0,532 | 6,034 | 0,000 | Confirmed |
| H2 | INT→ CONF | 0,278 | 2,934 | 0,003 | Confirmed |
| H3 | RESP→ SAT | 0,210 | 2,534 | 0,011 | Confirmed |
| H4 | RESP→ CONF | 0,217 | 2,032 | 0,042 | Confirmed |
| H5 | COM→ SAT | 0,208 | 3,146 | 0,002 | Confirmed |
| H6 | COM→ CONF | 0,054 | 0,828 | 0,408 | Not confirmed |
| H7 | SAT→ CONF | 0,440 | 5,366 | 0,000 | Confirmed |
| H8 | SAT→ LEAL | 0,649 | 8,284 | 0,000 | Confirmed |
| H9 | CONF→ LEAL | 0,288 | 3,442 | 0,001 | Confirmed |

To seek an explanation for the corroboration of the hypotheses under study, a moderator variable was included in order to obtain explanation of the mediating power to age in the hypotheses tested. The moderating effect will serve to explain whether the strength of a relationship between constructs is affected by a particular construct or moderating construct.

Given the individuals who answered our questionnaire is identifying age as a moderator variable, we chose to divide the sample into 2 different age groups having in. Thus, the first group was made up of individuals aged under 33 years old, including generation Y (Millenials) and generation Z (digital natives). The second group was made up of individuals whose age is over 33 years old.

To study the relationships present in the model, we resorted to the option of multi-group analysis (PLS-MGA - Partial Least Squares Multi-Group Analysis) we obtained the hypothesis test results for individuals aged less than 33 years that are presented in **Table 6**.

From the multigroup analysis (PLS-MGA) we also obtained the results of the hypothesis test for individuals aged over 33 years which are presented in **Table 7**.

By analysis of **Table 6** and **Table 7** it is possible to analyse that 2 hypotheses under study do not follow the same validation of the different groups of individuals. This distinction exists in the relationship between interactivity and trust and in the relationship between website communication and satisfaction, so the differences between the 2 groups were analysed in order to study the moderating effect of age on the hypotheses under study, whose results are in **Table 8**.

The data in the previous table allow us to conclude that only the hypothesis AGE*INT CONF is confirmed, which suggests that age has a moderating effect in the model for determining online loyalty, even if only in the relationship between website interactivity and online trust.

## DISCUSSION OF RESULTS

Following the results presented, we will try to analyse and discuss the results obtained. The model presented sought to study the antecedent variables of satisfaction and trust, in the online context, so that through these, the impact on online loyalty could be analysed.

**Table 8.** Results of the analysis of the moderating effect of age

| Hypothesis | Relation to be tested | Std $\beta$ | $t$-Value | Value $p$ | Validation |
|---|---|---|---|---|---|
| H10a | IDADE*INT→ SAT | 0,211 | 1,494 | 0,137 | Not Confirmed |
| H10b | IDADE*INT→ CONF | 0,237 | 2,157 | 0,032 | Confirmed |
| H10c | IDADE*RESP→ SAT | 0,256 | 1,665 | 0,097 | Unconfirmed |
| H10d | IDADE*RESP→ CONF | 0,007 | 0,054 | 0,957 | Unconfirmed |
| H10e | IDADE*COM→ SAT | 0,106 | 1,048 | 0,296 | Unconfirmed |
| H10f | IDADE*COM→ CONF | 0,019 | 0,226 | 0,821 | Unconfirmed |
| H10g | IDADE*SAT→ CONF | 0,210 | 1,869 | 0,063 | Unconfirmed |
| H10h | IDADE*SAT→ LEAL | 0,080 | 0,708 | 0,479 | Unconfirmed |
| H10i | IDADE*CONF→ LEAL | 0,079 | 0,642 | 0,521 | Unconfirmed |

Interactivity proves to be a variable with significant effects on online satisfaction ($\beta$=0.425; $t$=5.379; $p$<0.01) and online trust ($\beta$=0.117; $t$=1.994; $p$<0.05). However, this study shows that interactivity may play different roles in different age groups, as for younger individuals interactivity was only found to have a relationship with satisfaction ($\beta$=0.322; $t$=3.040; $p$<0.01). In older individuals, interactivity plays a more important role since, in addition to the positive relationship with satisfaction on websites ($\beta$=0.532 ; $t$=6.034; $p$<0.01) it also has effects on trust ($\beta$=0, 278; $t$=2.934; $p$<0.01). This analysis allows verifying the important role of interactivity in the online relationship between businesses and consumers as in the study of (Vendemia, 2017). This role becomes even more important in older age groups since, besides there being effects between interactivity and online satisfaction, there is also trust in websites for the way it improves individuals' perceptions. (Alcántara-Pilar et al., 2018) describe the characteristics of the websites with special influence on online satisfaction. This statement is corroborated by this research, showing that in both groups, younger and less young individuals, satisfaction is always a consequence of interactivity. However, trust is only influenced by interactivity in older audiences. By analysing the data obtained for hypothesis H10b it is possible to verify that age plays a moderating role in the effects that interactivity has on the different audiences that browse and purchase online ($\beta$=0, 237; $t$=2.157; $p$<0.05). On a website human interaction is reduced and, in this sense, the development of actions and timely responses improve the relationship between companies and consumers (Giovanis and Athanasopoulou, 2018) . The website responsibility, measured through the support given to the customer and the concern in developing actions to solve problems, is an antecedent of trust ($\beta$=0.218 ; $t$=3.634; $p$<0.01) and satisfaction ($\beta$=0.341 ; $t$=3.917; $p$<0.01). From this analysis we conclude the importance of website responsibility in the existing relationship with the customer, and this website responsibility is, in this study, the variable with positive consequences on the quality of the relationship, even analysing different age groups.

The importance of communication for companies that operate online has been studied in the academic context and, in this sense, our study sought to analyse the results of website communication in the relationship that websites have with their customers. The data demonstrate the contributions of website communication on online satisfaction ($\beta$=0.152; $t$=3.041; $p$<0.01), although this impact is only evident in older audiences ($\beta$=0.208 ; $t$=3.146; $p$<0.01). Although the literature shows that communication generates trust, our study shows no evidence of communication in online satisfaction or online trust. The justification for not verifying these relationships may be due to the characteristics of this study, where several websites were analysed, with different communication strategies, which seems to be a valid analysis if the dispersion of the items under study for the communication variable is taken into account.

It is accepted in the literature (Kim et al., 2009; Moriuchi and Takahashi, 2016) that satisfaction has positive effects on trust and this study confirms this analysis ($\beta$=0.594; $t$=9.438; $p$<0.01). This study corroborates this relationship in several contexts. Whether in younger individuals visiting the shop ($\beta$=0.650; $t$=8.464; $p$<0.01) or older individuals ($\beta$=0.440; $t$=5.366; $p$<0.01), trust is a consequence of each individual's satisfaction, so it could be stated that individuals who are more satisfied with the

website will be the most trusting individuals.

This study aimed to study the determinants of loyalty and there are several studies confirming the existence of a relationship between satisfaction (Kim et al., 2009; Moriuchi and Takahashi, 2016) and trust (Bilgihan, 2016)on online loyalty. This research confirms the findings of other studies since the existence of positive effects between satisfaction and trust in the context of online shopping is evidence ($\beta_{\text{SAT}\rightarrow\text{LEAL}}$=0,692; $t$=12,538; $p$<0,01) ($\beta_{\text{CONF}\rightarrow\text{LEAL}}$=0,244; $t$=4,017; $p$<0,01), that in young individuals ($\beta_{\text{SAT}\rightarrow\text{LEAL}}$=0,729; $t$=9,053; $p$<0,01) ($\beta_{\text{CONF}\rightarrow\text{LEAL}}$=0,209; $t$=2,342; $p$<0,05) or in individuals at an older age ($\beta_{\text{SAT}\rightarrow\text{LEAL}}$=0, 649; $t$=8,284; $p$<0,01) ($\beta_{\text{CONF}\rightarrow\text{LEAL}}$=0,288; $t$=3,442; $p$<0,01).

# CONCLUSIONS, LIMITATIONS AND SUGGESTIONS FOR FUTURE RESEARCH

The main objective of this study was to understand the determinants of online loyalty, highlighting the moderating effects of age in the research model. Thus, the model presented was initially tested in a general way, to be then analysed in young and older individuals. Thus, the main conclusions of this study may be analysed in a theoretical context and in a more practical context.

At theoretical level, this study confirms that loyalty is explained ($R^2$=0.827) by the variables under study, although it is moderated by the individuals' age. In this study, we found, as indicated in the literature, that satisfaction and trust are the variables that determine online loyalty. In terms of independent variables, the importance of website responsibility was confirmed. In terms of interactivity, we concluded that this variable has a decisive influence on customer satisfaction in online shops. However, interactivity plays different roles in trust if the age of individuals is taken into consideration. For younger audiences interactivity does not show an important role in online trust levels; for older audiences, website interactivity is an important tool to ensure trust.

At a practical level, this work highlights the importance of developing websites whose central concern should be in the ability of each one to respond to customer questions. It should also be an objective of the organizations to develop interactivity adjusted to each type of public, since for individuals with different ages interactivity plays different roles, particularly in the effects it produces on trust in the website.

Although the conclusions of the study are globally valid, limitations arose due to the fact that the surveyed public is mostly educated at higher education level and is mostly female. The transversal characteristics of the study and the variability of the types of websites analysed were also a limitation, since the variable communication presented a great dispersion of answers. Thus, it will be important in the future to assess the antecedents of online loyalty in other contexts, namely by applying this study to a specific case, through a multiple or longitudinal cross-sectional research design. It is also suggested that further studies be carried out to analyse other moderating variables, such as gender or academic qualifications.

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# APPENDIX

### Appendix A. Measurement Items

| Constructs | Code | Item | Bibliographic references |
|---|---|---|---|
| Interactivity Website (INT) | INT_01 | This website has a search function | (Santo, 2014) |
| | INT_02 | The website has an area reserved for customers or members | |
| | INT_03 | The website allows registration for the newsletter | |
| Responsability Website (RESP) | RESP_01 | There is after-sales support on this website | (Santo, 2014) |
| | RESP_02 | A list of frequently asked questions (FAQ'S) is available | |
| | RESP_03 | This website is concerned with solving problems | |
| Website communication (COM) | COM_01 | I often see online advertising for this brand | Moriuchi and Takahashi, 2016) |
| | COM_02 | Links from this brand are often shared | |
| | COM_03 | The advertising activities of this brand are appealing | |
| | COM_04 | I often receive advertising from this brand by electronic means | |
| Satisfaction (SAT) | SAT_01 | I am satisfied with this brand's website | (Gracia et al., 2015) |
| | SAT_02 | My relationship with this website is perfect | |
| | SAT_03 | I feel that I made the best decision by choosing this website. | |
| Trust (CONF) | CONF_01 | I feel I can trust this website | (Moriuchi and Takahashi, 2016) |
| | CONF_02 | I trust the products / services of this website | |
| | CONF_03 | I trust the information on this website | |
| Loyalty (LEAL) | LEAL_01 | I intend to continue to use this website if I need to. | (Moriuchi and Takahashi, 2016) |
| | LEAL_02 | To search these product/service categories I will search this website again | |
| | LEAL_03 | I encourage my friends and family to use this website | |