

INVESTIGATING CULTURAL INTELLIGENCE AS A CATALYST FOR ENHANCED TOURIST SATISFACTION AND LOYALTY IN ECOTOURISM: A POST-REVOLUTION TUNISIAN APPROACH

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Abstract: The research explores how tourists' cultural intelligence (CI) may influence destination satisfaction and loyalty in the framework of ecotourism, which has not been substantially discussed in literature. Ecotourism is a phenomenon with distinctive peculiarities, in which cultural and environmental aspects are closely interconnected and more profound knowledge of the mechanisms of intercultural interaction is needed. To examine these relationships, a quantitative research design was performed through a structured questionnaire, with pre-tested instrument, that was distributed to 612 tourists who had already been to an ecotourism destination in Tunisia. Structural equation modelling (SEM) was used using AMOS to test the hypothesized relationships between cultural intelligence, ecotourism satisfaction and loyalty to ecotourism destination. The results revealed CI as a key determinant of tourists' satisfaction and loyalty to ecotourism destination. Additionally, satisfaction partially mediate the influence of tourists' CI on loyalty. Moreover, this study provides meaningful theoretical contributions since it is among the first that applies the concept of CI to the ecotourism, and it illuminates the existing processes by which this ability influences the tourist behavior in the post-revolution Tunisian setting. Hence, this paper provide as well some empirical contributions to both scholars and practitioners in the field of tourism. This study encourages ecotourism businesses to develop strategies and actions that take tourists' CI into account. Thanks to their CI, tourists modify their behavior to interact better while at destinations; it is therefore recommended that professionals facilitate communication through understandable verbal and non-verbal language when delivering their services.

Keywords: cultural intelligence, tourist satisfaction, loyalty, ecotourism, Tunisia

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INTRODUCTION

In Tunisia, the tourism industry is a pillar of the economy contributing by 14 percent of the national GDP and 15 percent of the exports according to the UNWTO (2023). However, even with such significant numbers, evaluating the performance of the sector today cannot be done by only financial indicators. Tourism should consider a wider set of criteria that encapsulate cultural, social, and environmental aspects to measure success (Gravari-Barbas, 2022). Previously identified with the concept of mass beach tourism, Tunisia is now gradually evolving into a more authentic, heritage-driven and environmentally responsible approach. These new pillars are redefining the tourism paradigm in the country (Boukherouk & Couret, 2023). Within this changing environment, ecotourism leaves behind the passive consumption of culture that has been a characteristic of traditional tourism. Ecotourism facilitates active engagement between tourists and locals to conserve the environment and preserve cultural integrity (Fennell, 2020). The Tunisian setting presents various unique characteristics that give originality to the study. It is a nation of varied natural and cultural heritage, such as oases, ancient medinas and biodiversity, which pose complex intercultural issues to visitors. Besides that, the post-revolutionary transition, that has come after the uprising in 2011, has made a new tourism narrative possible, one based on authenticity and social responsibility.

This cultural dynamic is further enhanced by the existence of the Berber communities who bear the ancestral ecological knowledge (Lanouar & Goaid, 2019). All these aspects make Tunisia a real-life laboratory of sustainable tourism practices.

In this context, it is essential to determine the variables affecting satisfaction and loyalty of tourists. Cultural intelligence (CI) which is the capacity to communicate successfully in intercultural environments (Earley & Ang, 2003) is one of the factors that are particularly promising. It has been demonstrated that CI positively affects tourist satisfaction

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(Frias-Jamilena et al., 2018; Kohli et al., 2026). Nevertheless, there is still a huge gap in previous studies, as the majority of existing studies perceive CI as a one-way process of adaptation. This simplification fails to recognize the two-way aspect of ecotourism relations that are characterized by mutual learning and co-responsibility of the environment (Stronza et al., 2019). Also, most of the studies pay more attention to the CI of service providers (Arora & Rohmetra, 2010; Skhiri et al., 2025), whereas the CI of tourists is not thoroughly researched, even though this dimension is vital to the overall accomplishment of the tourism experience (Frias-Jamilena et al., 2018; Lam et al., 2024; Li et al., 2022).

So far, there are limited studies that critically analyze the role of CI in the context of the phenomenon of ecotourism, where cultural interactions are combined with an environmental orientation, requiring specific intercultural competencies. This disjuncture is particularly severe due to the fundamental paradox of ecotourism: how can tourists simultaneously experience the genuine cultural immersion and be ecologically responsible and conscious of local values that may conflict drastically with their own cultural constructs? This paradox is highly intensified in Tunisia by both the conflict between modern tourist demands and traditional sustainable natural resource management and the increasing threats of overtourism in some coastal areas (Widz & Brzezinska-Wojcik, 2020). In this respect, CI requires more than mere adaptation. It means the ability to co-create sustainable experience in partnership with the local communities regarding the conservation of culture and the environment. This is a strategy that creates mutual gains between visitors and host communities. It is from this very point of view that this study derives its novelty: it presents the IC of the tourist as a fundamental factor of satisfaction and loyalty within an ecotourism framework.

More specifically, the impact of IC on the satisfaction and loyalty of visitors to a Tunisian ecotourism destination is explored. The present paper attempts to explain how IC works (in the context of ecotourism, in particular) not as a mere adaptive mechanism, but as a channel through which sustainable experiences are co-created between visitors and local populations. In Tunisia, and especially in the post-revolutionary setting, this line of inquiry lets us have a more complete view of how IC contributes to the alignment of tourist expectations and local conservation activities by providing ecotourism-specific forms of intercultural interactions absent in conventional tourism. Thus, this research makes a major contribution. It extends the application of the concept of IC to the specific field of ecotourism, showing how this competence is manifested in a context where cultural and environmental dimensions are closely intertwined.

It brings out the processes through which IC enables the relations between tourists and local communities in a developing nation such as Tunisia, which has had a recent sociopolitical transition. Lastly, it adds to the enlightenment of the determinants of satisfaction in ecotourism by showing that the IC of the tourist can determine the quality of his or her experience and loyalty to the destination. The remainder of the article is separated into five major sections.

The introduction will be followed by the review of previously published studies concerning cultural intelligence, and a description of the research hypotheses. Subsequently, the study methodology is outlined. Data analysis and primary findings are demonstrated in the following section. The analysis of the results is presented in Section 4, and finally the paper is concluded with a summary of the major contributions and implications.

LITERATURE REVIEW

This part provides the theoretical background of our research by laying down the key concepts on which our model is founded. We start by explaining why the concept of ecotourism and conventional tourism are different and then proceed to the definition of IC and loyalty in the case of ecotourism followed by our conceptual model and resultant research hypotheses.

1. Ecotourism

This type of tourism has been formalized in the 1980s by Ceballos-Lascurain (1996) as a way of travelling responsibly in natural areas, with the object of studying and reflecting on landscapes, wildlife, plants and cultural manifestation with the least possible negative effect on the environment. The small-scale form of this sustainable tourism model aims at natural and cultural resource conservation by incorporating local communities in participatory management (Lequin, 2002; Dehoorne & Tătar, 2013). It also helps in the conservation of biodiversity and sustainable economic growth by funding protection initiatives, creating employment opportunities locally and encouraging traditional expertise (Buckley et al., 2023). Ecotourism minimizes its ecological footprint, thereby offering immersive experiences through practices that are responsible like adoption of renewable energy, restricted visitor numbers, and sustainable waste management systems (Ross & Wall, 1999; Buhalis et al., 2023).

It is a multidimensional strategy that incorporates all three aspects, which are the environmental, social, and psychological, that can help raise awareness of ecological problems among the travelers by participating actively in conservation initiatives (Godovykh & Tasci, 2020). These dynamics are important to researchers and managers so that they can coordinate visitor expectations to the sustainability goals of ecotourism projects (Buhalis et al., 2023).

2. Cultural intelligence

It is a kind of intelligence that is especially appropriate in the intercultural environment; it can be demonstrated through the multifaceted capability to interact with people in culturally diverse settings (Sharma & Makhija, 2024) and is marked by extreme cultural complexity (Andresen & Bergdolt, 2017). On the same note, this type of intelligence is defined by Sternberg (2021) as the adaptive ability to problems that have interacted with people or artefacts of different cultures other than the original culture of an individual. IC, in its turn, is focused on the fact that a person is capable of being effective in a variety of intercultural situations (Ang et al., 2015). It is a multidimensional construct which consists of metacognitive, cognitive, motivational and behavioral elements (Earley, 2002; Earley & Ang, 2003).

Metacognitive aspect is a cognitive ability of an individual to learn and comprehend culture. This dimension enables revision of cultural knowledge and adaptation to intercultural situations to be able to interact (Ang et al., 2015). Another component, cognitive, is also characterized as the general knowledge about traditions, norms, values, etc. of other cultures (Ang et al., 2020) and the ability to cognize similarities and differences between cultures (Ang et al., 2015). The motivational is the readiness to put efforts to adjust to a new cultural setting (Ang et al., 2015). Behavioral CI, in its turn, is the measure of the behavioral flexibility of an individual when interacting with a culture different than their own, as it enables the latter to build up a culturally competent verbal and non-verbal regime of behavior (Sharma & Hussain, 2017).

3. Ecotourism satisfaction

The factors of satisfaction depend on the quality of services and infrastructure and the sense of immersion combined with environmental, cultural, and ethical factors. In fact, hospitality, gastronomy, well-trained guides, and environmentally friendly infrastructure are essential to deliver quality services that satisfy the expectations of the tourists (Carvache-Franco et al., 2020; Wearing & Neil, 2009). Furthermore, the quality of the natural environment has a high influence on the satisfaction of tourists (Buhalis et al., 2023). Furthermore, environmental education and the possibility of personal transformation through participation in conservation projects and learning about wildlife create a sense of personal accomplishment and lead to greater satisfaction. This is linked to the positive impact of these actions on the conservation of natural sites and the development of local communities (Wearing & Neil, 2009; Buhalis et al., 2023). The ethical dimension, including respect for the values of the destination, also represents a key source of satisfaction (Ceballos-Lascuráin, 1996; Buhalis et al., 2023), as does engagement with local communities and the discovery of their authentic culture (Wearing & Neil, 2009). Tourist satisfaction is particularly high when the ecotourism destination meets these different expectations (Wearing & Neil, 2009; Buhalis et al., 2023).

4. Ecotourism destination loyalty

Loyalty is considered a two-dimensional concept. Indeed, on the one hand, we distinguish behavioral loyalty reflecting the intention of tourists to revisit tourist attractions that match their expectations or to return to a specific destination (Jalilvand et al., 2012; Asmelash & Kumar, 2020). On the other hand, loyalty can be expressed through psychological attachment referring to the favorable feeling towards a destination and constituting a source of recommendations and positive word of mouth towards it (Akroush et al., 2016; Suhartanto et al., 2020). The concept of tourist destination loyalty has attracted increasing interest among tourism researchers in recent decades where particular attention has been paid to identifying its antecedents (Prayag & Ryan, 2012; Hasan et al., 2021). This is especially right in ecotourism (Kim & Thapa 2018). In this regard, the literature differentiates between the motivation to visit and to revisit ecotourism sites (Dewi & Abidin, 2021), the satisfaction derived (Li et al., 2021) and the destination image (Najar & Rather, 2023). In this respect, Sobaih et al., (2024) clarify that cognitive image has a substantial impact on the intention to visit a destination again and recommend it, whereas affective image has a substantial influence only on the recommendation.

The conceptual model and research hypotheses

The concept of CI was first adapted to tourism by Frías-Jamilena et al. (2018) who argued that this skill advances tourists' ability to adapt to different cultures and, consequently, improves destination evaluations. Coves-Martínez et al. (2022) also state that tourists' CI positively impacts satisfaction with the tourist experience since it directly intervenes in the evaluation of this experience. Indeed, thanks to this skill, tourists can facilitate integration into foreign environments and, consequently, positively impacts satisfaction (Coves-Martínez et al., 2022).

Furthermore, the cognitive aspect of IC, which encompasses knowledge of the values, norms, and beliefs of a culture (Earley & Ang, 2003), will contribute to increasing tourist satisfaction since it allows them to recognize the characteristics of their visiting destination (Coves-Martínez et al., 2022).

Furthermore, given that IC is a basis of motivation to connect with various cultures (Ang et al., 2015), the culturally intelligent tourist seeks more intercultural experiences; the more memorable experiences and moments they have, the greater their satisfaction will be (Wang et al., 2012). Satisfaction experienced in an ecotourism context is none other than a specific form of tourist satisfaction, and given the theoretical contributions mentioned above, we suggest:

H1. Tourist IC has a positive impact on ecotourism satisfaction.

Regarding the effect of tourist IC on loyalty to the tourist destination, the literature is rather scarce. Indeed, this relationship has mainly been elucidated in the case of expatriates considered as “sustainable” tourists. In this context, it has been shown that tourist IC positively impacts their loyalty to a destination to the extent that it allows a more positive evaluation leading to favorable post-visit behaviors and intentions (Zaman et al., 2021). This makes tourist IC a determining factor in the intention to revisit a destination, in its recommendation to third parties and in the dissemination of positive word of mouth (Coves-Martínez et al., 2022). Extrapolating these theoretical contributions to tourists in a general way and positioning ourselves in the specific context of ecotourism, we assume:

H2. Tourist IC exerts a positive impact on loyalty to the ecotourism destination.

Notwithstanding the above, previous studies show that satisfaction has a positive impact on loyalty to destinations (Li et al., 2021; Syamsu et al., 2022) leading to repeated consumption behavior and positive word-of-mouth (Wahyuningsih et al., 2025; Raza et al., 2020; Meilatinova, 2021). Research also proves that the level of satisfaction is a predictor of long-term loyalty and intentions for destination recommendation (Stylidis et al., 2020). In the specific case of ecotourism, previous research shows that tourist satisfaction plays a determining role in their loyalty to ecotourism

destinations (Rahayu et al., 2023; Aniqoh et al., 2022) and that a positive correlation between these two elements is systematically observed (Carvache-Franco et al., 2022). Thus, to retain visitors, it is essential that ecotourism destinations maintain high levels of satisfaction (Aniqoh et al., 2022; Rahayu et al., 2023; Sarangi & Ghosh, 2025). Considering these contributions from literature, we can put forward the following hypothesis:

H3: Loyalty towards the ecotourism destination is positively influenced by tourism satisfaction.

These different theoretical contributions allow us to propose the following conceptual model, adapted to the specific context of ecotourism. All hypotheses are summarized in Figure 1. This model has three hypotheses which relate to the IC of the tourist, tourist satisfaction and destination loyalty in an ecotourism setting.

According to this structure, satisfaction might serve as an intervening variable between destination loyalty and IC. Indeed, according to the literature, ecotourism satisfaction is the outcome of IC (Coves-Martínez et al., 2022) and the antecedent of destination loyalty (Li et al., 2021; Syamsu et al., 2022).

Thus, satisfaction could develop based on tourist IC and could, consequently, lead to ecotourism destination loyalty. Furthermore, culturally intelligent tourists were found to possess a higher estimation of destinations, which subsequently results in positive post-visit actions and intentions (Zaman et al., 2021). Since satisfaction is associated with a positive destination evaluation, we conclude that satisfaction could mediate the link between IC and ecotourism loyalty.

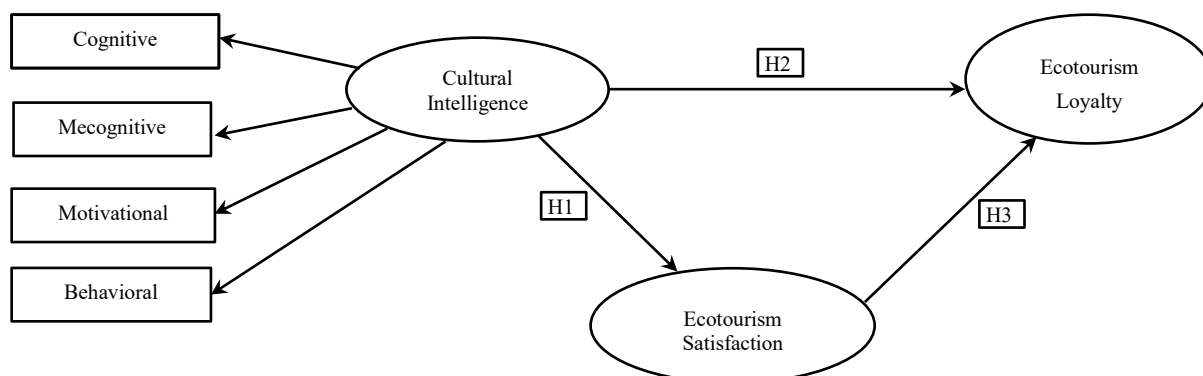


Figure 1. The conceptual model

METHODOLOGY

In this section, details are provided on the choice of the sample surveyed, the different measurement scales used, as well as the analysis method used.

1. Data collection

A quantitative study was implemented to test the link between IC, ecotourism satisfaction and loyalty in the Tunisian context. The selection of Tunisia as an object of study can be explained by specifics of the post-revolutionary ecotourism in the country, characterized by the high level of interdependence between the cultural and environmental aspects. To test our research model empirically, we carried out a survey among tourists that had visited a Tunisian ecotourism destination. Preliminary data collection was done to ensure that the participants could recognize the items in the survey. This pre-test involved a sample of 37 tourists. Based on the pre-test, the final questionnaire was distributed.

We administered a questionnaire face-to-face, in situ (which was carried out in ecotourism hotels) and online to 650 tourists. Regarding the sampling method, since we do not have a sampling frame, we selected a convenience sample composed of tourists of several nationalities who visited a Tunisian ecotourism destination, while respecting the sample size recommendations for SEM analyses (Hair et al., 2019). Lastly, it is essential to document that out of the 650 questionnaires prepared, 38 were discarded because they were incomplete or the answers given were inconsistent. As a result, 612 questionnaires were saved to be statistically processed.

2. Measurement of variables

The measurement used was adopted from previous studies with few amendments modifications to meet the research objectives. The survey was split into two parts. Part one has items designed to measure tourists' cultural intelligence, tourist satisfaction, and destination loyalty. We applied the scale constructed by Ang et al. (2007) that includes 12 items reflecting the four dimensions of the initial scale: metacognitive, cognitive, motivational, and behavioral. To measure tourist satisfaction, we chose the scale developed by Del Bosque & Martin (2008), Yoon et al., (2010) and Rahayu et al., (2023) which is composed of 5 items. Finally, we adopted the scale of Yoon et al. (2010), Rahayu et al., (2023) and Akroush et al., (2016) to measure destination loyalty (3 items). The choice of these scales is justified by their good internal consistency proven in most empirical studies, with a Cronbach's Alpha (>0.8). Appendix 1 shows the research instrument. The participants were asked to point out the level of their agreement with each of the items on a 5-point Likert-type scale, with 1 (strongly disagree) being at the lower end, and 5 (strongly agree) at the upper end.

Questions included in part two of the survey were designed to measure tourist demographics, including age, gender, nationality, level of education, occupation, and monthly income, all of which were measured with a categorical scale. Following a pre-test with 37 individuals, some items were amended, and a final instrument was developed.

RESULTS

To test our hypotheses, we used exploratory and confirmatory factor analysis with structural equation modeling using SPSS 23 and AMOS 23 software. First, we carried out an exploratory factor analysis via principal component analyses on the pre-test sample (N=37) to purify the measurement scales. Figure 2 shows first-order factor analysis.

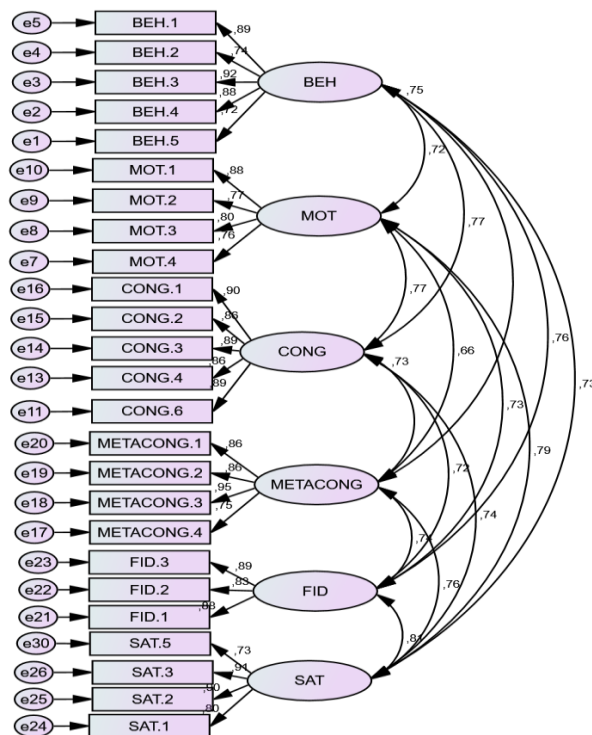


Figure 2. The First order model

1. Results of exploratory factor analysis

This analysis allowed us to retain all the items of the satisfaction variable measurement scale, to eliminate two items from the cultural intelligence measurement scale and a single item from the loyalty measurement scale due to their low representation index (<0.5). As a result, we obtained a good value of Bartlett's test of sphericity and an acceptable value of KMO (>0.8) as well as a Cronbach's alpha greater than 0.6 (between 0.87 and 0.95), which demonstrates a good level of reliability (Table 1).

Table 1. Results of the exploratory factor analysis

| Dimension | Items | KMO | Variance explained | Cronbach's Alpha |
|------------------------------|-------|------|--------------------|------------------|
| Cultural Intelligence | 18 | 0.94 | 78.15 | 0.95 |
| Behavioral | 5 | | 22.15 | 0.95 |
| Motivational | 4 | | 19.97 | 0.87 |
| Cognitive | 5 | | 18.16 | 0.94 |
| Mecognitive | 4 | | 17.85 | 0.91 |
| Satisfaction | 4 | 0.83 | 76.10 | 0.89 |
| Loyalty | 3 | 0.74 | 82.63 | 0.89 |

2. Results of confirmatory factor analysis

In a second step, we carried out a confirmatory factorial study by applying a structural equation analysis on the final sample (N=612). Table 3 presents the descriptive statistics of our study. The mean of respondents' responses varied between 3.52 and 4.05 along with gaps values that were between 0.952 and 1.166 (Table 3), indicating that answers is scattered and less concentrated around the average value (Bryman & Cramer, 2012). The means of the survey responses ranged from 3.52 to 4.05, and the standard deviation between 0.952 and 1.166 (Table 1), revealing that the responses were not widely dispersed across the mean. Table 3 also presents an acceptable quality of model fitness.

In fact, the value of normed Chi-square being inferior to 3 ($\chi^2/dof = 2.85$) (Hair et al., 2014). In addition, the indices GFI (0.855), AGFI (0.816), IFI (0.924), NFI (0.908) and CFI (0.924) converge to 1, which exceeds the cut-off value of 0.9, as suggested by Hair et al., (2014). Finally, the RMR (0.043) and the RMSEA (0.085) are below 0.1 and are very close to 0. Thus, the model adjusts to the data and presents a good quality of fit. Then, we checked values of skewness and kurtosis. The values for skewness ranged from -1.482 to -0.594 (<|3|) for all items.

Those for Kurtosis ranged from -0.540 to 1.573 (<|8|) for all items. The Mardia's test of multivariate normality was carried out before performing the maximum likelihood estimation (<|3|) (Roussel et al., 2002). After checking the skewness and kurtosis values shown in Table 2, we therefore suggest that there are normal distributions.

Table 2. Descriptive statistics (Model fit: “ χ^2 (233, N = 612) = 664.064 p < 0.001, normed χ^2 = 2.85, RMSEA = 0,085, RMR = 0.043, GFI = 0.855, AGFI = 0.816, NFI=0.908, IFI = 0.924, CFI = 0.924 and TLI = 0.911 p < 0.001”)

| Abbreviation | Minimum | Maximum | Mean | Std Deviation | Skewness | Kurtosis |
|----------------------|---------|---------|------|---------------|----------|----------|
| Behavioral | | | | | | |
| BEH.1 | 1.0 | 5.0 | 3.63 | 1.151 | -1.050 | 0.321 |
| BEH.2 | 1.0 | 5.0 | 3.63 | 1.011 | -0.772 | -0.097 |
| BEH.3 | 1.0 | 5.0 | 3.62 | 1.119 | -1.120 | 0.572 |
| BEH.4 | 1.0 | 5.0 | 3.56 | 1.152 | -0.958 | 0.164 |
| BEH.5 | 1.0 | 5.0 | 3.60 | 0.987 | -0.594 | -0.228 |
| Motivational | | | | | | |
| MOT.1 | 1.0 | 5.0 | 3.65 | 1.086 | -1.213 | 0.918 |
| MOT.2 | 1.0 | 5.0 | 3.85 | 0.914 | -0.986 | 0.591 |
| MOT.3 | 1.0 | 5.0 | 3.76 | 1.124 | -0.991 | 0.580 |
| MOT.4 | 1.0 | 5.0 | 3.89 | 0.906 | -1.096 | 1.132 |
| MOT.5 | 1.0 | 5.0 | 3.74 | 1.073 | -1.188 | 0.867 |
| Cognitive | | | | | | |
| CONG.1 | 1.0 | 5.0 | 3.68 | 1.114 | -1.232 | 1.038 |
| CONG.2 | 1.0 | 5.0 | 3.87 | 0.910 | -1.123 | 1.161 |
| CONG.3 | 1.0 | 5.0 | 3.79 | 1.103 | -1.204 | 1.024 |
| CONG.4 | 1.0 | 5.0 | 3.67 | 1.059 | -1.322 | 1.325 |
| CONG.5 | 1.0 | 5.0 | 3.52 | 1.114 | -0.930 | 0.114 |
| CONG.6 | 1.0 | 5.0 | 3.86 | 1.133 | -1.416 | 1.461 |
| Metacognitive | | | | | | |
| METACONG.1 | 1.0 | 5.0 | 3.67 | 1.045 | -0.711 | -0.341 |
| METACONG.2 | 1.0 | 5.0 | 3.69 | 0.953 | -0.878 | 0.183 |
| METACONG.3 | 1.0 | 5.0 | 3.62 | 1.129 | -1.154 | 0.649 |
| METACONG.4 | 1.0 | 5.0 | 3.88 | 1.038 | -1.004 | 0.387 |
| Loyalty | | | | | | |
| FID.1 | 1.0 | 5.0 | 3.73 | 1.161 | -0.987 | 0.195 |
| FID.2 | 1.0 | 5.0 | 3.82 | 0.990 | -0.823 | 0.204 |
| FID.3 | 1.0 | 5.0 | 3.96 | 0.962 | -0.931 | 0.441 |
| Satisfaction | | | | | | |
| SAT.1 | 1.0 | 5.0 | 3.95 | 0.952 | -0.962 | 0.517 |
| SAT.2 | 1.0 | 5.0 | 4.05 | 1.141 | -1.467 | 1.528 |
| SAT.3 | 1.0 | 5.0 | 3.94 | 1.161 | -1.482 | 1.573 |
| SAT.4 | 1.0 | 5.0 | 3.66 | 1.166 | -0.715 | -0.540 |
| SAT.5 | 1.0 | 5.0 | 3.99 | 0.966 | -1.070 | 0.701 |

3. Convergent and discriminant measurement validity

The reliability coefficients (Rhô Jöreskog) are greater than 0.7 (between 0.88 and 0.94), attesting to a satisfactory reliability as recommended by Fornell & Larcker (1981). The average AVE variances of each construct are all greater than 0.5 (between 0.64 and 0.77), which confirms a very satisfactory convergent validity of the different constructs. The discriminant validity is also verified (Table 3).

Table 3. Convergent and discriminative measurement validity (Note: “CR = Composite Reliability; AVE = Average Variance Extracted; MSV = Maximum Shared Value; ASV= Average Shared Value”)

| Factors and items | St. F.L. | CR | AVE | MSV | ASV | BEH | MOT | CONG | META | FID | SAT |
|----------------------|----------|-------|-------|-------|-------|-------|-------|-------|-------|-----|-----|
| Behavioral | | 0.919 | 0.697 | 0.596 | 0.937 | 0.835 | | | | | |
| BEH.1 | 0.891 | | | | | | | | | | |
| BEH.2 | 0.741 | | | | | | | | | | |
| BEH.3 | 0.917 | | | | | | | | | | |
| BEH.4 | 0.882 | | | | | | | | | | |
| BEH.5 | 0.723 | | | | | | | | | | |
| Motivational | | 0.880 | 0.647 | 0.631 | 0.890 | 0.718 | 0.804 | | | | |
| MOT.1 | 0.883 | | | | | | | | | | |
| MOT.2 | 0.769 | | | | | | | | | | |
| MOT.3 | 0.797 | | | | | | | | | | |
| MOT.4 | 0.763 | | | | | | | | | | |
| Cognitive | | 0.945 | 0.774 | 0.596 | 0.946 | 0.772 | 0.769 | 0.880 | | | |
| CONG.1 | 0.895 | | | | | | | | | | |
| CONG.2 | 0.859 | | | | | | | | | | |
| CONG.3 | 0.885 | | | | | | | | | | |
| CONG.4 | 0.863 | | | | | | | | | | |
| CONG.6 | 0.895 | | | | | | | | | | |
| Metacognitive | | 0.917 | 0.736 | 0.578 | 0.944 | 0.748 | 0.664 | 0.727 | 0.858 | | |

| | | | | | | | | | | | |
|--------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| METACONG.1 | 0.859 | | | | | | | | | | |
| METACONG.2 | 0.859 | | | | | | | | | | |
| METACONG.3 | 0.953 | | | | | | | | | | |
| METACONG.4 | 0.750 | | | | | | | | | | |
| Loyalty | | 0.901 | 0.752 | 0.657 | 0.904 | 0.763 | 0.727 | 0.718 | 0.736 | 0.867 | |
| FID.1 | 0.878 | | | | | | | | | | |
| FID.2 | 0.833 | | | | | | | | | | |
| FID.3 | 0.890 | | | | | | | | | | |
| Satisfaction | | 0.902 | 0.700 | 0.657 | 0.921 | 0.733 | 0.794 | 0.736 | 0.760 | 0.810 | 0.836 |
| SAT.1 | 0.800 | | | | | | | | | | |
| SAT.2 | 0.896 | | | | | | | | | | |
| SAT.3 | 0.907 | | | | | | | | | | |
| SAT.5 | 0.730 | | | | | | | | | | |

4. Results of structural equation analysis

We are analyzing the results obtained by the structural equations method on the Amos 23 software. We employed structural equation modelling to assess the impact of tourists' cultural intelligence on destination loyalty as well as on tourist satisfaction once the validity and reliability of the measurements are ensured.

Results of the hypothesis testing are summarized in table 4. Table 4 shows the goodness of fit measures in the standards. We obtained a rather satisfactory quality of fit even though the GFI and AGFI have values of 0.858 and 0.823 respectively; they are slightly lower than 0.9. The value of GFI and AGFI is acceptable if they are above 0.8.

The standard RMR (0.043), RMSEA (0.083), is almost equivalent to Zero (Hair et al., 2014; Didellon & Valette-Florence, 1995). The χ^2/df ratio (=2.83) is below 3, the ratio is deemed satisfactory and underlines a good fit, as indicated by Hair et al. (2014). The TLI= 0.915, NFI= 0.910, IFI= 0.926 and CFI= 0.926 are acceptable and underline a good fit. Thus, the model adjusts to the data and presents a good quality of fit. We believe that the goodness of fit of the model is satisfactory enough to retain the model and to study structural links.

Finally, we used the bootstrap method to assess mediation. This technique consists of calculating confidence intervals for the product term (ab) (indirect effect), and the mediating effect is considered significant if zero does not fall within the confidence interval. Tourists' CI has a positive and significant influence on satisfaction because (a) = 0.646; t = 21.34; p = 0.000. Controlling for tourists' CI, the impact of satisfaction on tourist destination loyalty is positive and significant because (b) = 0.417; t = 12.55; p = 0.000. Moreover, the total effect of tourists' CI on destination loyalty is significant because (c) = 0.70; t = 24.80; p = 0.000. Lastly, the overall indirect impact of CI on destination loyalty is high and equal to (a * b = 0.643), with a 95 percent bootstrap confidence interval of 0.27 to 0.42.

Since the zero value was not included in the bootstrap confidence intervals, we suggest that the impact is significant and different from zero. This result therefore indicates complementary mediation (Zhao et al., 2010). As a result, their IC can also influence the loyalty of the tourist due to satisfaction. The significance of the path coefficient of each hypothesis was then calculated (p<0.001) the obtained results are presented in Table 4 and Figure 3.

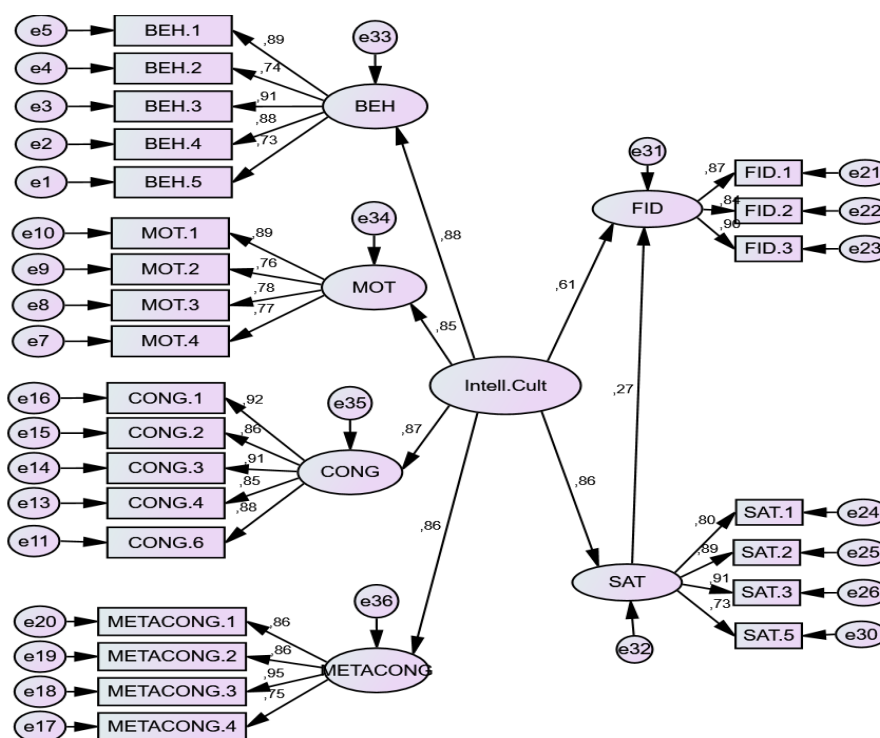


Figure 3. The Structural Model

Table 4. Results of the hypothesis test (Model fit: “ χ^2 (256, N = 612) = 724.48 $p < 0.001$, normed $\chi^2 = 2.83$, RMSEA = 0,083, RMR = 0.043, GFI = 0.858, AGFI = 0.823, NFI=0.910, IFI = 0.926, CFI = 0.926 and TLI = 0.915 $p < 0.001$ ”)

| Hypotheses | Estimate | SE | CR | P | Validated? |
|-----------------------------|----------|-------|--------|-------|------------|
| H1: IC -> Satisfaction | 0.861 | 0.064 | 16.089 | 0.000 | YES |
| H2: IC -> Loyalty | 0.609 | 0.116 | 8.358 | 0.000 | YES |
| H3: Satisfaction -> Loyalty | 0.270 | 0.089 | 4.050 | 0.000 | YES |

DISCUSSION

This paper tested the different links between tourists’ cultural intelligence, satisfaction and loyalty in the context of ecotourism. Few previous research in tourism have studied the concept of tourists’ cultural intelligence (Frias-Jamilena, et al., 2018). The results shown in Table 5 presents that CI has a positive and significant impact on ecotourism satisfaction (CR = 16.089, $p = 0.00$). Thus, H1 is validated.

According to this result, the tourist's IC allows him to derive greater satisfaction thanks to the behavioral flexibility; he or she will be endowed with a better understanding of the cultural differences characterizing the ecotourism destination as well as his or her motivation to interact in a foreign cultural environment. This result confirms the contributions of previous literature, such as the work of Coves-Martínez et al. (2022), Earley & Ang (2003) and Wang et al. (2012), according to which the tourist's IC positively impacts his satisfaction in the ecotourism destination thanks to a better understanding of its cultural characteristics. Furthermore, IC allows tourists to demonstrate empathy and free themselves from stereotypes related to their own cultural context in favor of better adaptation in foreign environments.

Furthermore, IC motivates tourists to experience and interact more at the ecotourism destination, which leads to greater satisfaction. On the other hand, the results of the test of the second hypothesis show that the tourist's IC has a positive and significant impact on loyalty to the destination of ecotourism; CR = 8.358, $p = 0.00$). Therefore, H2 is validated. Thus, the more culturally intelligent the tourist is, the more loyal he or she will be to the ecotourism destination. This can be explained by the fact that IC facilitates his or her integration into different cultural contexts to the extent that it increases his or her adaptability to the specificities of the destination visited. Indeed, IC allows the tourist to detach himself from his or her own reference schema, to understand the specificities of the destination, while being more motivated to discover its ecotourism attractions. This mix leads to the feeling of connection with the destination and the increased willingness to return there. In addition, this felt well-being encourages the tourists to recommend the destination to third parties and to spread positive word of mouth about it. This result aligns with the contributions of previous studies, which show that the tourist's IC positively impacts their loyalty to a destination since it leads to a more positive appreciation involving favorable post-visit behaviors and intentions. Thus, the tourist's IC turns out to be a key factor in the intention to revisit a destination, recommend it to others and generate positive word-of-mouth about it (Coves-Martínez et al., 2022; Zaman et al.,2021).

Furthermore, tourists’ satisfaction has a positive and significant effect on loyalty to the ecotourism destination (CR = 4.050, $p = 0.00$). Therefore, H3 is validated. Thus, the more satisfied the tourist is with the ecotourism destination, the more loyal he will be to it, by returning, recommending it and sharing favorable information about it. This result is in line with previous research stating that tourist satisfaction is a powerful antecedent of their loyalty to ecotourism destinations and that consequently, high levels of satisfaction make them psychologically attached and encourage them to return to these destinations (Rahayu et al., 2023; Aniqoh et al., 2022; Carvache-Franco et al., 2022). Thus, satisfaction can develop based on the tourist's IC and consequently lead to loyalty to ecotourism destinations. Combined, these results demonstrate the paramount position of cultural intelligence as a predictor of ecotourism behavior and help expand our perspective of this concept in an area where cultural and environmental aspects are tightly linked. Such correlation acquires special importance in the context of the post-revolutionary Tunisia where CI emerges as the key to the process of balancing the demands of modern tourists and environment preservation activities in the country.

CONCLUSION AND IMPLICATIONS

The primary goal of the research was to investigate the relationship between tourists’ cultural intelligence, satisfaction, and loyalty to the destination in the Tunisian setting of ecotourism which is becoming an essential solution to both environmental and socio-cultural problems. To achieve this, a questionnaire was administered to 612 tourists and structural equation modelling was used to test the research hypotheses.

Findings suggest that tourists who are more culturally intelligent are more likely to be satisfied and devoted to ecotourism destinations. Indeed, CI promotes behavioral flexibility, enhances the understanding of cultural differences at the ecotourism destination, and strengthens motivation to interact in a foreign cultural environment. It also allows travelers to let go of cultural stereotypes in favor of better interactions. As a result, greater satisfaction is felt at the destination. Furthermore, by facilitating integration, CI promotes a sense of attachment and the intention to revisit the destination, as well as recommendations and positive word-of-mouth about it. In addition, the results show that satisfaction acts as a mediating variable between tourists’ CI and their loyalty to the ecotourism destination. Theoretically, this paper contributes to tourism marketing literature by further establishing tourist CI as a key determinant of destination satisfaction and loyalty.

It further demonstrates how it works in an environment where cultural interactions are further enriched with environmental issues, thus broadening the use of the concept to the ecotourism sector. The results obtained have important implications on the tourism industry where cultural differences can hinder visitors’ satisfaction and affect their perception of the destination. These implications assume a specific dimension in the post-revolution Tunisian situation where professionals have to balance between tourist modernity and cultural heritage. Moreover, the identification of the CI as a

key determinant of satisfaction and loyalty highlights the importance of taking this form of intelligence into account in the management of ecotourism destinations, not only from the providers' side, but also from the tourists' point of view.

This paper encourages ecotourism businesses to develop strategies and actions that take tourists' CI into account. In this regard, culturally intelligent tourists are intrinsically highly motivated and constantly seek new experiences and opportunities to discover different cultural environments. It is therefore recommended to offer them original and immersive ecotourism activities which highlight the destination's history, customs, and lifestyles.

Educating the participants on the local flora and fauna through conservation experiences to show their dedication to the community welfare is also crucial. In addition, thanks to their CI, tourists strive to free themselves from their own frame of reference in order to adapt to the culture of the ecotourism destination.

Professionals are encouraged to facilitate this process by involving them in traditional and authentic activities (such as crafts) that promote open-mindedness, acceptance of differences, and integration. Besides, it is necessary for service providers to disseminate relevant information through communication campaigns and ongoing training for frontline staff, particularly guides, in order to provide culturally intelligent tourists with the content they are looking for and the knowledge they are seeking to acquire. It is also important to raise awareness among other stakeholders, such as artisans, of the importance of explaining their crafts and promoting exchange and communication. Finally, thanks to their CI, tourists modify their behavior to interact better while at destinations; it is therefore recommended that professionals facilitate communication through understandable verbal and non-verbal language when delivering their services.

Future research opportunities

Despite the above-discussed contributions, there are still few limitations to this work. The first relates to the analogy made between the notions of sustainable and occasional tourists, due to a lack of literature. The characteristics of these types of tourists may, in fact, be different. Furthermore, in our conceptual model, the notion of loyalty was understood in a global manner without specifying its behavioral and psychological nature. Furthermore, the analysis of the effect of CI on ecotourism satisfaction and loyalty was carried out globally since, due to a lack of literature, we could not pose separate hypotheses for the different dimensions. Finally, convenience sampling can have implications regarding the representativeness of our sample and therefore constrain the external validity of the inferences made. Thus, it would be wise, for future research, to use other sampling methods leading to results that are more generalizable. It would also be interesting to explore the links between the different dimensions of CI and satisfaction and loyalty to the destination by specifying its components. Furthermore, the results of our empirical study may be useful for future research that wants to expand our causal model by including other variables related to the nature of the experience and the image of the destination in an ecotourism context. In addition, the inclusion of control variables such as the nationality of the tourist, the frequency of visit, etc., can enrich future research by studying their effects on the overall relationships of the proposed causal model.

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