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CULTURAL IMPLICATIONS IN INNOVATION ADOPTION: AN ANALYSIS IN THREE COUNTRIES

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ABSTRACT

Purpose: The study aimed to evaluate the relationship of two national cultural dimensions (individualism and uncertainty avoidance) with the consumer innovativeness.

Methodology/approach: A descriptive research as conducted with three groups from three different countries, which evaluated, through a survey, the propensity of the respondents to look for innovations actively and independently.

Originality/Relevance: Considering companies are constantly introducing new products and services in countries where cultural traits are different, the understanding of the consumer behavior is fundamental for evaluating the acceptance of these innovations.

Key findings: It was observed that groups with strong collectivists characteristics, Brazilians and Colombians, tend to rely on the positive experience of friends and relatives to adopt an innovation. Regarding the uncertainty avoidance dimension, the results showed no significant differences among the three groups.

Theoretical/methodological contributions: With the constant intensification of the international trade, it is necessary to make an understanding of the peculiarities of a target audience for products and services, in order to create appropriate positioning strategies, because the levels of individualism of a culture act directly on consumers' perceptions regarding the adoption of innovation.

Keywords: National culture; Consumer innovativeness; Adoption of innovations; Innovations.

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1 INTRODUCTION

When making decisions as consumers, people generally act within a social context, and considering that the cultural environment is part of any individual's daily life (De Mooij & Hofstede, 2011), it is inevitable that this environment exerts an influence on their behavior. in relation to what happens in the market. The impact of culture is even more pronounced in the context of international business. In this sense, research in the field of international marketing begins to analyze the influence that a consumer's cultural characteristics have on their behavior. To this end, some models were created to compare different countries in relation to their culture.

The best known and most used is the model created by Hofstede (1984), whose studies provided a comparison model between countries, through six cultural dimensions (Hofstede, Hofstede & Minkov, 2010), being a non-complex and widely accepted concept for carry out comparisons of cultural aspects between nations (Jackson, 2020). Hofstede's work allowed for more consistent research regarding the culture of countries, through the creation of a metric to make culture tangible (Sent & Kroese, 2022).

Continuous innovation, as Montgomery and Porter (1998) and Salunke, Weerawardena and McColl-Kennedy (2011) state, is a factor of competitive advantage. If a company enters a foreign market offering innovative features and/or functionalities in its product or service in relation to those already offered in that country, it needs to be sure that this foreign consumer understands what is being offered. Therefore, knowing the cultural and social characteristics of the international consumer means predicting more accurately their level of acceptability in relation to that product or service (Schiffman & Kanuk, 2009, Keegan, 2016).

As stated by Nissan, Galindo and Picazo (2012), cultural factors can significantly affect the decision process to adopt an innovation, changing consumers' level of willingness to try new things. It is worth noting that the concept of innovation involves different perceptions; It is not just limited to major modifications or the creation of products never offered before. In the conceptualization of Rogers (2003), which provided the basis for this study, innovation refers to any action that promotes the perception of something new for the consumer, that is, it is analyzed based on the consumer's perception of the "new".

Given this context, this study relates consumer cultural variables and their propensity to purchase innovative products or services. For this work, two dimensions proposed by Hofstede were used: individualism and collectivism (IVC) and uncertainty avoidance (UAV). The justification for selecting these two dimensions is linked to the fact that they both describe behaviors that impact aspects of consumer behavior.

Therefore, the objective of this study is to identify the existence of differences in the search for innovation among consumers from countries with different levels of individualism and uncertainty avoidance. To this end, interest, search and independence in the adoption of innovations by consumers from different cultural groups were analyzed. Furthermore, a comparison was established between the profiles of consumers surveyed in relation to their behavior towards innovation.

According to Dobre, Dragomir and Preda (2009), measuring the consumer's degree of innovativeness is the basis for adequate market segmentation, identifying the group of innovators and non-innovators. Furthermore, when seeking to operate in a place where values, customs and lifestyles are different, understanding the profile of its consumers must be deeply considered. In this sense, it is possible to guide marketing actions according to the level of innovativeness of each group.

2 THEORETICAL BACKGROUND

In order to provide basis and relevance to the research, this chapter presents the theoretical framework that structured the study.

2.1 Hofstede's Cultural Dimensions

Hofstede's (1984) approach is related to the nationality of culture, that is, how it appears on a national societal level. After their seminal work, measuring culture based on self-reported values, beliefs, ideologies, and self-constructions became a widely practiced practice in cross-cultural research (Minkov & Kaasa, 2022). Hofstede et al. (2010) explain that the culture of a country, or of any group of people, is not a combination of properties of an ordinary citizen of that group, nor a standard personality, but rather a set of likely reactions of citizens with a common mental program. Therefore, Hofstede's measures are imprecise and irrelevant for an individual personality analysis (Minkov & Hofstede, 2011).

Hofstede calls these measures "dimensions", which measure various psychological constructs and assign national scores, which are later used to explain differences between the behaviors of the people of these nations (Minkov & Kaasa, 2022). In addition to the dimensions used in this study (individualism x collectivism – IVC, and uncertainty avoidance – UAV), four others were attributed by the author to better understand different national cultures. However, depending on the characteristics of the research, only these were addressed considering their relationship with consumer behavior.

The IVC dimension concerns the role of the group in a society. These terms are not related to the degree of individualism or selfishness of an individual's personality, but rather to aspects of collectivism and relationships between people (De Mooij & Hofstede, 2011). The main characteristics of the definition of individualism and collectivism address issues related to the influence of the group on the personal motivations of each individual. Members of an individualistic society care more about themselves and close family members, making their decisions personally and independently, while for collectivist individuals and cultures, emotional ties are stronger and aspects of loyalty to family and friends are very important, so that the reference group exerts great influence on their decisions (Hofstede et al., 2010).

The second dimension addressed, uncertainty avoidance, refers, according to Hofstede et al. (2010), the degree to which members of a culture feel threatened by unstructured situations, that is, unknown, new, surprising and unusual situations. Furthermore, the dimension assesses how mechanisms, such as rules and laws, are created to avoid them and mitigate their impact. Thus, it deals with the aspect of unpredictability of future and new situations.

In a broad context, countries that score higher on this dimension show a tendency to avoid ambiguous and uncertain situations through the creation of norms and rules. In this way, they present skeptical and intolerant behavior towards new ideas and social transformations, showing feelings of anxiety and stress (De Mooij & Hofstede, 2011). On the other hand, those with lower scores maintain more relaxed and tolerant attitudes towards uncertainty and, therefore, feel less need to create control mechanisms (Hofstede et al., 2010).

The two dimensions presented demonstrate a connection with each other and influence different aspects of consumer behavior. Hofstede et al. (2010) establish a relationship between these two dimensions based on their influence on social communication. As De Mooij and Hofstede (2011) state, the difference between these groups is in the way they interpret messages: individualistic cultures are low-context cultures and collectivist high-context cultures. This means that in collectivist cultures, the message to be communicated is often

subjective and created through non-verbal resources such as symbols and body language. On the other hand, members of the individualist culture value objectivity and communication through verbal resources, that is, words that explicitly express their literal meaning.

This is reflected in aspects relating to the search for information by these groups. In individualist cultures, the media is considered the main resource for obtaining information, while in the collectivist group, information is sought through their social circle. Regarding acceptance of the use of modern information and communication technologies, in individualistic cultures it is greater and its use is important in daily family social interactions (Hofstede et al., 2010).

Another study regarding the impact of the individualism dimension on consumption concerns the propensity for brand loyalty. Yoo (2009), when researching the effect of culture on consumer behavior, found that individuals with a collectivist orientation showed a greater propensity for loyalty and attribution of value to a brand. Additionally, Unurlu and Uca (2017), through research on the effect of culture in relation to a brand's performance, show that the collectivism and uncertainty avoidance dimensions exert an important influence on the creation of a brand's personality and its success in the market, considering that consumers evaluate their experiences based on their cultural characteristics.

In addition to issues of individualism, the uncertainty avoidance dimension is extensively attributed in consumer behavior research. In general, consumers from cultures with high scores in this dimension prefer to buy products that they are already deeply certain of their capacity and quality (De Mooij & Hofstede, 2011).

Regarding product communication, the use of advertising campaigns with endorsement and recommendation from professionals has a greater impact in cultures that score high in this dimension, while in the other group, humor is more prioritized as an advertising element (Hofstede et al., 2010). Likewise, low score groups prefer to seek information and prices of products and services through the internet and magazines, unlike the other group that tends to obtain information from people who have already used these products and services (Dawar & Parker, 1994).

A situation in which it is possible to identify the impact of the uncertainty avoidance dimension refers to virtual shopping, which represents a paradigm shift in the traditional form of consumption. Kailani and Kumar (2011) compared countries with different scores on the uncertainty avoidance dimension and identified that cultures that score high tend to buy less online, considering that they view these new shopping tools with suspicion.

2.1 Innovation

Although several products on the market are considered innovative, most of them are new in a limited way, that is, their attributes, characteristics and functionalities are changed in a subtle way. Therefore, new products and services do not need to be surprisingly innovative to be considered an innovation (Lehmann & Winer, 2005). Furthermore, the new has different meanings depending on the place where it is introduced. As Keegan (2016) states, a product already known in a given market can be considered innovative in another, as it can be understood as new and different for the target market.

Furthermore, a performance-oriented national culture makes greater contributions to innovation, a factor that is related to growth in the country's innovation trajectory (Escandon-Barbosa; Ramirez & Salas-Paramo, 2022), because the relationship between performance and inputs is the measure for innovation efficiency (Shin, Kim, Jung & Kim, 2022). Therefore, to better understand some behaviors in relation to the purchase of innovation, it is necessary to

have a general understanding of two processes that investigate the acceptance of a new product within a market: the diffusion and adoption of innovation.

Diffusion is a process that concerns the spread of an innovative idea within a population (Rogers, 2003). It is characterized by a macro process (Schiffman & Kanuk, 2009), that is, it involves analyzing how new products spread within a large consumer group. However, such analysis is complex, considering different internal and external agents that interfere in the process, such as, for example, the type of innovation, its attributes, consumer perception, marketing activities and their impact on consumer adoption behavior (Stummer, Kiesling, Gunther & Vetschera, 2015).

The perceived characteristics of an innovation, such as compatibility, relative advantage, complexity, observability and trialability are the variables that have the most significant impact on the adoption rate (Call & Herber, 2022). Thus, Garcia, da Silva, Pereira, Rossi and Minciotti (2008) analyze that innovations must be based on strategic actions that control and adapt to the social context in which they are applied, studying regional variables (local and national) that impact their implementation, reinforcing the impact of the social system in this process.

Unlike the diffusion process, the adoption of innovation is a process analyzed at an individual consumer level (Schiffman & Kanuk, 2009). Rogers (2003) defines it as a sequence of stages through which an individual goes from the first contact with the innovation, to taking the attitude of adopting or rejecting it, to implementing a new idea and confirming this decision. This process involves the stages of knowledge, persuasion, decision, implementation and confirmation.

First, the individual (or the decision-making unit) notices the existence of the innovation and becomes aware of it, therefore, he notices something new. In the second stage (persuasion), the individual forms his attitude, favorable or unfavorable, towards the innovation. To do this, he uses his affective side more than his cognitive side, becoming psychologically involved with her (Rogers, 2003). The next stage has a decisive character. Here the consumer makes their final decision, that is, engaging in activities that lead to the choice of adopting or rejecting the innovation (Schiffman & Kanuk, 2009). As in previous stages, the individual may decide to reject the innovation. If he adopts it, he will move on to the fourth stage, implementation, when he begins to effectively use this new idea. Finally, the last stage of this process consists of confirming your decision (Rogers, 2003).

2.2.1 Individual characteristics related to innovation

Individual characteristics, such as innovative behavior, are related to the adoption of innovation (Putnik, Oeij, Dhondt, Van Der Torre & De Vroome, 2019). However, differences in the different digital profiles that exist between population groups must be taken into account when seeking to implement regional development strategies based on innovations (Mikhaylova, Mikhaylov & Hvaley, 2021). In relation to demographic characteristics, Tellis, Yin and Bell (2009), through extensive research with different cultural groups, identified that the profile of an innovator is mainly characterized by young, educated, middle to upper class and male. Lim and Park (2013) also identified that sociodemographic characteristics, such as age and income, are important elements to predict the acceptability of an innovative product, so that younger and affluent consumers represent the group with the greatest interest in innovations.

However, there are demographic differences in the preference for innovative products: men are more interested in cars and sporting goods, young people under 30 are interested in new cars, while a group of older consumers prefer to invest in household items. In another multicultural research, Rašković, Ding, Škare, Došen & Žabkar (2016) found that young consumers, even if they are culturally different, show great interest in innovations. Furthermore,

consumers who go through major events in their lives (e.g. birth of a child, marriage) tend to become more innovative in their search for products and brands (Koschate-Fischer, Hoyer, Stokburger-Sauer & Engling, 2017). Related to the cultural aspect, Aaker and Maheswaran (1997) state that products that refer to the idea of differentiation and uniqueness tend to be more favorable for the individualist group. In this sense, the propensity to purchase new products or services is greater for the group of individualists, who are consumers who are more independent in their decisions and tend to be interested in differentiated products (Steenkamp, Hofstede & Wedel, 1999, Lim & Park, 2013). Contributing to this characteristic, Manta, Morrone, Toma and Campobasso (2023) identified a positive relationship between individualism and adaptation to innovation.

In relation to the characteristics of the uncertainty avoidance dimension, the decision process tends to be more favorable for the group with more openness to the unknown. Steenkamp, Hofstede and Wedel (1999) identified in a survey that the greater the consumer's distrust in relation to new products, the lower their level of innovation. Consumers feel insecure about products and services they are unfamiliar with, taking longer in the decision process as they prefer products they are already familiar with.

2.2.2 Degree of innovativeness

Some research explored consumer perception of new products and services. This context is related to the consumer's degree of innovativeness, that is, behavior that represents an individual's predisposition to seek information and adopt a new product or service (Goldsmith & Hofacker, 1991). Midgley and Dowling (1978) created a concept of innovativeness related to independent consumer behavior. The authors comment that consumers differ in terms of dependence on friends and family for information about unknown products or services. The innovative consumer, who adopts an innovation quickly, will be the one who buys new products or services independently, without considering the experience of other people.

This conceptualization was called Consumer Independent Judgment Making (CIJM). A consumer's CIJM assessment will directly influence their behavior in the final stages of the adoption process. These are the stages in which the consumer makes their final purchase decision and starts to enjoy that product or service (Manning, Bearden & Madden, 1995).

From another perspective, the concept of innovativeness for Hirschman (1980) is also called "consumer novelty seeking" or the consumer's search for novelty. This construct addresses the individual's behavioral characteristics, in relation to their tendency to actively search for information about new and different products and services. Unlike the CIJM analysis, this concept is related to the earlier and earlier stages of the adoption process (Manning et al., 1995).

For the authors, the first two stages of the adoption process (knowledge and persuasion) can be influenced by the consumer's predisposition to seek information about the innovation. Hopefully, the more active he is in this search, the faster he will get through these initial stages. For those consumers who are more suspicious, this process may be slower, due to the fact that it will take them more time to understand the unknown product or service.

Despite this difference in the treatment of consumer innovation characteristics, being considered, on the one hand, an innate factor and, on the other, a domain-specific factor, both are trends that affect consumer behavior and their adaptation to innovations (Demirgüneş & Özoğlu, 2019).

3 METHOD

This study was made possible through a descriptive quantitative research, using a survey. As Malhotra (2019) states, this type of research aims to describe characteristics of the behavior of a group or population. In this sense, the study is structured through quantitative information provided by the researcher, relating it to available measurements. The analysis was conducted based on the relationship between Hofstede's national cultural variables (1984) national cultural variables and data collected regarding the consumer's degree of innovativeness.

In order to gain a deeper understanding of the relationships between the cultural dimensions delineated in the study (individualism vs. collectivism and uncertainty avoidance), three countries were approached: Brazil, Colombia and the United States. These three were selected for convenience and for presenting differences in the two dimensions proposed in the analysis.

Table 1 – Country Scores on Assessed Indices

Countries	Individualism and Collectivism	Uncertainty Avoidance
Brazil	38	76
Colombia	13	80
United States	91	46

Source: Adapted from Hofstede et al. (2010).

In the first dimension, the north american country stands out for its high indices, being considered a country with strong individualistic characteristics, considering that the maximum score in each dimension is 100 points. On the other hand, Brazilian culture has a collectivist predominance, but it does not stand out as much as Colombia in this regard. In the other dimension, Colombia and Brazil have the highest indices among the three countries, showing a lower tolerance for the new and the unknown, while the other countries have intermediate indices.

Data collection was structured through survey-type questionnaires. All respondents, regardless of the country they belong to, received the same questions, which were previously translated into Spanish and English. However, it is worth noting that some adaptations were necessary to ensure full understanding of the questions in the three countries. The sample consisted of 218 valid cases, with at least 60 cases per country. Initially, questions were presented to identify the respondent's profile. To this end, closed questions were used, in which only one answer was possible, about gender, age, monthly family income and education.

Next, statements are presented that address behaviors in relation to innovation, so that the consumer's degree of innovation can be measured. The respondent should mark their agreement with the statements, using a 5-point Likert scale, ranging from (1) "totally disagree" to (5) "totally agree". All statements were taken from the scale by Manning, Bearden and Madden (1995). As discussed in the theoretical framework, the authors defined two categories to measure the degree of consumer innovation: independent decision making – CIJM and search for novelties – CNS. The first refers to the degree to which the consumer decides to adopt an innovation without considering the opinion and experience of their reference group (family, friends). The second concerns the consumer's own and voluntary desire to seek information regarding a new product or service.

As can be seen, the descriptions of the CIJM scale are related to Hofstede's collectivism and individualism dimension, considering that it seeks to identify how much the consumer depends on the evaluation and experience of other people to make their decisions, both in the acquisition of products and in the contracting of services. The CNS scale provides important

aspects of the consumer that are related to the uncertainty avoidance dimension that deals with curiosity and tolerance towards new things, aspects of importance in this context of active search for innovation. It is important to highlight that, during the application of the pre-test of the questionnaires, difficulties were identified regarding the statements that required reverse answers. Therefore, the statements were changed to facilitate the understanding of respondents. Five alternatives from the CIJM scale and one from the CNS scale were inverted.

The questionnaires were made available exclusively online, through the Survey Monkey platform and distributed via email and the social network Facebook. The research sampling was defined non-probabilistically for convenience.

After data collection, by calculating the standard score (Z), we sought to identify the existence of atypical observations or outliers. In this study, no data was removed from the database, since there was no incidence of Z values greater than 3 or less than -3. Next, the normality of the data was confirmed using asymmetry and kurtosis values and the Kolmogorov-Smirnov (K-S) test. Variances were checked using Levene's test, which indicated the homoscedasticity of the data.

The frequency distribution of responses for each description of the CIJM and CNS scales was analyzed, thus obtaining the means and standard deviation and carrying out parametric analyzes using the SPSS software. From this, the profile of the respondents and the differences between the means of the constructs were analyzed for the previously defined experimental groups. Then, to check whether the differences found were statistically significant, analysis of variance (ANOVA) was used, considering the recommendations found in the literature (Tabachnick & Fidell, 2012), with Tukey HSD (Honestly Significant Difference) post hoc test, which aim to locate and measure differences between groups, and this test begins with the calculation of the minimum difference that must exist between two means with a significance level of 5% (Hair Jr., Black, Babin & Anderson, 2010).

4 RESULTS PRESENTATION

After the initial treatment of the data obtained, 9 questionnaires were eliminated both due to the criterion of monthly family income below the established level (2 North American respondents, 4 Colombians and 1 Brazilian) and due to the low level of education desired (1 Colombian respondent and 1 Brazilian). After eliminating these, 218 valid questionnaires remained, 89 of which were Brazilian, 60 Colombian and 69 North American.

From the four questions involving the respondent profile, it was possible to visualize the predominant characteristics of the researched public. Regarding the age group of respondents, it was noted that 74.3% of the total were under 30 years old, therefore characterized by a young audience. Table 2 shows a breakdown of the respondents' profile.

Table 2 – Profile of respondents

		Overall Total	Brazil	USA	Colombia
Gender	Female	**108 (49,5%)**	44	39	25
	Male	**110 (50,5%)**	45	30	35
	Total	**218**	89	69	60
Age	Up to 20 years	**38 (17,4%)**	22	14	1
	21-30	**124 (56,9%)**	58	30	37
	21-40	**30 (13,8%)**	3	9	18
	41-50	**14 (6,4%)**	3	7	4
	51-60	**7 (3,2%)**	3	4	0

	60 or more	**5 (2,3%)**	0	5	0
	Total	**218**	89	69	60
					(continued)
	Incomplete High School	**4 (1,8%)**	3	1	0
	Complete High School	**20 (9,2%)**	5	10	5
Level of education	Incomplete Higher Education	**111 (50,9%)**	54	30	27
	Complete Higher Education	**54 (24,8%)**	16	16	22
	Incomplete Postgraduate	**15 (6,9%)**	7	4	4
	Complete Postgraduate	**14 (6,4%)**	4	8	2
	Total	**218**	89	69	60

Source: Prepared by the authors (2023).

Regarding the level of education of the respondents, there was a predominance of a university audience. Of the overall total, 90% are already or have been in contact with higher education courses, with 50.9% currently taking courses and 38% having already graduated. In all groups, the predominance was in the range of incomplete higher education, with greater representation in the Brazilian group.

4.1 CIJM Scale

The first six statements of the questionnaire refer to the CIJM scale, which analyzed the respondent's dependence on friends and family when making decisions to purchase new products and services. In general, the responses were concentrated on the intermediate levels of the scale (2, 3 and 4), with little incidence on the extreme levels (1 and 5) that indicated total agreement or disagreement. Table 3 presents the means obtained with the first scale measured in the questionnaire.

Table 3 – Means obtained on the CIJM scale

Country	Question average						Overall average
	1	2	3	4	5	6	
Brazil	3,79	3,44	3,77	3,19	3,09	3,55	**3,47**
Colombia	3,58	3,62	3,67	3,48	3,52	3,40	**3,55**
United States	3,28	3,32	3,10	3,00	3,28	3,14	**3,19**

Source: Prepared by the authors (2023).

It is noted that the North American group obtained the lowest average in five of the six questions proposed. Analyzing each question, the first asked the preference or not of consulting a friend before buying a new brand. The highest average was found in the Brazilian group (3.79), so that 75.3% of respondents marked points 4 or 5 on the scale, indicating partial or total agreement. Next, the Colombians showed an agreement level above 61%, with an average of 3.58.

The second question had the highest average in the group of Colombians (3.62), asking whether the respondent depended on the advice of friends or family to hire a new service. Around 63% of Colombian respondents agreed with the statement, scoring 4 or 5 on the scale, 59.6% of Brazilians and 47.83% of North Americans. Next, question 3 analyzed respondents' agreement regarding the frequency with which they ask friends about their experiences with products. Brazilians and Colombians had approximate averages (3.73 and 3.67, respectively) and more than 60% of respondents in both groups agreed with the description. Americans had the lowest average, with just over 36% agreeing.

The fourth question addressed the respondent's dependence on needing information

from friends or relatives who have already used a service that the respondent is interested in hiring. North American respondents obtained the lowest average found in all questions in this question (3.00). Again, the Colombian group had a higher average than the Brazilian group (3.48 and 3.19, respectively). Then, the fifth question had for the first time the Brazilian group with the lowest average (3.09), asking respondents whether before deciding to buy a new product, they depended on information from friends with experience.

Finally, the sixth and final description of the CIJM scale asked whether the respondent decided to buy new products and services considering the opinion of friends or family who had already used them. The Brazilian group had the highest average (3.55), with 66.3% agreeing, followed by the Colombian group (3.40) and the North American group (3.14).

To verify the existence of significant differences between the three groups analyzed in relation to their degree of innovativeness, analysis of variance (ANOVA) calculations were performed comparing individual means of each group. The ANOVA results for the CIJM scale showed significant mean differences between the three groups, considering that $p=0.021$. The Brazilian averages (1) did not show a significant difference in relation to the Colombian averages (2), considering that the p-value was greater than 0.05 ($p=0.539$). However, analyzing the Brazilian group in relation to the North American group, it is clear that there are significant differences between the two groups ($p=0.032$). Between Colombians and North Americans there was also a significant difference in the means analyzed, with $p=0.01$.

4.2 CNS SCALE

The following eight statements belong to the CNS scale, which aimed to analyze the respondent's active attitude in the search for innovations. Unlike the CIJM scale, which presented means between 3 and 4, the questions on the CNS scale had varied means and some were lower than 3, a value that indicates greater concentration at lower levels/disagreement on the scale. Table 4 presents the averages obtained for each question in the three countries surveyed. The North American group presented the highest averages on the scale, being the highest in five of the eight questions.

Table 4 – Means obtained on the CNS scale

Country	Question average								Overall average
	1	2	3	4	5	6	7	8	
Brazil	3,92	3,48	2,80	3,15	3,09	3,07	2,71	3,01	**3,15**
Colombia	3,53	2,95	2,92	3,07	2,83	3,08	2,68	2,82	**2,99**
United States	3,61	3,43	3,19	3,28	3,23	3,22	3,12	2,86	**3,24**

Source: Prepared by the authors (2023).

The first question on the scale generally assessed the search for information about new brands and products and obtained the highest averages among all the others. The question presented means above 3 in all groups, with a higher value in the Brazilian group (3.92). The next statement verified the respondents' interest in places that present new products and brands and the respondents from the Colombian group were, for the most part, in disagreement (38.3%), with an average of 2.95. Again, Brazilians had a higher average among the three groups (3.48), similar to North Americans (3.43).

In question number 3, North American respondents indicated a higher level of agreement (36.2%) regarding their interest in magazines with new brands. The Brazilian group had the lowest average (2.80) among the groups surveyed. 36.2% agreed. The fourth question

verified which respondents agreed in stating that they frequently searched for new services and products. Again, the American group had the highest average (3.28), followed by Brazilians (3.15) and Colombians (3.07).

Statement 5 verified the respondent's active search for different and varied sources of information about products. Similar to the last two questions, the North American group was the country with the highest number of agreeers (44.9%) and the highest average (3.28). In the sixth question, Brazilians and Colombians had similar averages (3.07 and 3.08 respectively), being evaluated on the frequency of seeking experience with new products.

The next question had averages below 3 in the Colombian (2.68) and Brazilian (2.71) groups, with the lowest being presented by both groups on the CNS scale, which demonstrates that these groups spend little time checking out what's new when they go shopping. The last statement on the scale addressed whether the respondent took advantage of the first available opportunity to discover new and different products. With this question, for the first time, North American respondents had an average of less than 3 (2.86).

The same analyzes of variance carried out with the CIJM scale were also applied to the CNS scale and showed no significant differences between the groups researched, that is, there was no difference between the three groups in relation to the active search for innovations (p=0.081). Finally, the possible existence of differences between profile characteristics and CIJM and CNS averages was also verified. To this end, the data was unified between the three groups researched. The only profile factor that showed a significant difference was the age group of the respondents, and only on the CIJM scale (p=0.041), while on the CNS this did not occur (p=0.399).

Regarding the CIJM scale, it was possible to see differences in all groups in relation to the group aged over 60 years (group 6). However, it should be noted that group 6 was represented by only 5 North Americans, not a sufficient number to establish valid conclusions. Differences were still found between the age groups up to 20 years old and 21 to 30 years old (p=0.040). Additionally, the correlation between the ICJM averages and the age group was calculated. The resulting correlation was -0.12, demonstrating that the younger the age group, the higher the CIJM average.

5 DISCUSSION OF RESULTS

To assess the independence in the search for innovations of each group of respondents, the CIJM scale was used, which sought to identify the degree to which the group adopts innovations independent of the experience of family and friends. The lower the respondent's agreement with the proposed descriptions, the greater their independence in decision-making.

This scale was directly related to the individualism cultural dimension of each group, considering that this dimension provides information regarding the group's influence on the personal motivations of each individual. The research results demonstrated that the group of North American respondents, in which the individualism index was the highest of the three, was significantly different from the groups of Colombians and Brazilians, belonging to cultures considered collectivistic.

These last two groups presented the highest averages, that is, values higher than those of the North American respondents, and did not present significant differences between them. However, these Colombian and Brazilian respondents were significantly different from the US respondents in relation to the CIJM scale.

In this sense, the research results are in line with the characteristics of collectivist cultures, in this study represented by Brazilians and Colombians, in relation to decision-making as consumers. Corroborating the ideas of Hofstede et al. (2010), these individuals seek information through their reference group and depend on the opinions and experience of friends

and family to make decisions involving the purchase of products and services. Therefore, they may present a longer process when it comes to adopting an innovation, especially in relation to the final stages of this process (Manning et al., 1995).

On the other hand, according to Steenkamp et al. (1999) state, individualist cultural groups tend to be more independent when adopting innovations, which is evidenced by the significant difference found between the North American individualist group in relation to the other collectivists.

The other cultural dimension, called uncertainty avoidance, was related to the CNS scale. This dimension determines the degree of uncertainty and distrust of a group in relation to the new and the different. The higher the index in this dimension, the greater the tendency for a group to exhibit skeptical and intolerant behavior towards new ideas. This behavior assessed by the dimension was relevant to determine the respondent's positive attitude towards innovations, that is, how interested this consumer is in innovations.

Considering that innovations are products and services previously unknown to the consumer, it was expected that the CNS averages would be lower for groups in which the uncertainty avoidance index was higher. Among the three countries, Colombia has the highest rate, followed by Brazil and the United States. North American respondents, belonging to a culture with a low level of uncertainty avoidance, presented the highest averages of the three groups, followed by Brazilians and Colombians, who have higher rates. However, the analysis of variance showed that there were no significant differences between the means of the three groups evaluated.

Considering that almost 75% of the total respondents were under 30 years old, this lack of difference between the groups may have been influenced by the fact that young people tend to be more active in the search for innovation (Tellis, Yin & Bell, 2009; Rašković, Ding, Škare, Došen & Žabkar, 2016) and to continually seek out and try new brands on the market (Lambert-Pandraud & Laurent, 2010).

According to Tellis et al. (2009), some social and demographic aspects can interfere with the adoption rate of an innovation. These characteristics mainly concern the individual's income, level of education and age, demographic aspects that were assessed by the research. The characteristics presented by the majority of respondents are in line with the profile considered innovative, which refers to a high income, high level of education and young age.

The analysis of variance for the different demographic profiles of the respondents showed significant differences only in the age groups in relation to the mean of the CIJM scale. Respondents aged less than 20 years had a higher average than those aged between 21 and 30 years. This difference may have been influenced by the fact that teenagers and university students aged up to 20 are still in the process of establishing many brand and product preferences, so they are active in searching for new products on the market (Schiffman & Kanuk, 2009; Lambert-Pandraud & Laurent, 2010). This is in line with the results of the research by Rašković et al. (2016), who demonstrated that culture is not a sufficient element to differentiate the degree of innovativeness of young consumers, considering that they all showed similar levels of interest in innovations.

Considering that the group up to 20 years old proved to be significantly different from those between 21 and 30 years old, it was expected that this difference would also be identified in relation to other groups in more advanced age groups. However, this did not happen. It is suggested that this is the result, again, of the predominance of respondents aged up to 30 years, so that the number of respondents belonging to older age groups may not have been sufficient to generate significant differences in relation to the group aged up to 20 years.

6 FINAL CONSIDERATIONS

The study of the cultural implications in the adoption of innovation detailed here aimed to identify differences in the search for and acceptance of innovation in different cultural groups. For this, dimensions proposed by Hofstede were used as criteria, as they provide a basis for scientific comparisons between cultures (Gerlach & Eriksson, 2021). In this way, we sought to assess independence in decision-making, as well as the level of interest in innovation. Furthermore, he intended to define the profiles of consumers surveyed regarding their behavior when faced with innovation.

Every year, different products and service solutions are introduced into the market, so that different companies survive in the market due to the development of innovations. In this sense, the study assessed the existence of differences in the search for innovations between groups of consumers with different cultural characteristics. To this end, the proposed dimensions (individualism and uncertainty avoidance) proved to be adequate and convenient for evaluating the existence of differences in the search for innovations between different cultural groups. Furthermore, the countries selected to apply the research present different indices in each dimension, which allowed a comparative analysis.

The existence of a significant difference between the collectivist groups in relation to the individualist group showed different behaviors in relation to the independent search for innovations. For those with collectivist characteristics, Brazilians and Colombians, a greater influence of friends and family was identified in the adoption decision process, compared to North American individualists who demonstrated more self-independent attitudes.

Based on the analysis of the data obtained through the research, it is possible to interpret the cultural implications observed and apply them in companies, that is, to discuss and suggest the managerial implications that can be implemented when it comes to innovation. In this sense, depending on the differences presented between the group of individualists and collectivists, different approaches must be considered when introducing an innovation, since the success of its introduction will depend on the public's intention to try it. Thus, for the group that makes decisions considering the opinion and experience of friends and family, it is interesting for the company to provide ways in which the group can experiment or use such innovation together with other people in their social circle. Furthermore, adequate assistance after the sale can serve to improve the consumer's perception of quality, so that the innovation will be positively disseminated to other people in their reference group.

The digital marketing perspective must be well observed and planned by companies in this case, as it is known that recommendations and comments about products and services have become increasingly relevant and reachable with the internet. Therefore, if a publicity and post-sales assistance and research strategy is developed, the reach and effectiveness of recommendations and positive evaluations can be even greater and can have an even more expansive effect in collectivist cultures. For those belonging to cultures with individualistic tendencies, on the other hand, it may be necessary to offer an individual and differentiated experience for each person, considering that they like products and services that refer to sophistication and uniqueness. Furthermore, the dissemination of innovation tends to be more attractive to this group through media channels, such as television, magazines and others.

In a public where there is a predominance of those who feel more insecure about new products and services, offering free samples and providing testing or tasting events can be an effective tool in reducing this distrust. Furthermore, greater care must be taken when introducing products that cause significant changes in consumption patterns, considering that the greater the change, the greater the level of consumer distrust may be. Likewise, it is important for this group that information regarding innovation is available in a clear and precise way.

Like any other, the study had limitations that serve as a basis for future research. The first limitation refers to the difficulty of sending the questionnaire to people from other countries, which limited the sample number to less than 100 respondents per country. Furthermore, the forms were sent through social networks, so that the majority of the target audience were university students and young people. In view of this, it is suggested to apply it through other means of communication in addition to this one, seeking to reach a greater number of people and range of demographic profiles. Furthermore, for the research, only two dimensions of national culture were considered. As a suggestion, analyzing other dimensions can provide more complete knowledge about cultural influences on consumption behavior. Additionally, it is suggested to use other scales to evaluate different behaviors linked to the adoption of innovation, in order to contribute positively to research in this area.

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