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The importance of language standardization/adaptation strategies on European web retail

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Abstract

The discussion around strategy adaptation or standardization, in an internationalization context, has been intensified since the year 2000. This associated with the increasing internet consumption habits creates the necessity of more specific studies relating e-commerce and marketing mix strategy, namely on communication.

This project aimed at studying the impacts of website communication adaptation and standardization strategies on results of the top 500 European web retailers. Aligned to what was expected, the study concluded that there is a positive correlation between language adaptation and results, with particular relevance on the variable web sales, although standardization is the preferred strategy. Additionally, it was observed that English presence has a positive influence on results.

Keywords: adaptation, standardization, language strategy, web retail

JEL Classification System: Code M

A discussão em torno de estratégias de adaptação e padronização, em contexto de internacionalização, tem-se intensificado desde 2000. Isto associado aos crescentes hábitos de consumo na internet cria a necessidade de estudo mais específicos que relacionem comércio eletrónico e estratégias de marketing mix, nomeadamente na comunicação.

Este projeto teve como objetivo estudar os impactos da adaptação e da padronização da comunicação dos *websites* nos resultados dos maiores retalhistas *online* na Europa. Em linha com o esperado, o estudo conclui que existe uma correlação positiva entre a adaptação da língua e os resultados, com particular expressão na variável vendas *online*, apesar de a padronização ser a estratégia preferida. Adicionalmente, foi observada uma influência positiva da presença do inglês nos resultados.

Palavras-chave: adaptação, padronização, estratégia da língua, retalho *online*

JEL Classification System: Código M

Introduction

Internet development stimulates web retail generalization, rapidly spreading worldwide. The causes for such internet use globalization and generalization include its dimension as an information source, its evolution to an increasingly user friendly environment, its accessibility and affordability, directly influencing web retail growth (O'Cass and Fenech, 2003).

Original from the United States (Choi, B *et. al*, 2004), web retail exists since the 1980's (Evans *et. al*, 2008) and continues to grow. This innovative type of consumption is a part of e-commerce which accounts for to 1.67 trillion US dollars in sales worldwide. Projections state 3.02 trillion US dollars growth in 2018 (Statista, 2016).

The present study addresses to the intra-European web retail market, worth 44 billion euros (Martens, 2013). As this matter is surrounded with enthusiasm and studies are still initiatory, adaptation and standardization strategies of the marketing mix elements in internationalization online contexts was the chosen topic to this approach. Adaptation in this case will be considered the use of multiple language translation options to meet foreign demand. As for standardization is the use of one language exclusively in order to meet foreign demand.

Our objective is to analyse website's language translation options as strategies of adaptation or standardization of brand communication and its impacts on brand's results. The target of the study will be the top 500 web retailers in Europe.

For our analysis, language translation options will be grouped into levels of adaptation, from standardization to second level of adaptation, and websites will be classified into linguistic groups of origin. This grouping variables' objective is to observe if different groups show different results, thus concluding the existence (or not) of a better strategy to use and more successful linguistic groups of origin (or not) on web retail internationalization.

Literature Review

Retail Internationalization

According to Evans *et. al* (2008), most retailers started their activity in their country of origin and consequential success brought them the opportunity to internationalize. Post 1980s, the retail industry specifically expanded internationally because of ripeness and home market saturation, technology development, geopolitical reorganization, globalization of financial markets and centralization of industry ownership. However, few results represented improvement considering domestic activity. In 2000, Hart *et. al* (2000) found that, in spite of the exponential growth of the internet, the majority of retailers did not have a website and those who did only used it as a communication device.

Traditionally, according to Bianchi and Ostale (2006), internationalization's main obstacles consist on dissimilarities either on governmental systems, cultural or psychic distance, which hamper competitive advantage's transfer from home to host country. Despite the irrevocable influence of perceptual factors on internationalization decision making, such as manager's perception of similarities between domestic and expansion market (Evans *et. al*, 2008), retail internationalization always requires firm's adaptation to norms (expectations of behaviour and practices) of the foreign country (Bianchi and Ostale, 2006). Any international expansion situation lacks on foreign networks and relations, increasing the need to achieve legitimacy, which is granted by social actors (Bianchi and Ostale, 2006). Thus, it presupposes manager's sensitivity towards environmental changes of the foreign country, as changes in internal systems and structures might be required, and disruptive actions, such as partnerships, local admissions of executives and scrutiny of local expectations (Bianchi and Ostale, 2006).

According to Evans *et. al* (2008), retailers' expansion to geographically distant countries is more successful in cases of high level of involvement and control in retail strategies of adaptation to the foreign country, but low-cost and control in the entry strategy. Retailers' organizational performance and success in new markets are critically conditioned by international experience, psychic distance, entry strategy and adaptation of the retail strategy.

The shift from offline to online trade has consequences on the supply chain, changing the retail model from mostly business-to-business to mostly business to consumer (François, *et. al*, 2014).

The development of tools in terms of digital technology and internet use have caused an exponential decay on information and communication costs, contributing imperatively to the ascent of e-commerce, namely the rise of web retail (François *et. al*, 2014). This retail technology shock has increased overall presence in online platforms providing free access to markets from all locations and globalizing competition. In order to vie, firms need to add variety to their portfolio, to crush prices and margins and to improve communication skills, often contributing to consumer welfare and real consumption (François *et. al*, 2014).

"The European Union (EU) is a family on liberal democratic countries, acting collectively through an institutionalized system of decision making", achieving an offline trading as free and competitive as the globalized online commerce. (Cini, M., and Pérez-Solórzano B. 2013. European Union Politics: p.3) Its Single Market Policy, considered to be one of its most relevant compliance actions, according to Martens (2013) searches to establish "four freedoms" of circulation: goods, services, capital and labour. With the evolution of trade from physical to digital, it becomes EU's objective to ensure the same practices towards a unified electronic commerce.

By 2011, 43% of cybernauts were online buyers and 10 % were doing cross-border transactions in a global e-commerce market that accounted for 240 billion € (Martens, 2013). Intra-EU trade is worth 490 billion € offline and 44 billion € online. The dimension and predicted growth of the online market justifies investigation on its behalf.

Gomez, Martens & Turlea (2013) find a decrease on perceived importance of distance related costs of one third when the consumer moves from offline to online market. Simultaneously, in order to improve consumer welfare, a pressure towards decreasing prices in offline transactions across the border is revealed (Martens, 2013). Consequentially, online and offline prices are converging, turning pricing into a secondary reason to choose e-commerce.

A parallel effect concerning the announced continuous "death of distance" (Cairncross, firstly mentioned in 1997) is the doubled importance of language (and other culture

related costs), more specifically, the increased prominence of "cultural and linguistic distance" (Martens, Bertin. 2013. What does economic research tell us about cross-border e-commerce in the EU Digital Single Market?: p.7).

Adaptation versus Standardization of web retail

According to Lages *et. al* (2013), the choice of the marketing strategy, in terms of standardization and adaptation, is not simple as it always depends on a baseline comparison that differs from firm to firm, market to market. Market factors of influence consist of economic environment, technological maturity, regulations, culture and consumer patterns (Nasir and Altinbasak, 2009). Firm factors embrace (firm) culture, strategy, dimension and external relations (Nasir and Altinbasak, 2009). Virvilaite *et. al* (2011), based on Samie & Roth (1992), state that strategy choice is predominantly dependent on performance potential. Virvilaite *et. al* (2011) also considers internal and external factors for strategy decision making. External consist of macro-environment, competition, market nature and industry and product and consumer characteristics. As for internal factors, it includes managerial and organizational factors. Both perspectives are complementary.

Lages *et. al* (2013) fill in the gap towards performance as an indicator of change and examine which strategy has better results in competitive/non-competitive markets: a reactive perspective of the use of strategy. In conclusion, firms whose strategies have not accomplished expected results or whose performance faces a decline are more likely to change strategy, as well as that competitive intensity serves as moderator between performance decrease and the use of standardization/adaptation.

Thus, as an inference of Porter's (1980) and Kohli and Jaworski's (1990) references mentioning the decrease of return and the hampering of customer retention, respectively, in the face of higher competition levels, Lages *et. al* (2013) conclude that firms tend to standardize their strategy to lower their cost structures enhancing economies of scale or, complementarily, to achieve a consistent identity (Shoham *et. al*, 2008). According to Lages *et. al* (2008), other factors favouring standardization include focus on industrial products, similar patterns of consumption, great expenditure to adapt, centralized decision-making towards resources and policies, ethnocentric firm culture and same stage of product development (Nasir and Altinbasak, 2009). On the contrary, on less competitive markets, two scenarios are possible: either firms become

unware of the need to be competitive and don't adapt as much performance, which is consistent with James and Hill's (1991) perspective; or, as they have better margins, they choose to attempt to new more adaptive strategies in a trial form, according to Lages (2013), who is consistent with Aulakh (2000). According to Lages *et. al* (2008), factors backing adaptations include dedication to consumer products, consequential gathering of high profits, influence on purchase patterns, regulatory policies, overall differences between consumers/citizens, decentralized decision making, polycentric firm culture, independent subsidiaries, need for differentiation from competitors and different stages of product development (Nasir and Altinbasak, 2009).

Virvilaite and Seinauskiene's (2014) research, reveals on the authority of Cavusgil (1994) that firm's assets and capabilities in international marketing are a consequence of firm size, international experience and involvement and available resources. The reasoning is supported referencing Ruzo *et. al* (2011), who emphasize firm size to be a predictor of the extent of resources available, positioning the organization competitively. It is also referred that Chung (2010) considers this factor a firm level indicator of the degree of standardization/adaptation of the marketing strategy. Complementarily, based on prior studies, it is concluded that larger firms tend to adapt their strategies as a cause and a consequence to having greater resources. On the contrary, Lages *et. al.* (2013) state that larger firms tend to stay more inert than small firms and, therefore, at a strategy modification situation, tend to standardize their strategy.

There is a strong connection between international expansion and the extended use of adaptation strategies. Also adaptation strategies tend to require more capital. However, whether the investment is on adaptation or standardization, it will be compensated if there is an alignment between the choice of strategy and the export destination environment, resulting in optimized performance (Virvilaite and Seinauskiene's, 2014).

According to Karuraranga *et. al* (2012), Lages *et. al* (2009) considers product adaptation as the degree of adjustment of a product to a foreign market in terms of "positioning, design, creation, logo, style, quality, features/special attributes, branding, packaging, labelling, warranties and extended product line" (Karuraranga, E., Musonera, E., and Poulin A. 2012. State of Art: Product Adaptation in Times of Globalization: pp. 19, 27 and 30). On the other hand, retail offer is likely to adapt "merchandise quality, range and fashion, level of services, facilities, layout, atmosphere,

location, quality of display, advertising, general reputation, reliability, price, and overall image" (Evans, J., Mavondo, F. T., and Bridson, K. 2008. Psychic distance: antecedents, retail strategy implications, and performance outcom

es: p. 35. Based on Cavusgil, Zou and Naidu (1993), Karuraranga *et. al* (2012) completes the previous quotes stating that product adaptation is the fulfilment of regulatory obligations aligned with the integration of foreign *ethos*, predilections, tastes and necessities in an internationalization situation. Arguments towards adaptation also embrace the opportunity to act on price discrimination or on conflictive perspectives within the company (Shoham *et. al*, 2008). Karuraranga *et.* al (2012) continue positing adaptation's advantages not as direct and objective attributes, but the strategy itself as gaining reputation over time.

Karuraranga *et. al* (2012), mentioning Czinkota and Ronkainen (2004), refer the importance of standardization when brand's strength, consistency and efficiency (economies of scale) are required attributes. Kraus *et. al* (2014) also affirm global share of beneficial ideas and overall control over marketing operations as advantages of standardization based on the perspectives of Zou and Cavusgil (2002), Quelch and Hoff (1986) and Whitelock (1987).

Karuraranga *et. al*' s (2012) analysis has counted two types of adaptation studies: adaptation as the dependent variable and as the independent variable. The first, studies factors that affect the degree of adaptation used. Grounded on Lages *et.* al (2009), Karuraranga *et. al* (2012) refers a pragmatic vision on the firms position towards standardization/adaptation strategies: an horizontal axis whose extremes are pure standardization and pure adaptation. Firms will tend to one of these extremes, if they are influenced by various factors, identified by Karuraranga *et. al* (2012) in his conceptual framework as "environmental, structural, organizational and cultural related to products and consumers"[3], international experience, competition intensity abroad, financial and managerial involvement of the firm, type of product, differences in tastes/preferences of consumers and cultural distance[3]. Kraus *et. al* (2014) complements this perspective stating, as an interpretation of Jain (1989), that standardization and adaptation are inversely correlated: when one increases the other one automatically decreases. The studies of adaptation as the independent variable investigate on its impact mainly on performance. Performance levels were recognised on multiple indicators depending on the opinion of several authors (Karuraranga *et. al*, 2012): profitability and perceived

success from internationalization, market share, sales growth and firm's satisfaction on the foreign market.

Magnusson *et. al* (2013) refer the impacts of manager's motivational[1] and metacognitive[2] cultural intelligence (predisposition to comprehend and focus on situations that involve different cultures and psychological methods that lead to a better understanding of cultural differences, respectively), stating the first dimension as a driver towards adaptation and the second as an enhancer of performance through interactions with marketing adaptations. The greater the gap between domestic and foreign culture the greater the degree of marketing adaptation.

Sousa and Bradley (2005) state the distance theory as having major impact on strategy decision making (Kraus *et. al*, 2014). The types of distance included in this reasoning are psychic, cultural and geographic distance. Kraus *et. al* (2014), traces the concept of psychic distance to 1956, when it was created by Beckerman, then evolving and being disclosed by Johanson and Wiedersheim-Paul (1975) and Johanson and Vahlne (1977) with the *Uppsala internationalisation process model*: this model established psychic similarities between countries as a criteria for internationalization destinies. It is based on Uppsala model that psychic distance is referred by Sousa and Lages (2011) as the perceived distance between home and host country, subdivided in country distance (related to "development, competitiveness, infrastructures and regulations") and people distance (comprising "per capita income, purchasing power, lifestyles, consumer preferences, literacy and education, language, cultural values, beliefs, attitudes and traditions") (Sousa, C. and Lages, L. F. 2011). The PD Scale: a measure of psychic distance and its impact on international marketing strategy: pp. 208 and 210.). Cultural distance is defined as a broader version of psychic distance, comprising differences in "basic aspects of culture" (Kraus, S., Meier, F., Eggers, F., Bouncken, R.B. and Schuessler, F. 2014. Standardization vs. adaption: A conjoint experiment on the influence of psychic, cultural, and geographical distance on international marketing mix

1 "Motivational CQ reflects «the capability to direct attention and energy toward learning about and functioning in situations characterized by cultural differences»." (Magnusson *et. al*. 2013. The role of cultural intelligence in marketing adaptation and export performance: p. 47)

2 "Metacognitive CQ refers to «the mental processes that individuals use to acquire and understand cultural knowledge,» and «relevant capabilities include planning, monitoring, and revising mental models of cultural norms for countries or groups of people.»" (Magnusson *et. al*. 2013. The role of cultural intelligence in marketing adaptation and export performance: p. 47)

decisions). Finally geographic distance is the absolute distance between two countries (Kraus *et. al*, 2014).

Karuraranga *et. al* (2012) built on Sousa and Lages (2011) declare psychic distance as being positively related to product adaptation: the greater the distance perceived by managers the bigger the probability of adaptation. Similarly, based on argumentation of Horska *et. al* (2007), Karuraranga *et. al* (2012) conclude on the positive impact of cultural distance on product adaptation: the more distant the foreign country is on cultural dimensions the more likely the firm is to implement an adaptation strategy, due to increased complexity of the internationalization process (Kraus, 2014).

Magnusson *et. al* (2013) complement this statement mentioning Evans, Mavondo and Bridson (2008) who declare the positive correlation between psychic distance and adaptation in retail strategy. Therefore, retailers can assume that their current strategy is not suitable if they are going to expand to psychically distant countries (Evans *et. al*, 2008).

More generally, Kraus *et. al* (2014) confirms his hypothesis on the positive correlation between psychic distance and the four P's adaptation, stating that promotion and distribution show stronger results towards strategy adaption in case of psychic distance increase. Cultural distance is also positively related to the four P's adaptation, emphasising the relation with product and promotion; and geographic distance is closely related to product, promotion, distribution and price adaptation, although the last two are the least significant. One can assume that the same results will be verified for online marketing strategies.

In conclusion, psychic and cultural distance are interconnected, most times explained by geographic distance and positively correlated to adaptation/standardization. Martin and Drogendijk (2014) state, based on West and Graham (2004), that there is another kind of distance: linguistic distance, intimately correlated with cultural distance. Linguistic distance is a measure of dissimilarity between home and foreign country based on prior anchors of the reference language (West and Graham, 2004). It is a predictor of cultural distance because, according to Fasold (1984), language contributes to the achievement of an identity, either a national identity coming from a national language, or a sub- or supra-identity provided by dialects or supra-shared Language (West and Graham, 2004). On the other hand, West and Graham (2004) support Crystal (1992) in the thesis of

linguistic relativism, which defends the influence of language on our way of thinking. Thus, one can settle that similar languages represent similar identities and way of thinking, enabling managers to standardize the marketing strategy. On the other hand, the greater the language distance, the greater cultural distance and the more pressing it is to adapt the marketing strategy.

Language as a standardization/adaptation factor

"A shared verbal and non-verbal language is necessary to confirm the effectiveness of any communication activity." (Nasir, V. A. and Altinbasak, I. 2009. The standardization/adaptation debate: creating a framework for the new millenium: p. 28)

According to Martin and Drogendijk (2014), it is undeniable that language differences between home and host country contribute to information distortion and increase the risk of investment in the foreign country. They specify stating consequential efficiency, clearness, and transference and interpretation problems towards communication. Based on Kuivalainen, Sundqvist and Servais (2007), they conclude that increasing distance equals greater communication difficulties. Therefore, one can admit a higher necessity of language adaptation.

Evans *et. al* (2008) state that the need for retailer's adaptation comes from perception of business environment differences, namely different languages.

Gomez-Herrera *et. al* (2014) complements this information stating that, despite its importance on targeting new markets especially at the beginning of the internationalization process of traditional commerce (Kraus, 2014), geographic distance's perceived importance is greatly reduced when changing from offline to online markets, while cultural and psychic distance increment their importance. This is due to most of the purchasing process being based on informational and cultural variables, such as language, essential for successful conversion rates. Therefore, the more perceived importance towards geographic distance decreases, the more perceived importance towards language rises.

In the offline market, information about foreign products is possibly more difficult to obtain/interpret as it may be presented only in the foreign language (Wilson, 2015). According to Wilson's interpretation (of Gomez-Herrera, 2014, Lendle *et. al*, 2012, Frink *et. al*, 2015), information cost proxies, such as shared language, are more

statistically significant to determine cross-border trade patterns than traditional trade costs.

According to François, *et. al* (2014), when most market relations are B2C as in electronic commerce, shared language becomes indispensable; especially in cross-border trade. Results show that the preference for incurring in online transactions almost doubles when a particular website shows adaptation to a foreign country by presenting a shared language.

Virvilaite and Seinauskiene (2014) affirm psychic distance as a factor of approximation or departure between countries and differences in languages are used as one of the main factors that impact it, especially on B2C commerce. It is a basis for standardization/adaptation decision making that generally leads to higher performance when the organization has specific foreign market experience.

Summary Board

In order to simplify literature review interpretation, a summary board was developed bellow. It includes the main contributions of authors' statements to the study.

Table 1 Summary Board

Author (Year)	**Discussion Topic**	**Contribution**
Evans et.al (2008)	Most retailers started their activity in their country of origin and consequential success brought them the opportunity to internationalize.	Country of origin becomes a bases for outcome comparison.
Sousa and Lages (2011)	Psychic distance is the perceived distance between home and host country, subdivided in country distance and people distance, which comprises language.	Language is a variable of people distance which is a dimension of psychic distance.
Bianchi and Ostale (2006)	Internationalization's main obstacles consist on dissimilarities either on governmental systems, cultural or psychic distance, which hamper competitive advantage's transfer from home to host country.	Common language decreases cultural and psychic distance between home and host country, therefore becoming a competitive advantage in internationalization processes.
Gomez, Martens & Turlea (2013)	Online and offline prices are converging, turning pricing into a secondary reason to choose e-commerce.	Other decision making factors' importance increases.
Martens (2013)	A parallel effect concerning the announced continuous "death of distance" is the doubled importance of language, more specifically, the increased prominence of "cultural and	Communication efficiency becomes more and more important for outcome

	linguistic distance".	achievement.
Virvilaite and Seinauskiene (2014)	Based on Chung (2010) who considers firm size an indicator of the degree of standardization/adaptation of the marketing strategy, it is concluded that larger firms tend to adapt their strategies as a cause and a consequence to having greater resources. Lages *et. al.* (2013) states that larger firms tend to stay more inert than small firms and, therefore, at a strategy modification situation, tend to standardize their strategy.	This study will aim at proving one of these theories, as the sample includes the 500 top web retailers in Europe.
Karuraranga *et. al* (2012)	The studies of adaptation as the independent variable investigate on its impact mainly on performance (profitability and perceived success from internationalization, market share, sales growth and firm's satisfaction on the foreign market)	This study will consider performance/ results/ outcome through the following variables: ▪ percentage of search traffic from home country, ▪ web sales, ▪ growth, ▪ monthly unique visitor's, ▪ average ticket.
Magnusson *et. al* (2013)	Evans, Mavondo and Bridson (2008) declare the existence of a positive correlation between psychic distance and adaptation in retail strategy.	Another goal of this study is to prove or disprove this statement for the top 500 web retailers in Europe, specifically on language adaptation.
Kraus *et. al*	There is a positive correlation between	Possibly because

(2014)	psychic and cultural distance and the four P's adaptation. Both show stronger results on promotion.	promotion is entirely dependent on communicative efficiency and, thus, language. One can assume that the same results will be verified for online marketing strategies.
Martin and Drogendijk (2014)	There is another kind of distance, intimately correlated with cultural distance. Linguistic distance is a measure of dissimilarity between home and foreign country. It is a predictor of cultural distance.	When linguistic distance decreases, cultural distance decreases, therefore becoming a competitive advantage in internationalization processes.
West and Graham (2004)	The thesis of linguistic relativism, defends the influence of language on our way of thinking. Thus, one can settle that similar languages represent similar identities and way of thinking, enabling managers to standardize the marketing strategy. On the other hand, the greater the language distance, the greater cultural distance and the more pressing it is to adapt the marketing strategy.	Language commonalities have great influence on the choice of strategy, which justifies investigation on the subject.
Evans *et. al* (2008)	The need for retailer's adaptation comes from perception of business environment differences, namely different languages.	The business environment of retailing is more homogenous online than offline. Online consumers are more dependent on
Kraus *et. al* (2014)	Geographic distance's perceived importance is greatly reduced when changing from offline to online markets, while cultural and psychic distance increase their importance. This is due	

	to most of the purchasing process being based on informational and cultural variables, such as language, essential for successful conversion rates.	communication, as they do not have contact with the physical product.
François, *et. al* (2014)	When most market relations are B2C as in electronic commerce, shared language becomes indispensable, doubling online transactions.	Most of the 500 websites used on the study are B2C.

The Gap

There is a lot of research in international business, particularly on marketing strategy decision making. Adaptation versus standardization is an appealing subject to study as well as its impacts on performance.

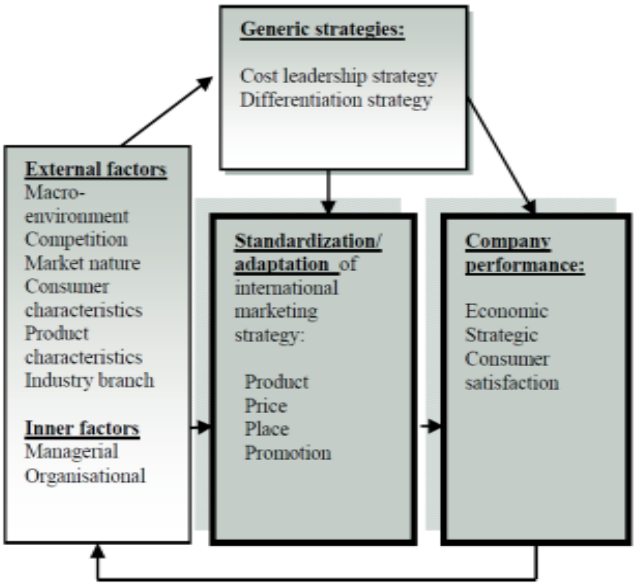

Figure 1 Theoretical model of the link between standardization/adaptation of international marketing strategy and company performance (Virvilaite *et. al*, 2011)

The image shows how Virvilaite *et. al* (2011) build the process of standardization/adaptation strategies, from its influences until its consequences on firm's performance. Currently, the pressing need is to detail these elements and calculate its real impacts and this study will focus mainly on macro environment factors, namely culture in the language variable of the equation.

Many state that communication adaptation is an important factor in the internationalization process. Others even complement stating that communication elements such as language gain relevance in the internationalization of e-commerce platforms (Gomez-Herrera et. al, 2014). Some have studied language applied to specific industries and contexts. However, no one has explored what is the real impact of language adaptation/standardiztion in web retailing, leading to the following research question:

Is the language variable relevant to the results of the biggest European web retailers and what are the effects caused by its strategic standardization/adaptation?

The objective of this study is to observe how the 500 biggest European web retailers choose to standardize/adapt the language variable and if the language strategy impacts their results, by the use of several indicators and control variables. Indicators for results used will be sales, growth, visitors, domestic search proportion and average ticket spent in the website. Control variables will include merchant type, country of origin and number of languages translation options. In order to study the impact of language on the indicators, linguistic groups were created based on the roots of languages spoken in the foundation locations of the websites. On the other hand, this research will aim at discovering if there is language standardization or if there is only language adaptation.

Therefore, due to lack of information on the topic, it must be decided if the use of English as a second language is a form of adaptation or standardization. One can state that any second language will be necessarily an adaptation. Arguments towards adaptation state that the greater the distance, the greater the degree of adaptation, hence, using a different language as a translation option, one is adapting the business towards international demand. On the other hand, English speaking exporters have an extra positive impact on commerce (Gomez-Herrera et. al, 2014), particularly because English is considered *Lingua Economica* (as well as *Emotiva, Academica*, *Cultura* and *Bellica*) (Philipson, 2008). English represents the international language of communication, especially if one considers European contexts (Cummins and Davison, 2007). This raises the question: can one defend that English as a second language is a form of adaptation when English is widely spread throughout Europe (and, eventually, the World)? Consequently, the study will consider the use of a second language to be a form of adaptation, unless it is English and, in that case, it will be judged as standardization of the webpage to meet international demand. The same dilemma could be verified for English as the only language in a non-English speaking country. However, in that case, as the same language is used in both domestic and foreign webpages, it is considered communication standardization to meet international demand or simply because of inertia.

Methodology

The data used to investigate if *the language variable is relevant to the results of the biggest European web retailers and the effects caused by its strategic standardization/adaptation* was retrieved from the website Top 500 Database: Global E-Commerce Research and complemented with nine other variables from the website Easy Counter. The data base is composed by a hundred and ten variables mostly quantitative and continuous, leading us to a deductive approach, which attempts to make predictions through hypothesis based on general facts (Tashakkory and Teddlie, 1998). The characteristics of this research style include the measurement of concrete evidence, emphasis on variables instead of on general events or procedures, extreme concern for reliability, independence from context, statistical analysis and researcher's impartiality and distance (Neuman, 1999).

The first step of this quantitative methodology to answer the research question is to confirm whether literature review research is applicable to web retail. This originates a secondary research question:

Are linguistic groups relevant to the web retail strategy of the top 500 web retailers?

H0: Linguistic groups are relevant to the web retail strategy of the top 500 web retailers.

H1: Linguistic groups are not relevant to the web retail strategy of the top 500 web retailers.

In order to test these hypothesis a cross tables test will be employed, intersecting two dimensions, strategy and language (represented by linguistic groups). Due to the information retrieved from the literature review, it is expectable that language's relevance will be confirmed.

The second step of methodology is based on correlation analysis, which examines the connection between continuous variables (Vik, 2014). If the analysed variables meet Anova's credible and manageable assumptions (Glass *et. al*, 2012), this parametric test will be applied. The focus of the test will be on testing the impact of belonging to a specific linguistic group of origin on number of languages, percentage of search traffic from home country, web sales, growth, monthly unique visitor's and average ticket. This analysis will demonstrate if different linguistic groups show different levels of results and/or different levels of adaptation.

Anova's assumptions are the normal distribution of all variables (Glass *et. al*, 2012) unless samples are sufficiently large, the homogeneity of variances and the independence of errors in order to achieve mean groups comparisons within the dependent and the independent variables (Vik, 2014) and the use of a random sample. It is important to mention that results are demonstrated by continuous variables, such as sales, growth, average ticket spent, domestic search proportion and unique monthly visitors, and are affected by multiple factors, probably tending to follow a normal distribution - which means symmetricity around the mean (Curwin and Slater, 1996). The F ratio statistics is one of the observed indicators to accept or reject the null: low statistics mean acceptance, high statistics means rejection. However, the determinant indicator is the p-value, which translates into rejection of the null if it is below 0,05.

Anova will not be applicable if its assumptions fail. Nevertheless, if the assumption of normality for a parametric approach is violated, but independence of errors and continuous nature of variables are verified, the following procedure is to apply the Kruskal-Wallis or H test (Elliott and Hynan, 2011). This test is an extension of Mann-Whitney test (two-group comparison) (McKight and Najab, 2010) and its objective is to search for commonalities between sample groups' and population's distribution (Chan and Walmsley, 1997). Instead of comparing means, this test is based on mean ranks' comparisons of three or more independent samples (Elliott and Hynan, 2011). Basically, the null will establish equal variances between the three or more samples which will be confirmed or denied through the observation of the similarities of the population curve and the sample groups' curves (Chan and Walmsley, 1997). The population's distribution can be considered as arbitrary (H test assumption) because it only assesses the distribution curve, not its conditions (Chan and Walmsley, 1997).

In order to test the influence of different linguistic groups on web retailer's results, we formulated the following secondary research question:

Do linguistic groups of origin show different effects on the top 500 web retailer's results?

H0: All linguistic groups show the same effects on results.

H1: At least two linguistic group show different effects on results.

Consequentially, European languages will have to be grouped according to its linguistic group. According to Shin and Rosalind (2003), Indo-European languages can be grouped into eight classes: Germanic, Scandinavian, Romance, Slavic, Celtic, Greek, Baltic and Iranian languages. The author considers Spanish itself a major language group (equivalent to Indo-European languages); however, it will be judged as a Romance language, due to its Latin origins. These particular authors isolate English and do not reflect it on its Major Language Group's list; still, it will be included in the Germanic group because it is an Anglo-Saxon idiom originally. Other than Indo-European classes, there is also the linguistic group of Asian and Pacific. The 500 companies will be gathered into clusters according to its communalities, which will be tested for equality of means (Anova). If group means are considered statistically different, in order to determine how different a post hoc test will have to be applied.

To complement this information, another secondary research question is necessary:

Is the number of language options correlated with results?

H0: Different numbers of language options do not show different results.

H1: Different numbers of language options show different results.

Testing the null requires grouping the 500 companies into intervals according to number of languages based groups of observations. These groups will be different levels of adaptation: from no adaptation (standardization) to the second level of adaptation (>6 language options). Posteriorly, equality of variances will be tested through Anova's test. If, by observing p-values, the null is rejected, results between groups are statistically different, proving that different levels of adaptation and number of language options show different results and therefore proving correlation between the two variables. If normality does not apply, Kruskal-Wallis test will be performed, following the same procedure on p-value observation.

One of literature's reference topics is the additional positive effect English speaking exporters have on commerce (Gomez-Herrera et. al, 2014). However, this information is inconclusive as it does not explain effectively how these impacts reveal themselves. This reference is also very vague on its area of influence and reasoning. Firstly, e-commerce is an extremely wide term and Gomez-Herrera *et. al* are not very explicit on what business areas it includes. Secondly, the reasoning behind these cause-effect is not

very clearly explained. This leads us to question the importance of the English translation option on web retail:

Do websites with English web translation option show different results than websites that do not show this option?

H0: Websites with and without English translation option show the same relation with results.

H1: Websites with English translation option show different results from Websites without.

To analyse this research question, observations will be clustered into groups of websites translated in English and groups that were not. The following procedure is to apply a T-student test.

In conclusion, firstly it is expectable that language is relevant to results. Secondly, it is supposed that Germanic groups show different results, mainly because they include English and German. It is also believed that websites with more translation options will show different and possibly better results. Finally, it is expectable that websites with English translation option show different results and probably better results than the rest, confirming the additional positive effect of English speaking exporters and also English speaking countries of origin.

Results

First Research Question

The following cross tabulations were executed with the purpose of answering the research question:

Are linguistic groups relevant to the web retail strategy of the top 500 web retailers?

H0: Linguistic groups are relevant to the web retail strategy of the top 500 web retailers.

H1: Linguistic groups are not relevant to the web retail strategy of the top 500 web retailers.

Crosstables

Table 2 Frequencies of Linguistic Groups of Origin

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Germanic	279	55,8	55,8	55,8
	Romance	126	25,2	25,2	81,0
	Slavic	47	9,4	9,4	90,4
	Others	48	9,6	9,6	100,0
	Total	500	100,0	100,0	

Effectively, there is a higher concentration of websites in the ranking from a Germanic group of origin (55,8%). A quarter of the sample consists of websites with Romance origins (25,2%). As for Slavic origin and the rest of the linguistic proveniences, represented by "Others", they have similar weights on the sample distribution (9,4% and 9,2%, respectively).

Table 3 Frequencies of Adaptation Level

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	319	63,8	63,8	63,8
	1	88	17,6	17,6	81,4
	2	90	18,0	18,0	99,4
	NA	3	,6	,6	100,0
	Total	500	100,0	100,0	

As for adaptation level, most websites choose strategy standardization (group 0, no adaptation level), which means they either have one language option, or one language option plus English (63,8%). The second level of adaptation (group 2) is the second most representative, consisting of more than 7 language options (18%). The first level of adaptation (group1) follows closely in representability, considering a minimum of two language options (if one of them is not English) and a maximum of 6 languages (17,6%).

Table 4 Frequencies of Merchant Type

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Catalogue/Call Centre	32	6,4	6,4	6,4
	Consumer Brand Manufacturer	39	7,8	7,8	14,2
	Retail Chain	212	42,4	42,4	56,6
	Web Only	217	43,4	43,4	100,0
	Total	500	100,0	100,0	

When analysing the Merchant Type variable on the top 500 European web retailers, it is verified that the majority of websites are either Web Only (43,4%) or are Retail Chains (42,4%). In spite of having the least proportion, web sites on the ranking can also be a Catalogue/Call Centre (6,4%) or a Consumer Brand (7,8%).

Table 5 Crosstabulation between Adaptation Level and Linguistic Groups of Origin

		Linguistic groups of origin				Total
		Germanic	Romance	Slavic	Others	
Adaptation level	0	169	76	40	34	319
	1	50	26	5	7	88
	2	59	22	2	7	90
	NA	1	2	0	0	3
Total		279	126	47	48	500

The preference for **standardization** is evident in all linguistic groups. Slavic websites show a higher tendency for standardization (85,1%). Most Germanic and Romance original websites choose to standardize their strategy (60,6% and 60,3% respectively). Others also show preference for the same strategy (70,8%), however, because the origins of the group are so diverse, the only conclusion that may be presented is accordance to the trend line in the present sample.

Linguistic groups' second choice is not as easy to determine. For Germanic and Slavic websites, the second choice is slightly inclined towards 2- second level of adaptation. Others' first and second level of adaptation are equivalent. Romance's second choice is somewhat tending towards 1-first level of adaptation.

Table 6 Crosstabulation between Merchant Type and Linguistic Groups of Origin

		Linguistic groups of origin				Total
		Germanic	Romance	Slavic	Others	
Merchant Type	Catalog/Call Centre	23	8	0	1	32
	Consumer Brand Manufacturer	26	9	1	3	39
	Retail Chain	123	55	18	16	212
	Web Only	107	54	28	28	217
Total		279	126	47	48	500

As expected from the analysis of the tables of frequencies, there is a concentration of observations predominantly of Retail Chain (Germanic and Romance) and Web Only

(Slavic and Others) websites in all linguistic groups. Retail Chain represents 44,1% in Germanic websites, 43,7% in Romance websites, 38,3% in Slavic websites and 33,3% in Others. On the other hand, Web Only shows 59,6% in Slavic websites, 58,3% in Others, 42,9% in Romance linguistic groups and 38,4% in Germanic websites.

Conclusion

The crosstabulations show important results to answer the first secondary research question:

Are linguistic groups relevant to the web retail strategy of the top 500 web retailers?

H0: Linguistic groups are relevant to the web retail strategy of the top 500 web retailers.

H1: Linguistic groups are not relevant to the web retail strategy of the top 500 web retailers.

When crossing linguistic groups with adaptation level one can observe a clear preference for standardization in all linguistic groups of origin. Contrarily to what was expected by literary research, this fact and the small differences between second and third choice in all linguistic groups, seem to lead one to conclude that linguistic groups of origin have no influence on standardization/adaptation strategies of the top 500 web retailers.

Market presence strategy was analysed by the crosstabulation of merchant type and linguistic group. It was verified that Germanic and Romance linguistic groups are mostly Retail Chains and Slavic and Others are generally Web Only brands. From this difference, one can assume that linguistic groups have influence on determining the top 500 web retailer's merchant type.

Second Research Question

The following Anova and Kruskal-Wallis tests were executed with the purpose of answering the research question:

Do linguistic groups of origin show different effects on the top 500 web retailer's results?

H0: All linguistic groups show the same effects on results.

H1: At least two linguistic group show different effects on results.

ANOVA

In order to use the One-way-anova test, the pre-requisites had to be confirmed. As all group samples are above 30 observations, there is no use on testing for normality. The sample had to be random and variances between groups had to be homogenous. In spite of the ranking criteria (top 500 web retailers in Europe), sample's arbitrariness will be assumed (as it is very difficult to obtain it in full). As for homogeneity of variances, a Levene's test will be applied.

Table 7 Levene Test for the second research question

	Levene Statistic	df1	df2	Sig.
Number of languages	19,061	3	465	,000
Percentage of search traffic from home country	5,487	3	40	,003
2014 Web Sales	2,767	3	496	,041
2014 Growth	6,488	3	496	,000
2014 Monthly Unique Visitors	,747	3	496	,524
Average Ticket	2,540	3	496	,056

From the analysis of the table, it is concluded that variables Number of Languages, 2014 Monthly Unique Visitors and Average Ticket do not show statistically significant differences, therefore being considered homogenous in variances. Anova can be performed. On the other hand, Percentage of search traffic from home country, 2014 Web Sales and 2014 Growth show statistically different variances, rejecting the null hypothesis ("H0: Groups variances are equal") and confirming the alternative hypothesis for all three variables ("H1: At least two group variances are statistically different from each other"). Therefore, One-way-anova cannot be applied, proceeding to a Kruskal-Wallis test.

Table 8 ANOVA test for the second research question

		Sum of Squares	df	Mean Square	F	Sig.
Number of languages	Between Groups	123,917	3	41,306	,761	,516
	Within Groups	26757,644	493	54,275		
	Total	26881,561	496			
2014 Monthly Unique Visitors	Between Groups	141230010982994,940	3	47076670327664,980	,561	,641
	Within Groups	41652978875665456,000	496	83977779991261,000		
	Total	41794208886648448,000	499			
Average Ticket	Between Groups	46644,748	3	15548,249	,979	,402
	Within Groups	7878982,340	496	15885,045		
	Total	7925627,088	499			

All variables that previously proceeded to the One-way-anova test (Number of Languages, 2014 Monthly unique visitors and Average ticket), accept the null, "H0: All linguistic group means are equal". This means that different linguistic groups do not show different numbers of languages, or visitors, or average ticket spent in the website. Therefore, language of origin does not influence the number of translation options, the visitors of a website nor the amount of money spent on website purchases.

Kruskal-Wallis

On variables Percentage of search traffic from home country, 2014 Web Sales and 2014 Growth a Kruskal-Wallis test had to be performed. Linguistic groups analysed were 1-Germanic, 2-Romance, 3-Slavic and 4-Others.

Table 9 Kruskal-Wallis test for the second research question

	Linguistic groups of origin	N	Mean Rank
Percentage of search traffic from home country	1	263	189,39
	2	119	259,29
	3	46	361,32
	4	41	315,32
	Total	469	
2014 Web Sales	1	279	248,50
	2	126	252,55
	3	47	303,15
	4	48	205,21
	Total	500	
2014 Growth	1	279	231,49
	2	126	250,68
	3	47	329,63
	4	48	283,04
	Total	500	

Mean ranks show relatively close values. The variable Percentage of search traffic from home country by linguistic group varies from 189,39 in group 1 to 361,32 in group 3, showing the highest variability. 2014 Web Sales by linguistic group varies from 205,21 to 303,15. 2014 Growth varies from 231,49 to 329,63. Both variables show similarly dispersed mean rank groups with higher propensity towards being statistically different.

Table 10 Statistics for Kruskal-Wallis test for the second research question

	Percentage of search traffic from home country	2014 Web Sales	2014 Growth
Chi-Square	87,959	11,037	21,362
Df	3	3	3
Asymp. Sig.	,000	,012	,000

a. Kruskal Wallis Test

b. Grouping Variable: Linguistic groups of origin

From the analysis of Kruskal-Wallis results, it is observable that all variables (Percentage of search traffic from home country, 2014 Web Sales and 2014 Growth) reject the null hypothesis of no difference between mean ranks. This means that at least two groups are statistically different from each other. To know what groups show statistical differences, a Post Hoc test has to be performed.

Another interesting indicator to analyse is the Effect Size, which is the percentage of variability accounted for linguistic group in Percentage of search traffic from home country, 2014 Web Sales and 2014 Growth. The Effect Size Percentage of search traffic from home country is 2,67% (13,33/499 = 0,0267). The Effect Size of 2014 Web Sales is 2,21% (11,037/499 =0,0221). Finally, the Effect Size of 2014 Growth is 4,28% (21,362/499 = 0,0428), making this variable the one that varies the most because of linguistic group of origin. This was expected as 2014 Growth's significance levels were lower than the other variables', thus showing higher levels of difference between mean ranks.

Post Hoc Test for Kruskal-Wallis

Table 11 Post Hoc for Kruskal-Wallis test for the second research question: groups 1 and 2 mean ranks

	Linguistic groups of origin	N	Mean Rank
Percentage of search traffic from home country	1	263	173,11
	2	119	232,15
	Total	382	
2014 Web Sales	1	279	201,76
	2	126	205,75
	Total	405	
2014 Growth	1	279	198,04
	2	126	213,97
	Total	405	

Comparison between linguistic group 1, Germanic, and 2, Romance, shows values particularly small in variables 2014 Web Sales (3,99) and 2014 Growth (15,93). Maximum mean rank difference shown is on Percentage of search traffic from home country (59,04).

Table 12 Post Hoc for Kruskal-Wallis test for the second research question: groups 1 and 2 statistics

	Percentage of search traffic from home country	2014 Web Sales (Euros)	2014 Growth
Chi-Square	23,428	,101	1,607
df	1	1	1
Asymp. Sig.	,000	,750	,205

a. Kruskal Wallis Test

b. Grouping Variable: Linguistic groups of origin

Percentage of search traffic from home country shows statistically different mean ranks in linguistic groups 1 (Germanic) and 2 (Romance), therefore rejecting the null hypothesis ("H0: Mean ranks ranks of groups 1 and 2 are equal"). This outcome was expected due to its mean ranks' absolute difference. Both other variables show higher levels of significance accepting the null.

Table 13 Post Hoc for Kruskal-Wallis test for the second research question: groups 1 and 3 mean ranks

	Linguistic groups of origin	N	Mean Rank
Percentage of search traffic from home country	1	263	138,50
	3	46	249,33
	Total	309	
2014 Web Sales	1	279	158,75
	3	47	191,70
	Total	326	
2014 Growth	1	279	154,53
	3	47	216,78
	Total	326	

The comparison between linguistic group 1-Germanic and 3-Slavic shows bigger mean rank differences, increasing the probability of statistical differences between groups. Maximum mean rank difference is on Percentage of search traffic from home country (110,83) and 2014 Web Sales (32,95) presents minimum difference.

Table 14Post Hoc for Kruskal-Wallis test for the second research question: groups 1 and 3 statistics

	Percentage of search traffic from home country	2014 Web Sales (Euros)	2014 Growth
Chi-Square	60,242	4,917	17,547
df	1	1	1
Asymp. Sig.	,000	,027	,000

a. Kruskal Wallis Test

b. Grouping Variable: Linguistic groups of origin

The immediate perception of mean ranks was confirmed, as group 1 (Germanic) and 3 (Slavic) were considered statistically different in all three variables, rejecting the null hypothesis ("H0: Mean ranks of groups 1 and 4 are equal").

Table 15 Post Hoc for Kruskal-Wallis test for the second research question: groups 1 and 4 mean ranks

	Linguistic groups of origin	N	Mean Rank
Percentage of search traffic from home country	1	263	141,79
	4	41	221,23
	Total	304	
2014 Web Sales	1	279	167,99
	4	48	140,79
	Total	327	
2014 Growth	1	279	158,92
	4	48	193,52
	Total	327	

Linguistic groups 1-Germanic and 4- Others show intermedium mean rank values, as they are bigger than the first comparison but smaller than the second. Maximum difference is observable on Percentage of search traffic from home country (79,44), followed by 2014 Growth (34,6) and then by 2014 Web Sales (27,2).

Table 16Post Hoc for Kruskal-Wallis test for the second research question: groups 1 and 4 statistics

	Percentage of search traffic from home country	2014 Web Sales	2014 Growth
Chi-Square	28,976	3,390	5,485
df	1	1	1
Asymp. Sig.	,000	,066	,019

a. Kruskal Wallis Test

b. Grouping Variable: Linguistic groups of origin

Linguistic groups 1 (Germanic) and 4 (Others) were considered statistically different on the analysis of the variables Percentage of search traffic from home country and 2014 Growth. This denotes that these variables results vary according to whether the linguistic group of origin is 1 or 4. As for 2014 Web Sales, results point towards acceptance of the null ("H0: Mean ranks of groups 1 and 4 are equal"), which means that mean rank differences are not statistically significant.

Table 17 Post Hoc for Kruskal-Wallis test for the second research question: groups 2 and 4 mean ranks

	Linguistic groups of origin	N	Mean Rank
Percentage of search traffic from home country	2	119	75,10
	4	41	96,17
	Total	160	
2014 Web Sales	2	126	92,49
	4	48	74,40
	Total	174	
2014 Growth	2	126	84,43
	4	48	95,56
	Total	174	

The comparison between linguistic group 2-Romance and 4-Others demonstrates small differences between mean ranks in all variables. The maximum difference verified is on variable Percentage of search traffic from home country (21,07) which was really similar to 2014 Web Sales (20,09).

Table 18 Post Hoc for Kruskal-Wallis test for the second research question: groups 2 and 4 statistics

	Percentage of search traffic from home country	2014 Web Sales (Euros)	2014 Growth
Chi-Square	6,307	4,486	1,698
df	1	1	1
Asymp. Sig.	,012	,034	,193

a. Kruskal Wallis Test

b. Grouping Variable: Linguistic groups of origin

Only the biggest differences between linguistic groups' mean ranks on the Percentage of search traffic from home country and Web Sales' variables were considered statistically different, rejecting the null ("H0: Mean ranks 2 and 4 are equal"). This is representative of different mean ranks in group 2 (Romance) and 4 (Others) on Percentage of search traffic from home country and Web Sales, but statistical equality on 2014 Growth (acceptance of the alternative, "H1: Mean ranks of group 2 and 4 are different"). Consequentially, one can conclude that Percentage of search traffic from home country and Web Sales results are influenced by whether the linguistic group of origin is 2 (Romance) or 4 (Others).

Table 19 Post Hoc for Kruskal-Wallis test for the second research question: groups 2 and 3 mean ranks

	Linguistic groups of origin	N	Mean Rank
Percentage of search traffic from home country	2	119	72,04
	3	46	111,35
	Total	165	
2014 Web Sales	2	126	81,30
	3	47	102,28
	Total	173	
2014 Growth	2	126	79,28
	3	47	107,70
	Total	173	

The comparison between linguistic group 2-Romance and 3-Slavic shows similar differences in variables 2014 Web Sales (20,7) and 2014 Growth (28,42). A greater mean rank difference is verified on Percentage of search traffic from home country (39,31).

Table 20 Post Hoc for Kruskal-Wallis test for the second research question: groups 2 and 3 statistics

	Percentage of search traffic from home country	2014 Web Sales	2014 Growth
Chi-Square	22,457	6,004	11,025
df	1	1	1
Asymp. Sig.	,000	,014	,001

a. Kruskal Wallis Test

b. Grouping Variable: Linguistic groups of origin

Test results show that all variables present differences between linguistic groups 2 (Romance) and 3 (Slavic), showing low levels of significance, and, thus, rejecting the null ("H0: Mean ranks of linguistic groups 2 and 3 are equal"). Then, Percentage of search traffic from home country, 2014 Web Sales and 2014 Growth have statistically significant differences between the previously referred linguistic groups.

Table 21 Post Hoc for Kruskal-Wallis test for the second research question: groups 3 and 4 mean ranks

	Linguistic groups of origin	N	Mean Rank
Percentage of search traffic from home country	3	46	47,64
	4	41	39,91
	Total	87	
2014 Web Sales 18,15	3	47	57,17
	4	48	39,02
	Total	95	
2014 Growth 10,19	3	47	53,15
	4	48	42,96
	Total	95	

Linguistic groups 3-Slavic and 4-Others show relatively low mean rank values, thus, relatively small differences. Maximum difference is observable on 2014 Web Sales (18,15), followed by 2014 Growth (10,19) and then by Percentage of search traffic from home country (7,73). The probability of Percentage of search traffic from home country accepting the null ("H0: Mean ranks of linguistic groups 3 and 4 are equal") is high, because its mean rank values are not very disperse.

Table 22 Post Hoc for Kruskal-Wallis test for the second research question: groups 3 and 4 statistics

	Percentage of search traffic from home country	2014 Web Sales	2014 Growth
Chi-Square	,196	10,293	3,245
df	1	1	1
Asymp. Sig.	,658	,001	,072

a. Kruskal Wallis Test

b. Grouping Variable: Linguistic groups of origin

Linguistic groups 3 (Slavic) and 4 (Others) are numerically different and its difference is statistically significant on 2014 Web Sales. Both other variables show higher values for significance, therefore accepting the null ("H0: Mean ranks of linguistic groups 3 and 4 are equal").

The previously analysed variables (2014 Web Sales, 2014 Growth and Percentage of search traffic from home country) are all influenced by linguistic groups as their results show that at least three combinations of groups show statistically different mean ranks in a total of six combinations. The only linguistic groups that show different mean ranks in all three variables are 1-Germanic and 3-Slavic.

Table 23 Comparison between mean ranks on linguistic groups for the second research question

Comparison between linguistic groups	Percentage of search traffic from home country	2014 Web Sales	2014 Growth
1-2	**Different**	Equal	Equal
1-3	**Different**	**Different**	**Different**
1-4	**Different**	Equal	**Different**
2-4	**Different**	**Different**	Equal
2-3	**Different**	**Different**	**Different**
3-4	Equal	**Different**	Equal

Table 24 Mean of Linguistic Groups of Origin

	Linguistic groups of origin			
	Mean			
Variables	1	2	3	4
2014 Web Sales	325.031.219 €	162.144.968 €	181.493.814 €	130.604.632 €
2014 Growth	13%	14%	23%	18%
Percentage of search traffic from home country	65%	76%	90%	84%
2014 Monthly Unique Visitors	3936540	3337692	4683447	2546440

Table 25 Standard Deviation of Linguistic Groups of Origin

	Linguistic groups of origin			
	Standard Deviation			
Variables	1	2	3	4
2014 Web Sales	1.395.700.865 €	322.622.922 €	219.050.933 €	217.846.031 €
2014 Growth	13%	14%	22%	27%
Percentage of search traffic from home country	26%	24%	14%	20%
2014 Monthly Unique Visitors	10892495	6392114	7044658	5216637

Table 26 Median of Linguistic Groups of Origin

	Linguistic Groups of Origin			
	Median			
Variables	1	2	3	4
2014 Web Sales	61.928.997 €	55.510.125 €	102.100.000 €	35.542.894 €
2014 Growth	9%	10%	17%	12%
Percentage of search traffic from home country	72%	88%	94%	91%

In order to analyse, the concrete differences between statistically different groups, mean, standard deviation and median will be compared through tables 24, 25 and 26.

When considering the variable Percentage of search traffic from home country, only groups 3 and 4 are statistically equal, with mean groups 90% and 84%, respectively. Values for mean groups are: mean of group 1, 65%, mean of group 2, 76%, mean of group 3, 90%, and mean of group 4, 84%. Group 1 is different from all groups. Its mean difference variation from group 1 is between 11% and 25%. With standard deviations between 14% and 26%, the variables are concentrated around the mean. Medians are also close to the mean which also means low data variability. Group 2 is also different from groups 3 and 4, as their mean groups are 76%, 90% and 84% respectively (variation between 8% and 14%). Standard deviations are 24% for group 2, 14% for group 3 and 20% for 4 and medians of 88%, 94% and 91%, also demonstrating low data variability. Considering their statistically equal mean values, linguistic groups 3 (Slavic) and 4 (Others) show the highest level of domestic search, followed by group 2 (Romance) and group 1 (Germanic). The fact that the Germanic linguistic group is last on this variable, may be related to the number of countries that have English as their original language, as it is also *Lingua Economica, Emotiva, Academica, Cultura* and *Bellica* (Philipson, 2008).

As for the variable 2014 Web Sales, only group1 is equal to 2 and 4. Values for mean groups are: mean of group 1, 325.031.219 €, mean of group 2, 162.144.968 €, mean of group 3, 181.493.814 €, and mean of group 4, 130.604.632 €. Group 1 is only different from group 3. Its mean difference variation is 143.537-405 €. With standard deviation of 1.395.700.865 € and 219.050.933 €, the variables do not seem concentrated around the mean. Medians are 61.928.997 € and 102.100.000 € and they are far from the mean, showing a lot variability on data. Group 2, mean 162.144.968 €, is different from groups

3 and 4, means 181.493.814 € and 130.604.632 €. Mean variation difference from group 2 is between 19.348.846 € and 31.540.336 €. Standard deviation of group 2 is 322.622.922 €, group 3 is 219.050.933 € and group 4 is 217.846.031 €, demonstrating highly dispersed values. Median of group 2 is 55.510.125 € almost a third of the mean, group 3 is 102.100.000 € also bellow the mean and group 4 is 35.542.894 € almost a forth of the mean, demonstrating highly variable data. Finally groups 3 and 4, with means 181.493.814 € and 130.604.632 € respectively, are also different from each other with high standard deviations and lower medians as previously referred. All different groups' samples on the 2014 Web Sales variable tend to lower values but, probably have few big outliers which increase the mean values and, thus are highly variable. When comparing mean values for web sales, one can conclude that Germanic websites are the ones that sell the most, followed by Slavic, Romance and others.

Finally, variable 2014 Growth mean groups are 13% on group 1, 14% on group 2, 23% on group 3 and 18% on group 4. Growth has three statistically equal combinations: groups 1 and 2, groups 2 and 4 and groups 3 and 4. As for differences, group 1 is different from groups 3 and 4, with mean difference variation of 10% and 5%. Standard deviation are low, corresponding to 13% on group 1, 22% on group 2 and 27% on group 3, and indicate small data dispersion. Medians are 9%, 17% and 12%, respectively, are all very similar to mean values. Group 2 is also different from group 3, with a mean difference of 9%, low standard deviations and similar values to the mean.

Conclusion

One-way-anova test and Kruskal-Wallis tests show important results to answer the following secondary research question:

Do linguistic groups of origin show different effects on the top 500 web retailer's results?

H0: All linguistic groups show the same effects on results

H1: At least two linguistic group show different effects on results.

The effects of linguistic groups of origin on results were analysed through the variables Number of languages, Percentage of search traffic from home country, 2014 Web Sales, 2014 Growth, 2014 Monthly Unique Visitors and Average Ticket.

One-way-anova was possible to perform on Number of Languages, 2014 Monthly unique visitors and Average ticket that were all considered not influenced by linguistic groups. As previously stated, language of origin (represented by its linguistic group) does not vary the number of translation options, visitors or average amount of money spent on the top 500 web retailers in Europe, as linguistic groups of origin show no statistically significant differences from one another.

On the other hand, Kruskal-Wallis test applied to 2014 Web Sales, 2014 Growth and Percentage of search traffic from home country showed differences between linguistic groups in all three variables. Percentage of search traffic from home country was the variable that showed the most differences between linguistic groups: five out of six combinations showed statistically different groups. This is very interesting, as it shows that the original language of the website has influence over domestic traffic proportion. It also shows lower mean values on Germanic websites, which may mean an increase of foreign search on this group. Both Percentage of search from home country and 2014 Growth, showed similar means and median in their linguistic groups and also low variability of data. 2014 Web Sales was the second variable that denoted more differences between linguistic groups: four combinations of groups indicated statistically significant differences. Germanic websites showed the highest mean values for web sales. Web sales variable has mostly small values (small median) on its groups but few very big outliers increase its mean, as well as high values for standard deviation. Therefore, one can assume that language of origin (represented by linguistic group) can determine if the 500 web retailers had more or less sales, growth and search traffic from the home country.

In conclusion, linguistic groups influence three variables' results. They show a particular influence on Percentage of search traffic from home country and Web Sales. This last variable is one of the most important indicators of success of web retailers. Thus, it is considered that linguistic groups influence results, rejecting the null hypothesis.

Third Research Question

The following Anova and Kruskal-Wallis were executed with the purpose of answering the research question:

Is the number of language options correlated with results?

H0: Different numbers of language options do not show different results.

H1: Different numbers of language options show different results.

Anova

At this stage the objective is to compare levels of adaptation, which are based on number of language, within variables that determine the top 500 web retailers' results.

Table 27 Levene test for the third research question

	Levene Statistic	df1	df2	Sig.
Percentage of search traffic from home country	17,641	2	463	,000
2014 Web Sales	13,603	2	494	,000
2014 Growth	,554	2	494	,575
2014 Monthly Unique Visitors	13,571	2	494	,000
Average Ticket	4,939	2	494	,008

From the analysis of the Homogeneity of Variances' table, it is concluded that variables Percentage of search traffic from home country, 2014 Web Sales, 2014 Monthly Unique Visitors and Average Ticket differences between variances are statistically significant, therefore not having homogeneity. Because the null hypothesis ("H0: Groups variances are equal") is rejected and the alternative hypothesis ("H1: At least two group variances are statistically different from each other") is confirmed for all three variables, One-way-anova cannot be performed. Procedure is to perform Kruskal-Wallis. On the other hand, 2014 Growth does not show statistically different variances and One-way-anova can be applied.

Table 28 ANOVA test for the third research question

		Sum of Squares	df	Mean Square	F	Sig.
2014 Growth	Between Groups	670,333	2	335,166	1,270	,282
	Within Groups	130380,058	494	263,927		
	Total	131050,391	496			

Variable 2014 Growth denotes high levels of significance between groups. Thus, it accepts the null ("H0: All group levels of adaptation have equal results"), meaning that there is no influence of number language translations in 2014 growth.

Kruskal-Wallis

On variables 2014 Web Sales, 2014 Monthly Unique Visitors an Average Ticket, Kruskal-Wallis analysis is required.

Table 29 Kruskal-Wallis test for the third research question

	Adapt level (0;1;2)	N	Mean Rank
Percentage of search traffic from home country	0	307	266,94
	1	83	200,62
	2	76	134,31
	Total	466	
2014 Web Sales	0	319	223,27
	1	88	266,15
	2	90	323,42
	Total	497	
2014 Monthly Unique Visitors	0	319	223,96
	1	88	268,53
	2	90	318,64
	Total	497	
Average Ticket	0	319	245,64
	1	88	240,02
	2	90	269,69
	Total	497	

All variables show similar values for groups 0- Standardization (no level of adaptation), 1- First level of adaptation and 2- Second level of adaptation, particularly 2014 Web Sales and 2014 Monthly Unique Visitors.

On Percentage of search traffic from home country, the mean value of 0- Standardization is the highest, showing the biggest difference from 2- Second level of adaptation (132,63).

On 2014 Web Sales, the mean value of 2- Second level of adaptation is the highest, showing the biggest difference when compared with 0- Standardization (100,15).

On 2014 Monthly Unique Visitors, the order is the same, only the difference between 2- Second level of adaptation and 0- Standardization is smaller (94,68).

On Average Ticket, the highest mean rank is 2- Second level of adaptation, but the biggest difference is towards 1- First level of adaptation (29,67) and it is a smaller

difference than the rest. Between the three variables, it is the most likely to consider the mean rank values equal.

Table 30 Statistics for Kruskal-Wallis test for the third research question

	Percentage of search traffic from home country	2014 Web Sales	2014 Monthly Unique Visitors	Average Ticket
Chi-Square	65,116	35,662	32,489	2,390
df	2	2	2	2
Asymp. Sig.	,000	,000	,000	,303

a. Kruskal Wallis Test

b. Grouping Variable: Adapt level (0;1;2;3)

As expected, Average Ticket shows higher levels of significance (above 0,05), therefore accepting the null ("H0: All group levels of adaptation have equal results"). Percentage of search traffic from home country, 2014 Web Sales and 2014 Monthly Unique Visitors show significance levels of 0 (zero), rejecting the null and confirming the statistical significance of its group levels of adaptation differences ("H1: At least two group levels of adaptation are different"). In order to understand which groups are different within the variables, a Post Hoc test has to be applied.

Effect Size estimates, that account for percentage of variability accounted for adaptation level in Percentage of search traffic from home country, 2014 Web Sales and 2014 Growth, were 14% (65,116/465 = 0,1400), 7,19% (35,662/496 =0,0719), 6,55% (32,489/496 = 0,0655),respectively. Therefore, Percentage of search traffic from home country is the variable that varies the most because of adaptation level.

Post Hoc Test for Kruskal-Wallis

Table 31 Post Hoc for Kruskal-Wallis test for the third research question: groups 0 and 1 mean ranks

	Adapt level (0;1;2)	N	Mean Rank
Percentage of search traffic from home country	0	307	207,78
	1	83	150,10
	Total	390	
2014 Web Sales	0	319	196,19
	1	88	232,31
	Total	407	
2014 Monthly Unique Visitors	0	319	196,04
	1	88	232,84
	Total	407	

Mean rank values do not seem particularly apart and all variables show approximate values for group 0-Standardization and group 1- First level of adaptation (Percentage of search traffic from home country : 57,68; 2014 Web Sales: 36,12; 2014 Monthly Unique Visitors: 36,8).

Table 32 Post Hoc for Kruskal-Wallis test for the third research question: groups 0 and 1 statistcs

	Percentage of search traffic from home country	2014 Web Sales (Euros)	2014 Monthly Unique Visitors
Chi-Square	17,106	6,501	6,749
Df	1	1	1
Asymp. Sig.	,000	,011	,009

All variables results show that groups 0 (Standardization) and 1 (First level of adaptation) are statistically different by rejecting the null hypothesis ("H0: All group levels of adaptation have equal results"). Therefore, domestic search, sales and visitors'

results vary whether the website has 1 language or 1 language+ English or it has between 2 and 6 languages.

Table 33 Post Hoc for Kruskal-Wallis test for the third research question: groups 1 and 2 mean ranks

	Adapt level (0;1;2)	N	Mean Rank
Percentage of search traffic from home country	1	83	92,52
	2	76	66,32
	Total	159	
2014 Web Sales	1	88	78,35
	2	90	100,41
	Total	178	
2014 Monthly Unique Visitors	1	88	80,19
	2	90	98,60
	Total	178	

Mean rank values for the comparison of group levels of adaptation 1- First level of adaptation and 2- Second level of adaptation show different values on different variables. However the difference between groups is really similar (Percentage of search traffic from home country: 26,2; 2014 Web Sales: 22,06; 2014 Monthly Unique Visitors:18,41).

Table 34 Post Hoc for Kruskal-Wallis test for the third research question: groups 1 and 2 statistics

	Percentage of search traffic from home country	2014 Web Sales	2014 Monthly Unique Visitors
Chi-Square	12,848	8,154	5,678
Df	1	1	1
Asymp. Sig.	,000	,004	,017

Despite, the small difference between mean rank values on groups 1(first level of adaptation) and 2 (second level of adaptation), its difference is considered statistically

significant in all variables. Therefore, domestic search, sales and visitors vary depending on whether the website has six translation options or more.

Table 35 Post Hoc for Kruskal-Wallis test for the third research question: groups 0 and 2 mean ranks

	Adapt level (0;1;2)	N	Mean Rank
Percentage of search traffic from home country	0	307	213,17
	2	76	106,49
	Total	383	
2014 Web Sales	0	319	187,08
	2	90	268,52
	Total	409	
2014 Monthly Unique Visitors	0	319	187,92
	2	90	265,54
	Total	409	

Mean rank values seem disperse and both variables show approximately the same values for group 0-Standardization and group 1- First level of adaptation. It is very likely that these variables differences are considered statistically significant (2014 Web Sales: 81,44; 2014 Monthly Unique Visitors: 77,62).

Table 36 Post Hoc for Kruskal-Wallis test for the third research question: groups 0 and 2 statistics

	Percentage of search traffic from home country	2014 Web Sales	2014 Monthly Unique Visitors
Chi-Square	56,572	33,314	30,269
Df	1	1	1
Asymp. Sig.	,000	,000	,000

As expected, all variables, Percentage of search traffic from home country, 2014 Web Sales and 2014 Monthly Unique visitors, show statistically significant differences when comparing group levels of adaptation 0 (standardization) and 2 (second level). Thus,

domestic search, sales and visitors vary according to whether there is no translation/English option or if there are multiple translation options.

Table 37 Comparison between mean ranks on adaptation level for the second research question

Comparison between linguistic groups	Percentage of search traffic from home country	2014 Web Sales	2014 Growth
0-1	**Different**	**Different**	**Different**
1-2	**Different**	**Different**	**Different**
0-2	**Different**	**Different**	**Different**

Table 38 Mean of Adaptation Level

	Adaptation Level		
	Mean		
Variables	0	1	2
2014 Web Sales	158.207.662 €	219.576.032 €	621.888.647 €
2014 Growth	14%	15%	17%
Percentage of search traffic from home country	78%	67%	50%

Table 39 Standard Deviation of Adaptation Level

	Adaptation Level		
	Standard Deviation		
Variables	0	1	2
2014 Web Sales	375.226.002 €	402.813.792 €	2.342.114.621 €
2014 Growth	17%	14%	16%
Percentage of search traffic from home country	21%	26%	29%

Table 40 Median of Adaptation Level

	Adaptation Level		
	Median		
Variables	1	2	3
2014 Web Sales	65.000.000 €	41.500.000 €	68.931.345 €
2014 Growth	8%	10%	15%
Percentage of search traffic from home country	76%	85%	93%

In order to analyse, the concrete differences between statistically different groups, mean, standard deviation and median will be compared through tables 38, 39 and 40.

When considering the variable Percentage of search traffic from home country, all mean groups are different. Values for mean groups are: mean of group 0, 78%, mean of group 1, 67%, and mean of group 2, 50%. Its mean difference variation from between all groups goes from 17% to 28%. With standard deviations of 21%, 26% and 29%, the variables are concentrated around the mean. Medians are also relatively close to the mean which means one can consider low data variability. As expected domestic search peaks at standardization (group 0) and decreases when adaptation increases.

As for the variable 2014 Web Sales, all groups show differences between them. Values for mean groups are: mean of group 0, 158.207.662 €, mean of group 1, 219.576.032 €, and mean of group 2, 621.888.647 €. Its mean difference variation is between 61.368.370 € and 463.680.985 €. With standard deviation of 375.226.002 €, 403.813.792 € and 2.342.114.621 €, respectively, the variables do not seem concentrated around the mean. Medians are 65.000.000 €, 41.500.000 and 68.931.345 € and they are extremely far from the mean, showing a lot variability on data. Table 37 observation demonstrates that the second level of adaptation has the highest mean for web sales, followed by first level of adaptation and finally standardization. This confirms Virvilaite and Seinauskiene (2014) research on firms with greater resources choosing more frequently adaptation strategies and firm size being an indicator of adaptation. However, all different groups' samples on the 2014 Web Sales variable tend to lower values but, probably, have few big outliers which increase the mean values and, thus are highly variable.

Finally, variable 2014 Growth mean groups are 14% on group 0, 15% on group 1 and 17% on group 3. All group combinations show differences, with mean difference

variation of 1% to 3%. Standard deviations are low, corresponding to 17% on group 0, 14% on group 1 and 16% on group 2, and indicate small data dispersion. Medians are 8%, 10% and 15%, respectively, are all very similar to mean values, which confirms low variability of values.

Conclusion

One-way-anova test and Kruskal-Wallis tests show important results to answer the following secondary research question:

Is the number of language options correlated with results?

H0: Different numbers of language options do not show different results.

H1: Different numbers of language options show different results.

The effects of levels of adaptation on results were analysed through the variables Percentage of search traffic from home country, 2014 Web Sales, 2014 Growth, 2014 Monthly Unique Visitors and Average Ticket.

One-way-anova was possible to perform on 2014 Growth that was considered not influenced by levels of adaptation. Number of languages does not influence growth, probably due to the stability of growth values throughout the sample.

On the other hand, Kruskal-Wallis test applied to Percentage of search traffic from home country, 2014 Web Sales, Monthly Unique Visitors and Average Ticket. Analysis showed differences between group's levels of adaptation in the first three variables. Average Ticket spent on the website did not present statistically differences between groups. All combinations of group levels of adaptation showed statistically significant differences in Percentage of search traffic from home country, 2014 Web Sales and Monthly Unique Visitors. Percentage of search from home country and 2014 Growth observation concluded on these variables having small levels of standard deviations and small differences between mean and median. According to mean values, domestic search is inversely correlated with adaptation, probably because adaptation of language creates opportunity for foreign search. As for 2014 Web Sales, the variable has high levels of variability and smaller medians than means, which leads to the perception of predominance of small values and big outliers. Mean values show that the higher the

employment of adaptation, the higher the results for web sales. Therefore, one can assume that number of languages (represented by levels of adaptation) can influence if the 500 web retailers had more or less domestic search, sales and visitors.

In conclusion, number of languages influences three variables' results. Again, the assumed main factor of success of these websites, web sales, is affected, proving the importance of the analysis.

Forth Research Question

The following T-Student test were executed with the purpose of answering the research question:

Do websites with English web translation option show better results than websites that do not show this option?

H0: Websites with and without English translation option show the same relation with results.

H1: Websites with English translation option show different results from Websites without.

T-Student

The final research question intends to test the English language effect on results.

Therefore, a t-student test was applied.

Table 41 T-Student Test frequencies for the forth research question

	English presence	N	Percentage
Percentage of search traffic from home country	0- Absence	213	45,4%
	1- Presence	256	54,6%
2014 Web Sales (Euros)	0- Absence	221	44,2%
	1- Presence	279	55,8%
2014 Growth	0- Absence	221	44,2%
	1- Presence	279	55,8%
2014 Monthly Unique Visitors	0- Absence	221	44,2%
	1- Presence	279	55,8%
Average Ticket (Euros)	0- Absence	221	44,2%
	1- Presence	279	55,8%

From the observation of statistics, one can state the predominance of 1-English presence over 0-English absence.

Table 42 T-Student Test for the forth research question

		Levene's Test for Equality of Variances		t-test for Equality of Means		
		F	Sig.	t	Df	Sig. (2-tailed)
Percentage of search traffic from home country	Equal variances assumed	141,469	,000	13,820	467	,000
	Equal variances not assumed			14,568	397,385	,000
2014 Web Sales	Equal variances assumed	13,555	,000	-2,252	498	,025
	Equal variances not assumed			-2,521	290,426	,012
2014 Growth	Equal variances assumed	8,741	,003	2,236	498	,026
	Equal variances not assumed			2,157	388,542	,032
2014 Monthly Unique Visitors	Equal variances assumed	13,659	,000	-2,172	498	,030
	Equal variances not assumed			-2,367	376,023	,018
Average Ticket	Equal variances assumed	2,600	,107	-,732	498	,465
	Equal variances not assumed			-,772	469,387	,441

On Levene's Test for Equality of Variances, Average Ticket assumed equal variances, while Percentage of search traffic from home country, 2014 Web Sales, 2014 Growth and 2014 Monthly Unique Visitors did not assume equal variances.

As a result, the observed significance for Average Ticket was above 0,05, thus accepting the null. The acceptance proves no statistical significant differences between websites that present English as a language option and those which do not. This means

that average amount of money spent on the website does not vary according to whether the website has an English version or not.

As for the remaining variables, Percentage of search traffic from home country, 2014 Web Sales, 2014 Growth and 2014 Monthly Unique Visitors, they all have presented significance values under 0,05, therefore rejecting the null ("H0: Websites with and without English translation option show the same relation with results."). According to test results, websites that present English language option show statistically different results in domestic search, sales, growth and visitors from websites that do not present this option.

Table 43 Mean and Standard Deviation of English Presence and Absence

	English presence				
	Mean			Standard Deviation	
Variables	0	1	Difference (1-0)	0	1
2014 Web Sales	132.151.051 €	346.623.031 €	214.471.980 €	187.322.945 €	1.405.335.773 €
2014 Growth	16%	13%	-3%	19%	14%
Percentage of search traffic from home country	87%	59%	-28%	14%	27%
2014 Monthly Unique Visitors	2.727.417	4.510.523	1.783.107	4.464.372	11.539.327

Table 44 Median of English Presence and Absence

	English Presence		
	Median		
Variables	0	1	Difference (1-0)
2014 Web Sales	66.505.795 €	55.090.293€	-11.415.502 €
2014 Growth	10%	9%	-1%
Percentage of search traffic from home country	91%	64%	-27%
2014 Monthly Unique Visitors	1.326.836	1.235.000	-91.836

In order to analyse, the concrete differences between statistically different groups, mean, standard deviation and median will be compared through tables 43 and 44.

When considering the variable Percentage of search traffic from home country, values for mean groups are: mean of group 0, 87%, and mean of group 1, 59%. Its mean difference variation from group 1 is 28%. With standard deviations of 19% on group 0 and 14% on group 1, the variables are concentrated around the mean. Medians are also relatively close to the mean which also means low data variability. Thus, one can conclude that website with English presence (group 1) have less domestic search and more foreign search.

As for the variable 2014 Web Sales, values for mean groups are: mean of group 0, 132.151.051 €, mean of group 1, 346.623.031 €. Its mean difference variation is 214.471.980 €. With standard deviation of 187.322.945 € and 1.405.335.773 €, the variables do not seem concentrated around the mean. Medians are 66.505.795 € and 55.090.293 € and they are far below from the mean, showing a lot variability on data. Group 0 and 1 on the 2014 Web Sales variable tend to lower values but, probably have few big outliers which increase the mean values and, thus are highly variable. However, mean is still higher on English presence than on English Absence.

Variable 2014 Growth mean groups are 16% on group 0 and 13% on group 1. Standard deviations are low, corresponding to 19% on group 0 and 14% on group 1, which indicates small data dispersion. Medians are 10% and 9%, respectively, are very similar to mean values.

Finally, 2014 Monthly Unique Visitors higher mean on English Presence, as group 0 has 2.727.417 visitors and group 1 has 4.510.523 (above group 0 by 1.783.107 visitors).

However, standard deviation is extremely high in both groups, with 4.464.372 visitors on group 0 and 11.539.327 on group 1, thus showing a lot of variability on data. Median confirms this information as values of both groups lower than the mean and very similar from one another: group 0 has a median of 1.326.836 visitors and group 1 has 1.235.000 visitors. Sample has predominantly values around the median, but there are some websites with such success that they increase mean value exponentially.

Conclusion

The t-student test shows important results to answer the following secondary research question:

Do websites with English web translation option show better results than websites that do not show this option?

H0: Websites with and without English translation option show the same relation with results.

H1: Websites with English translation option show different results from Websites without.

From the test outcome, one can verify that four out of five variables show differences in results when grouping variables according to English presence or absence: Percentage of search traffic from home country, 2014 Web Sales, 2014 Growth and 2014 Monthly Unique Visitors.

In order to really compare sample observations, Percentage of search traffic from home country, 2014 Web Sales, 2014 Growth and 2014 Monthly Unique Visitors were analysed for its mean, median and standard deviation.

It seems that, when there is English Absence, domestic search increased. Therefore, one can conclude that foreign search decreases. This was expectable as English is, as previously stated, *Lingua Economica* (as well as *Emotiva, Academica, Cultura* and *Bellica*) (Philipson, 2008) opening international doors. Mean of percentage of search traffic from home country probably decreases when there is an English translation. This may confirm that English is correlated with foreign traffic increase. 2014 Web Sales and 2014 Monthly Unique Visitors' means increase when English is present, which can also

be related to the increase in foreign traffic. Only the 2014 Growth mean shows worse results when English is present. Although, growth is a great result's indicator, it tends to stabilize around 0 (zero) when the website's life cycle reaches maturity. Therefore, worse results in growth do not necessarily translate towards worst ranking positions. Further research would be needed to better understand this correlation.

In conclusion, Average Ticket spent on the website shows statistically equal results for English presence and absence. Growth's mean shows worse results for English presence, but is still inconclusive. Finally, the means of Percentage of search traffic from home country, 2014 Web Sales and 2014 Monthly Unique Visitors show better results when English is present, denoting a positive effect on sales, visitant and foreign traffic. However it's important to mention that medians and standard deviations indicate that the "top 500 European web retailers" data base is predominantly composed by lower values with a small proportion of enormous outliers that increase mean values.

Conclusion

Final thoughts on this study, lead us to the main research question:

Is the language variable relevant to the results of the biggest European web retailers and what are the effects caused by its strategic standardization/adaptation?

After considering statistics results, the main question needs to be addressed and the influence of the language variable on results is undeniable. In all secondary research questions language, represented by linguistic groups of origin, number of language options and English presence, shows influence in at least one tested variable.

Despite linguistic groups of origin not being determinant to strategy, they are determinant for merchant type. All linguistic groups of origin show preference for standardization strategies, which means no influence on strategy. Contrarily, their market presence (the communication and sales channels websites choose to have) varies according to linguistic groups of origin, showing different predispositions according to linguistic group. Germanic and Romance linguistic groups are predominantly Retail Chains and Slavic and Others choose mostly Web Only presence.

As for results, all representatives of language strategy (linguistic groups of origin, number of language options and English presence) show influence on web sales. First, differences were identified between linguistic groups when comparing web sales. Germanic websites showed the highest mean values, which may be related to the proportion of English speaking websites (because English presence shows more sales than its absence). Secondly, differences were also observed on levels of adaptation. The second level of adaptation presents the best results for web sales, followed by first level of adaptation and finally standardization. This confirms Virvilaite and Seinauskiene (2014) research on firms with greater resources choosing more frequently adaptation strategies and firm size being an indicator of adaptation. Finally, 2014 Web Sales are higher when English is present, which can be related to the increase in foreign search. English is correlated with sales: websites that are communicated in English, whether or not they belong to the Germanic linguistic group, show better results than those who do not. As sales are the main success factor for any business and previous observations show they are influenced by language strategy and English use, language importance is proven.

On the other hand, English presence on translation options also displayed effects on growth and visitors. A positive correlation was observable on visitors, as its results were higher than when English was absent. As for growth, English presence on websites showed lower growth levels than websites with English absence, but website maturity may be influencing this outcome. Websites that have achieved maturity can sell more but grow less. Therefore, growth is not conclusive.

On Percentage of search traffic from home country, the main conclusions were related levels of adaptation and with English use. As expected domestic search peaks at standardization and decreases when adaptation increases: if there is only the native language, only natives (and those who speak the native language) can search. When there is English Absence, domestic search increased. Therefore, one can conclude that foreign search decreases. English is the international language and it is understood globally and this study's conclusions may confirm that English is correlated with foreign traffic increase. Once more, language importance was proven to influence search.

Finally, it was concluded that standardization is the preferred strategy by most websites but adaptation shows better results for web sales. One might defend that these results are dependent on the previous decision about what was considered standardization (only one language option or one language option plus English). However, the fact that English presence reduces domestic search can be the justification for the decision taken: it is a standardization factor. The domestic search variable is expressed on percentage, which means that foreign search increases as domestic decreases. Therefore, one standardized option (English) creates higher foreign search, which is probably why websites choose standardize language. The other reason, has to do with the higher investment towards adaptation.

All variables considered, language adaptation leads to better results but it requires more investment. Standardization is the preferred strategy, even on the top 500 web retailers in Europe.

Further research

First, this study investigated under the specific framework of European web retail. It would be desirable to expand practical research to other business areas as well as other locations in order to verify the obtained results.

On the other hand, it would also be important to apply this study with a different perspective on standardization. Here, any website with exclusively one language option or one option plus English was considered standardization. It would be very interesting to restrict standardization to one language option and observe if results were maintained or if first level of adaptation would become the predominant strategy.

Finally, it is important to reinforce that communication is not only the language used, as well as online presence is not online the brand's website. Integrated marketing communications are defined as the consistency in brand communication (Naik, P. A., & Raman, K., 2003). As for online presence, there are multiple social networks and blogs, as well as diverse devices to access these platforms. Therefore, communication can be presented in advertising, public relations, sales promotion, etc. (Naik, P. A., & Raman, K., 2003) in very different platforms and devices. For future investigation, it would be appealing to study the adaptation and standardization strategies of the many communication components, seen from various devices or online platforms (including websites).

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