

Internationalization of Higher Education in University Institution Rankings: The Influence of National Culture

Blanca L. Delgado-Márquez
Nuria E. Hurtado-Torres
Yaroslava Bondar
University of Granada (Spain)

Internationalization constitutes a widespread concept in the management literature and has recently begun to be applied to higher education institutions. While previous research has analyzed the relationship between national culture and corporate profit-oriented behavior, in this study, we focus on university institutions to investigate the influence of cultural dimensions on the internationalization of higher education. To achieve this, we (a) theoretically revise the conceptualization and assessment of cultural dimensions at the national level, (b) provide a theoretical background on the concept of internationalization of higher education institutions and its measurement through university institution rankings, and (c) empirically test whether cultural practices exert a significant influence on the internationalization patterns of university institutions. Our results reveal that most cultural practices exhibit a significant influence on the internationalization of higher education institutions.

Key words: Higher education, cultural dimensions, internationalization, university institution ranking systems.

1. Introduction

Higher education systems, policies and institutions are being transformed by globalization, which is “the widening, deepening and speeding up of worldwide interconnectedness” (Held *et al.*, 1999: 2). The evolution of globalization and of the knowledge society has led to institutional changes in higher education systems, such as changes in managerial attitudes and cultures (Deem & Brehony, 2005), strategies and the role of the state. Altbach *et al.* (2009) state that globalization, a key reality in the twenty-first century, has already profoundly influenced higher education. They define globalization as “the reality shaped by an increasingly integrated world economy, new information and communications technology, the emergence of an international knowledge network, the role of the English language, and other forces beyond the control of academic institutions (p. 7). As Castells (2000) notes, globalization leads simultaneously to development and underdevelopment, and the ability of higher education institutions (HEIs) to address such imbalances requires them to broaden their missions for internationalization beyond the pure search for profitability. Applied to HEIs, internationalization can be described as “the process of integrating an international, intercultural or global dimension into the purpose, functions or delivery of post-secondary education” (Knight, 2003: 2).

One of the consequences of globalization in the context of higher education is the creation of university institution rankings. Higher-education ranking systems (HERSs) have recently exerted a great influence among all stakeholders involved in the knowledge service industry (Marginson, 2007). Moreover, despite the great debate about their validity and reliability, rankings have become a relevant tools for institution policy makers. Therefore, HERSs play a key role in the current education market, which is characterized by the Bologna process, the homogenization of educational standards, and high student and faculty mobility, among other aspects (OECD, 2009).

Nevertheless, despite the importance of globalization, the degree of separation from national boundaries should not be overstated. The great majority of institutions continue to be nationally embedded and dependent on governmental legitimization and resource support. The nation is not fading away: it remains the main site of economic activity (Marginson & van der Wende, 2009). Therefore, although globalization is increasingly affecting the environment of higher education, the laws and national culture of the institution’s country continue to exert a considerable influence on the universities. This has led us to try to identify the extent to which cultural aspects of the countries of origin of the universities are conditioning the institutions’ international behaviors and, as a consequence, their results. National culture embodies the frame

of reference that is applied by society for understanding organizations' behaviors, environments, and relationships among each other (Geletkanycz, 1997). National culture is reflected in the cultural values held by a society and the institutions that are part of that culture (Ahlstrom & Bruton, 2002).

This paper seeks to investigate to what extent the cultural dimensions of countries shape the internationalization behavior of HEIs. To achieve this aim, this paper is structured into three additional sections following this introduction. The second section theoretically revises the conceptualization and measurement of the internationalization of higher education through university institution rankings. The third section provides a theoretical revision of the concept of national culture and its assessment in the literature. The fourth section presents an empirical investigation about the relationship between cultural dimensions and internationalization of higher education in university institution rankings, with detailed information about the sample, measures, and statistical results. Finally, the fifth section summarizes the main conclusions and limitations of this study, and it notes some lines for future inquiry.

2. Internationalization of higher education in university institution rankings

2.1. Internationalization of higher education: Conceptualization

The evolution of globalization and the knowledge society has led to institutional changes in higher education systems, such as changes in managerial attitudes and cultures (Deem & Brehony, 2005), strategies, and the role of the state. First, most universities have become more entrepreneurial, and this attitude has pushed them to extend the scope of their activities outside the national borders. Thus, activities of HEIs are becoming more developed in international (in terms of cooperation) and global (in terms of competition) frameworks (Horta, 2009). Co-operation and competition are intensifying simultaneously under the growing influence of market forces and the emergence of new players (OECD, 2009). Second, according to Knight (1997) and De Wit (1995), internationalization requires two complementary strategies to enhance and sustain the international dimensions of university functions, namely, program and organizational strategies. The former include various academic

initiatives in the education, research, and services of universities and the latter involve organizational initiatives to facilitate and institutionalize international dimensions at universities through the management and operating systems. Third, the role of the state also plays a crucial role because in a global world of higher education, most national governments want to have international universities that globally compete and cooperate with other universities. Thus, the role of the state through funding and higher education internationalizing policy initiatives seems to be critical. A good example of the globalization process is the spread of new public management in higher education. In nations throughout the world, the responses of systems and institutions to globalization have been conditioned by ongoing reforms to national systems, and related reforms in the organization and management of the institutions themselves (OECD, 2009). There is more use of new public management tools, including market forces, financial incentives (competitive funding), increased autonomy and accountability, and deregulation. As a result, HEIs are active in foreign education markets and have taken advantage of the deregulation of tuition fees (Van der Wende, 2007). Nonetheless, as Castells (2000) notes, globalization leads simultaneously to development and underdevelopment, and the necessity to address such imbalances requires HEIs to broaden their missions for internationalization beyond a pure search for profitability.

While internationalization is not a new concept, its application to the area of higher education has begun in recent years (De Wit, 1995). Indeed, a fundamental problem for researchers and practitioners is how to deal with the variety of terms related to internationalization in higher education, such as: "international education, international studies, internationalism, transnational education, and globalization of higher education. There are more concrete subdivisions of the field: academic mobility, international cooperation, study abroad, and international exchange. More curriculum-focused terms include area studies in education, multicultural education, intercultural education, cross-cultural education, education for international understanding, peace education, global education, transnational studies, and global studies" (De Wit, 2002: 103).

Knight (1997) classifies the definitions of internationalization according to four generic

perspectives: activity, competency, ethos, and process. Within the perspective of activities, internationalization in higher education is the process of integrating international education into the curriculum (Harari, 1992; Klasek, 1992; Mestenhauser & Ellingboe, 1998). Such an approach involves “increasing international cooperation, enhancing national security and improving economic competitiveness” (Powell, 2004). From the competence approach, Soderqvist (2002) claims that internationalization is “a change process from a national HEI to an international HEI leading to the inclusion of an international dimension in all aspects of its holistic management in order to enhance the quality of teaching and learning and to achieve the desired competences” (p. 29). Internationalization improves an institution’s capabilities in relation to both teaching and research (Elkin *et al.*, 2008) and enables a university to benchmark its courses against international norms (Ayoubi & Masoud, 2007). In this line, universities usually internationalize to attract foreign students (Lipsett, 2009; McGowan & Potter, 2008), better qualified domestic students and top-quality research staff (Van der Wende, 2007). From an ethos perspective, internationalization is a process of strengthening the international character of campuses with the support of a leading institution (Hanson & Meyerson, 1995; Harari, 1992; Pickert & Turlington, 1992). Finally, the process approach claims that internationalization is a sustainable process of “integrating an international and intercultural dimension into the teaching, research, and service functions of the institution” (Knight, 1994: 7).

In this paper, we adopt the definition proposed by Knight (2003), who describes internationalization as “the process of integrating an international, intercultural or global dimension into the purpose, functions or delivery of post-secondary education” (p. 2).

2.2. Internationalization of higher education: Measurement through university institution rankings

One of the most widely accepted ways of assessing the internationalization of higher education consists of relying on the information provided by the HERSs. These rankings have recently exerted a great influence among all stakeholders involved in the knowledge service industry (Marginson, 2007). These rankings are perceived as having “cemented the notion of a

world university market” (Marginson & Van der Wende, 2007: 306) in which HEIs are measured according to a global scale, introducing the notion of competition among HEIs as a new paradigm in most countries (Altbach, 2006).

Ranking models vary considerably in their purposes, scopes, definitions, and methodological designs (Usher & Savino, 2006). Three HERSs are commonly accepted in the literature: the Times Higher Education Supplement (THES) compiled by Shanghai Jiaotong University, the Academic Ranking of World Universities (ARWU), and the Webometrics Ranking (WM) that arose from an initiative of the Cybermetrics Lab. Previous analyses demonstrate that world university rankings pay less attention to the elements of internationalization (Delgado-Márquez *et al.*, 2011).

However, there is no common agreement regarding the measurement of internationalization across these three rankings. When the methodologies applied in such rankings are revised, it is evident that internationalization is taken into account both directly and indirectly. Four main indicators for the internationalization process can be noted. First, academic performance in relation to institution size (ARWU) constitutes 10% of the overall score and represents an indirect assessment of internationalization because the size measurement involves both levels of national and international staff and students without distinguishing them. Second, the variable size indicates the number of web pages revealed by search systems regarding a HEI (WM) and accounts for 20% of the total score. This metric focuses on a specific aspect of internationalization, i.e., internet space, measuring the quantity of web pages related to a certain HEI worldwide in search engines, such as Google, Yahoo, Live Search, and Exalead. Third is the proportion of international staff (THES), which represents the level of international personnel involved in HEI’s activities and accounts for 5% of the overall score. Fourth and lastly, is the proportion of international students (THES), which also accounts for 5% of the overall score. This indicator provides an impression of how attractive an institution is to the rest of the world and suggests to what extent an institution has embraced the globalization agenda.

We can conclude that some of these rankings, e.g., ARWU, do not directly reflect the international elements but rather include them within more generic categories, such as academic performance in relation to institution size. THES

and WM contain international components as an indicator, such as the proportion of international staff/students and size (measured by the number of web pages related to the institution). Consequently, in this study, we take the THES ranking as a source of information for measuring the internationalization of HEIs. The world university ranking, which is published in THES, represents a combination of numerical and top-level approaches (i.e., it is focused on the 200 top-ranked universities). The core analysis is quite subjective, including peer reviews and employers' opinions. The non-subjective side emerges from other indicators, such as citations of staff academic papers, the student-faculty ratio, and internationalization aspects, among others.

3. National culture and HEIs' behavior

3.1. National culture: Conceptualization and assessment

National culture can be defined as a "collective programming of the mind that distinguishes the members of one group or category of people from another" (Hofstede, 1980: 9). Thus, the concept refers to the act of thinking, feeling, and its transformation into beliefs and behavioral patterns. According to House *et al.* (2004), the term culture is used by social scientists to refer to a set of parameters of collectives that differentiate each collective in a meaningful way.

Groeschl and Doherty (2000) argue that national culture consists of explicit and implicit elements. Most often, these elements are explained by terms such as behavior, values, norms, and basic assumptions. Some studies delve into the issue by addressing the importance of values as a crucial category in the national culture content (Gallivan *et al.*, 2005; Krumbholz, 2001). Values and practices are acquired in earlier stages of personal development through socialization and education and are more likely to remain stable; meanwhile, practices are driven by activities and are more likely to change (Gallivan *et al.*, 2005).

However, though defining the national culture is a difficult task, the biggest challenge

normally faced over the course of research is its assessment. A considerable number of scholars have made an attempt to measure national culture (e.g., Hofstede, 1980), which has led to different tools, such as the Rokeach Value Survey (Thompson, 1982), Bond's Chinese Value Survey (Bond, 1988) and the GLOBE Project (House *et al.*, 2004). Nonetheless, despite the huge variety of proposals offered in the literature, the most widespread approach to national culture assessment is presented by Hofstede (1980) and his cultural dimensions.

Hofstede's model includes five dimensions: power distance, uncertainty avoidance, individualism versus collectivism, long-term versus short-term orientation, and masculinity versus femininity. These dimensions are measured via a survey methodology aimed at obtaining average values of particular groups to assess national attributes of these people. This methodology allows for the development of an understanding of the cultural particularities of each group involved. Nevertheless, Hofstede's model has faced several relevant criticisms, particularly regarding its use of numerical measures instead of qualitative assessments (MacSweeney, 2002), the potentially insufficient number of variables under consideration (Schwartz & Bilsky, 1990), and the strongly Western-oriented outlook offered by Hofstede (Javidan *et al.*, 2006).

As an extension of Hofstede's efforts to quantify the measurement of national culture, the GLOBE study (House *et al.*, 2004) covers existing gaps detected in the academic discussion about cultural studies. GLOBE includes nine cultural dimensions across both current societal practices and values related to cultural settings: performance orientation, future orientation, gender egalitarianism, assertiveness, institutional collectivism, in-group collectivism, power distance, humane orientation, and uncertainty avoidance. Table 1 shows the similarities and differences between Hofstede's model and the GLOBE project in the measurement of national culture.

Table 1

Cultural dimensions: Differences and similarities between Hofstede's model and the GLOBE project

Hofstede's model	GLOBE project
1. Uncertainty avoidance	1. Uncertainty avoidance
2. Power distance	2. Power distance
3. Masculinity	3. Gender egalitarianism 4. Assertiveness
4. Collectivism	5. Institutional collectivism 6. In-group collectivism
5. Long-term orientation	7. Future orientation
	8. Performance orientation
	9. Human orientation

Source: Self-elaboration.

From the comparison between both ways of assessing national culture, several conclusions can be drawn. First, the dimensions of uncertainty avoidance and power distance are included in both frameworks. Second, Hofstede's dimension of masculinity corresponds to the two dimensions in the GLOBE study, i.e., gender egalitarianism and assertiveness. Third, Hofstede's collectivism is measured with two constructs in GLOBE, i.e., institutional collectivism and in-group collectivism. Fourth, Hofstede's long-term orientation is reflected in GLOBE's future orientation. Fifth, GLOBE includes two additional dimensions that are not covered by Hofstede – performance and humane orientation. Hofstede offers five culture scores versus the eighteen (the same nine variables expressed as practices and values) offered in GLOBE.

Hofstede's model and the GLOBE project constitute the basis of cross-cultural research, which examines the influence of national culture on both organizational practices and individual work behavior and perceptions. Both approaches provide a high added value for scholars across different disciplines because they present an empirical baseline with a multipurpose function.

3.2. National culture and organizational behavior: a special look at HEIs

Cultural differences and their impact on management practice at the national level have been highlighted in previous research (Hampden-Turner & Trompenars, 1997; Hickson & Pugh, 1995; Hofstede, 1980, 2001). The relationship between national culture and corporate strategies is underpinned by several studies that have found support for an identifiable impact of national culture on the strategic behavior conducted by organizations (Marino *et al.*, 2002; Tihanyi *et al.*, 2005). Prior studies note that because national culture is part of the external environment in which institutions operate, organizational behavior should be influenced by it (Dickson *et al.*, 2000). Furthermore, national culture may have an impact on the behavioral patterns developed by the personnel involved in an institution, and therefore national culture may influence organizational behavior in the same way as it does the values, norms, and beliefs that an individual brings into the organization (Sagiv & Schwartz, 2000).

National culture impacts the levels of entrepreneurship through the cultural values that are part of that society (Hofstede, 1980) and, at the same time, through the institutions that are representative of that culture (Ahlstrom & Bruton, 2002; Dickson, 2004). Several investigations have demonstrated interconnectedness between national culture and entrepreneurial activity, though a wide gap has been detected in the process of how culture impacts entrepreneurial behavior (Hayton *et al.*, 2002; Zahra *et al.*, 1999).

In the field of higher education, Becher and Trowler (2001) identify, based on a qualitative investigation, national particularities in the ways science is performed. Nevertheless, the homogenization of HEIs across nations may decrease the relevance of nationality for the role-specific values of academics (Turpin *et al.*, 2002; Vaira, 2004), and consequently, its impact on the behavior of HEIs. The challenge for HEIs consists not only of achieving the appropriate balance of these dimensions and responding to the external changes, but also of being able to foresee further alterations that will require a remodeling of internal processes and strategies to stay competitive.

Because we intend to contribute to cross-cultural research in the context of higher education, we contend that the modern university can be understood as an “educational enterprise” characterized by corporate-style executive leadership (Marginson & Considine, 2000). In this line, prior research shows that cultural dimensions have a significant impact on education expenditures and teacher-student ratios at different educational levels (Cheung & Chan, 2008). We now briefly revise, from a theoretical perspective; the impact of each cultural aspect gathered both by the Hofstede and GLOBE initiatives in the field of higher education.

Power distance

High-power distance cultures are characterized by an unequal distribution of power, strong hierarchies and control mechanisms, and low communication among organizational levels; these cultures also stress that subordinates are deferential and obedient to those in positions of power (Shane, 1993). Power distance may foster a hierarchy that acts as a barrier for students and staff to

express their ideas. The coercive authority of distinguished scientists could decrease students’ initiative, and thus teacher-centered learning is found more commonly in large power-distance societies (Hofstede, 2001). Conversely, an academic environment characterized by a creative atmosphere, with a free flow of ideas and knowledge, contributes to the achievement of goals and, consequently, positively shapes the image of the institution.

Uncertainty avoidance

Uncertainty avoidance can be either a positive or a negative characteristic. A high presence of uncertainty avoidance is characteristic of an institution that primarily relies on regulations and formal structures as a way of dealing with uncertainty and has a low tolerance for change (Mueller & Thomas, 2001). At university institutions, a prepared research staff and well-thought-out teaching processes are always considered to be a part of the success of these institutions. However, fearless searching for new methods and practices can bring great results and enhance innovation. Comprehension and consciousness about ongoing trends and demands in the educational market help universities to balance among uncertain avoidance biases.

Institutional collectivism

Societies with a high presence of individualism appreciate freedom and autonomy and estimate results as individual achievements, situating the interests of the individual over the interests of the group (Morris *et al.*, 1994). Equilibrium between individualism and collectivism should be highlighted from two aspects: the aspiration of the individual himself and the attitude toward each group member as a part of institution. In this framework, HEIs should demonstrate individual treatment toward students, thus identifying their needs and attitudes. At the same time, a flexible approach to individuals should be promoted with a different orientation on process organization, including a balance among individual and group tasks as well as individual and collective responsibility. A knowledge-creating company (a university could be considered as such a company), requires individual talents (Nonaka & Takeuchi, 1995) and, at the same time,

teamwork in which individuals can collaborate, sharing their knowledge and taking advantage of synergies (Nonaka, 1991). Several authors agree that the presence of high collectivism in a national culture has an impact on the propensity of academics to be involved in team research activities (Jackson *et al.*, 2003; Janz *et al.*, 2003; Nonaka & Konno, 1998).

Future orientation

Future orientation primarily determines the ability of HEIs to foresee future possibilities and to start working based on long-term and sustainable perspectives. Future orientation could be reflected in the introduction of new courses and programs, the balance between fundamental research and empirical studies, or the detection of new investigation trends. For short-term-oriented university organizations, it is crucial to provide an explanation to all staff and students (group members) about the importance of long-term results, and long-term-oriented institutions should understand the relevance of employing resources to fast-track projects with small-scale results. The organizational ability of adaptation towards changes and flexibility as a successful feature are crucial aspects of future orientation.

Gender aspects

Highly masculine cultures stress assertive and ostentatious behavior. Material goods and prestige are highly valued, so that individuals tend to exhibit a high need for achievement, and organizations tend to engage in competitive behaviors (McGrath *et al.*, 1992). Masculinity encourages the ambitions embodied in a competitive spirit, which is essential for HEIs as market actors that provide educational services. Therefore, university institutions should position themselves appropriately and promote an image that differentiates them from the others. Hofstede (1980) argues that firms that operate in masculine societies would be more willing than firms in feminine societies to undertake proactive strategies, conducted by the willingness of companies to interact with their external environment (Lumpkin & Dess, 2001). Contributing to this point of view, Knight (1997) argues that the emphasis on proactiveness is focused on the search for

environmental opportunities and achievement of an organization's goals. Regarding opportunities, Mitchell *et al.* (2004) notes the importance of culture and its fundamental role in explaining how organizations proactively discover, assess, and spread such opportunities. At the opposite end, organizations operating in feminine cultures are more likely to adopt a reactive, tolerant attitude in relation to their competition. These institutions are less willing to interact with their external environment. Hence, femininity is more internally oriented because it embodies caring and nurturing behavior that, in the context of HEIs, should be aimed at students and staff.

4. Influence of national culture on the internationalization of HEIs: Empirical investigation

4.1. Sample

The sample consisted of the 200 top worldwide universities according to the THES ranking. For each university, we gathered data to assess its average internationalization score. Moreover, taking into account the countries of origin of these universities, we collected information about a set of cultural dimensions at the national level, the national gross domestic product (GDP) per capita (expressed in the power parity standard), and the national education expenditures.

4.2. Measures

Internationalization

The variable of internationalization is included in our analysis as a dependent variable. Values of internationalization were obtained from the World University Ranking, which was published in THES. This ranking focuses on the 200 top-ranked universities. The variable of internationalization is measured through two non-subjective indicators: the percentage of international students and the percentage of international staff.

The degree of internationalization of each university is calculated as an average of both indicators. Because this ranking is published annually, we gathered information from the internationalization of universities for the past seven years (2004-2010). The degree of

internationalization of each university is calculated as an average of the indicators of internationalization in the last seven years.

Cultural factors

We attained scores for cultural practices of power distance, uncertainty avoidance, institutional collectivism, and future orientation from the work of House *et al.* (2004). We considered four out of the nine

cultural practices reported by the GLOBE project. Table 2 contains the definitions of each cultural factor under analysis in this study and a classification of the differences among societies with low and high levels of each cultural practice.

Table 2

Cultural dimensions: Conceptualization and characteristics

<p>Power distance measures the concentration and privileges of power and the effect of power on influence and interpersonal behaviors</p>	
<p>HIGH POWER DISTANCE societies have the following characteristics:</p> <ul style="list-style-type: none"> • Society is differentiated into classes. • Power is seen as providing social order. • Upward social mobility is limited. • Resources are available to only a few. • Information is localized and hoarded. 	<p>LOW POWER DISTANCE societies have the following characteristics:</p> <ul style="list-style-type: none"> • Society has a large middle class. • Power is linked to corruption and coercion. • Upward social mobility is common. • Resources are available to almost all. • Information is widely shared.
<p>Uncertainty avoidance is the extent to which a society, organization, or group relies on social norms, rules, and procedures to alleviate the unpredictability of future events.</p>	
<p>HIGH UNCERTAINTY AVOIDANCE societies have the following characteristics:</p> <ul style="list-style-type: none"> • Use formality in interactions with others. • Are orderly and keep meticulous records. • Rely on formalized policies and procedures. • Take moderate, carefully calculated risks. • Show a strong resistance to change. 	<p>LOW UNCERTAINTY AVOIDANCE societies have the following characteristics:</p> <ul style="list-style-type: none"> • Use informality in interactions with others. • Are less orderly and keep fewer records. • Rely on informal norms for most matters. • Are less calculating when taking risks. • Show only a moderate resistance to change.
<p>Future orientation is the degree to which a collectivity encourages and rewards future-oriented behaviors such as planning and delaying gratification.</p>	

<p>HIGH FUTURE ORIENTATION societies have the following characteristics:</p> <ul style="list-style-type: none"> • Propensity to save now for the future. • Emphasize working for long-term success. • Organizations tend to be flexible and adaptive. • View material success and spiritual fulfillment as an integrated whole. 	<p>LOW FUTURE ORIENTATION societies have the following characteristics:</p> <ul style="list-style-type: none"> • Propensity to spend now rather than save. • Prefer gratification as soon as possible. • Organizations tend to be inflexible and maladaptive. • View material success and spiritual fulfillment as separate, requiring trade-offs.
<p>Institutional collectivism is defined as the degree to which organizational and societal institutional practices encourage and reward the collective distribution of resources and collective action.</p>	
<p>HIGH INSTITUTIONAL COLLECTIVISM societies have the following characteristics:</p> <ul style="list-style-type: none"> • Members assume that they are highly interdependent with the organization. • Group loyalty is encouraged, even if this undermines the pursuit of individual goals. • The society's economic system tends to maximize the interests of collectives. • Rewards are driven by seniority, personal needs, and/or within-group equity. • Critical decisions are made by groups. 	<p>LOW INSTITUTIONAL COLLECTIVISM societies have the following characteristics:</p> <ul style="list-style-type: none"> • Members assume that they are largely independent of the organization. • Pursuit of individual goals is encouraged, even at the expense of group loyalty. • The society's economic system tends to maximize the interests of individuals. • Rewards are driven largely by an individual contribution to task success. • Critical decisions are made by individuals.

Source: Self-elaboration from http://www.tlu.ee/~sirvir/Leadership/Leadership%20Dimensions/globe_project.html Retrieved on December 2, 2011.

GDP per capita in purchasing power parity

This variable is included in our analysis as a control variable. While the GDP refers to the market value of all final goods and services produced within a country in a given period, GDP per capita (GDP p.c.) is often considered an indicator of a country’s standard of living. We consider the GDP p.c. expressed in purchasing power parity (PPP) to ensure that a certain amount of money has the same purchasing power in different countries to establish accurate comparisons across countries. Specifically, we considered this information for the period 2004-2010.

National education expenditures

This variable is included in our analysis as a control variable. It is measured as the amount of money (expressed in PPP) that is invested in education at the national level during a certain period of time. More concretely, we collected the information referring to the average national expenditures in education between 2004 and 2010.

4.3. Results

To test whether cultural practices exert a significant influence on the internationalization patterns of university institutions, we ran a hierarchical multiple linear regression analysis (Cohen & Cohen, 1983). Prior to the estimation of the model, we

checked the fulfillment of the implicit assumptions in this type of analysis, paying special attention to the issue of multicollinearity. Table 3 shows the information about correlations.

Table 3. Correlations

Variable	1	2	3	4	5	6	7
1. Internationalization of HEIs							
2. GDP p.c. in PPP	-.115 [†]						
3. National education expenditures	.289***	.304***					
4. Power distance	-.060	-.566***	-.475***				
5. Uncertainty avoidance	.352***	.465***	.776***	-.348***			
6. Institutional collectivism	.057	-.159*	.021	-.067	.179*		
7. Future orientation	.009	.554***	.488***	-.552***	.619***	.229***	

[†] $p < .10$

* $p < .05$

** $p < .01$

*** $p < .001$

Finally, Table 4 shows the model parameters for both steps in the hierarchy and the information about the adjustment of both models. Beyond this information, we checked that tolerance and VIFs presented no major problems of multicollinearity that could lead to misinterpretations of the model parameters. The first step (model 1) in our hierarchy consisted of including GDP p.c. in PPP and national education expenditures as control variables. Data reveal that both variables significantly influence a university's internationalization behavior. The second step (model 2) incorporated the national cultural practices as predictors.

Looking directly at model 2, which contains all the information, we can observe two things. On the one hand, the positive and significant influence of the control variables mentioned in model 1 holds. On the other hand, while three cultural practices, namely power distance, uncertainty avoidance, and future orientation, significantly predict the internationalization of a HEI, the cultural practice of institutional collectivism does not exert a significant influence. Put differently, those universities located at countries with lower levels of power distance, uncertainty avoidance, and future orientation are, on average, more internationalized.

Table 4

Parameter estimates^{a,b}

Variable	Model 1	Model 2
GDP p.c. in PPP	.223**	.466***
National education expenditures	.357***	.207**
Power distance		-.296**
Uncertainty avoidance		-.816***
Institutional collectivism		-.116
Future orientation		-.273**
R	.359	.538
R squared	.129	.289
Change in R squared	.129***	.161***
Adjusted R squared	.118	.262

a. Dependent variable: Internationalization of HEIs.

b. These coefficients correspond to standardized coefficients.

† $p < .10$

* $p < .05$

** $p < .01$

*** $p < .001$

5. Conclusions, limitations, and future research guidelines

In global and knowledge-based societies, an increasing emphasis has been placed on the internationalization of higher education. This paper seeks to investigate the relationship between cultural practices at the national level and the internationalization behavior of HEIs. When looking at rankings of HEIs, one observes that certain universities occupy higher positions and that these positions are maintained over the years. Is national culture a key feature of a more internationalized system of university institutions worldwide?

To address these questions, this work theoretically revises the conceptualization and assessment of two concepts, i.e., national culture and the internationalization of HEIs. Then, we undertake an empirical examination to analyze the influence of national culture on the internationalization patterns of the 200 top-ranked universities worldwide, according to the THES ranking. The results reveal that

those universities located in countries with lower levels of power distance, uncertainty avoidance, and future orientation are, on average, more internationalized, while the cultural practice of institutional collectivism does not have a significant influence on universities' internationalization behaviors.

Our results support that an academic environment characterized by low power distance, involves as a direct consequence a creative atmosphere, with a free flow of ideas and knowledge, contributes to the achievement of goals and, consequently, positively shapes the image of the institution. These aspects may strength the internationalization of such universities. Furthermore, low levels of uncertainty avoidance will foster the comprehension and consciousness about ongoing trends and demands in the educational market to help universities to be more active in their strategies of internationalization. In relation to institutional collectivism, there seems to not be a significant influence on the internationalization of university institutions.

This result is in line with prior literature stressing the need to achieve an appropriate balance between low and high levels of collectivism rather than fostering an orientation toward one of the extremes. Finally, data reveal a negative relationship between future orientation and the internationalization of higher education. While our findings may sound counterintuitive, we believe this result is due to the indicators used for the measurement of internationalization in the THES ranking, i.e., the proportion of international students and staff. Both indicators are short-term oriented, typical of the activity perspective (e.g., Green & Olson, 2003). If the measurement of the internationalization of higher education relied on more strategic aspects, such as those highlighted in the process definition of internationalization, e.g., involving changes in the syllabuses of the courses or the orientation of university strategies, then our result would probably be the opposite.

This paper represents a first approximation on the topic of internationalization and national culture in the context of higher education, and we are aware that it presents some limitations. The first limitation emerges from the sample under analysis, which is the 200 top-ranked universities worldwide. Thus, our conclusions may not be able to be directly extrapolated to other universities that are not so highly positioned. The second limitation emerges from the data sources employed for assessing internationalization, which are hampered by restricted indicators (i.e., the proportion of international students and staff) and the lack of attention paid to the international component. Finally, several areas for future research remain unresolved. First, provided the limitations in the measurement of internationalization by HERSs (Delgado-Márquez *et al.*, 2011), it would be interesting to develop a new set of indicators (e.g., indexes) reflecting in a more accurate way the relevance that internationalization should have in a context where university institutions are more and more open. Second, researchers may find it appealing to complement this study with a similar analysis including those HEIs that do not appear in the 200 top-ranked positions in the rankings to check the robustness and validity of our conclusions beyond the so-called “top-class universities”.

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Author Biographies

Dr. BLANCA L. DELGADO-MÁRQUEZ: PhD in Economics and Business, University of Granada. She is currently an assistant professor at the Department of International and Spanish Economics in the Faculty of Economics and Business at the University of Granada (Spain). Her research interests cover the analysis of internationalization processes in university institutions, and international institutional rankings of higher education institutions, among others. She has published in top tier research journals, such as *Revista de Universidad y Sociedad del Conocimiento*, *Cuadernos de Información Económica* (Economical Information Reports), *Papeles de Economía Española* (Spanish Economy Research Papers), and *Perspectivas del Sistema Financiero* (Financial System Perspectives).

Address: Department of International and Spanish Economics, Faculty of Economics and Business, University of Granada (Spain). Campus de Cartuja s/n, C. P. 18071, Granada (Spain). Phone: 0034 958241000 (Ext. 20325). E-mail address: bdelgado@ugr.es

DR. NURIA E HURTADO-TORRES: PhD in Business Administration and Economics, University of Granada. She is an associate professor at the University of Granada (Spain). Her research interests are focused on internationalization processes of organizations. She has published in top tier journals such as *Journal of Environmental Management* and *Journal of Organizational Change Management*, among others. She has been Coordinator for the Degree in Business Administration

in the School of Economics and Business and Secretary of the Department of Management at the University of Granada. She has participated in different research projects supported by the Spanish Ministry of Education analyzing how internationalization processes in business schools.

Address: Department of Business and Management, Faculty of Economics and Business, University of Granada (Spain). Campus de Cartuja s/n, C. P. 18071, Granada (Spain). Phone: 0034 958243708. E-mail address: nhurtado@ugr.es

YAROSLAVA BONDAR, MSc: MSc in Economics and Business, University of Granada. She is currently a PhD student in Economics and Management, University of Granada. Her research interests cover international rankings of higher education and internationalization processes of university institutions. She has published in journals such as *Revista de Universidad y Sociedad del Conocimiento*.

Address: Department of Business and Management, Faculty of Economics and Business, University of Granada (Spain). Campus de Cartuja s/n, C. P. 18071, Granada (Spain). E-mail address: yarinka@correo.ugr.es

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