Research agendas and culture: A new approach to analysing the academic profession in Asia and Europe

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Abstract

This paper investigates the research agendas of academics in Asia and Europe with reference to cultural differences between the two continents. Unlike studies on the influence of culture on research that focus on only one or a few countries, this study explores the relationship between cultural dimensions and research agendas at the continental level, across Europe and Asia. The study uses general linear modelling with interaction terms to identify how cultural dimensions influence research agendas and how their influence differs between Europe and Asia. Hofstede's cultural dimensions model and the Multidimensional Research Agendas Inventory-Revised scale are adopted in this study, as measures of cultural aspects and research agenda-setting, respectively. The results show that culture influences several aspects of research agenda-setting in both Asia and Europe, but these dynamics are not always identical across continents. These findings are relevant both for academics studying the cultural dynamics of science, and also for policy-makers who need to consider these cultural aspects while striving to promote specific research agendas.

Keywords: research agenda-setting; cultural dimensions; academics in Europe and Asia; Hofstede's cultural model

Introduction

Research agenda-setting is a dynamic process by which individual academics organise their research paths and academic career trajectories (Ertmer & Glazewski, 2014). Academics are dedicated to the production of knowledge, with research regarded as an integral part of academic life (Teichler & Cummings, 2015). Understanding the research agenda-setting process is necessary to explore the mechanism of research practices and academic career development of academics, boost research production, and more vitally, shed light on the daily routines of those in the academic profession (Ertmer & Glazewski, 2014; Luukkonen & Thomas, 2016). However, the research agendas of individual academics have received little attention in higher education studies. A few recent studies on this topic have focused on measurement instruments (Horta & Santos, 2020b) or the association between research agendas and factors such as the organisational characteristics of universities (Horta & Santos, 2020a). Academics use different strategies to formulate their research agendas based on their diverse experiences and exposure to various environments shaped by diverse cultures (Santos & Horta, 2018). Hofstede (2001) defined culture as 'the collective programming of the mind that separates members of one group or category of people from members of another' (p. 9). Given the power of culture to differentiate individuals, it is worth exploring whether and how cultural factors influence individual academics as they set their research agendas.

Studies have shown that the research practices of academics, their motivations to pursue research, their research interests, and even the changing landscape of higher education can be influenced by social and cultural factors (e.g., Englund et al., 2018; Niiniluoto, 2020). Links between research agendas and cultural factors ought to be examined closely to gain deeper insights into how academics from different cultural backgrounds construct knowledge. The continents of Europe and Asia are geographically adjacent and have similarly longstanding civilizations, and higher education systems in

both continents are currently undergoing significant restructuring to enhance their global competitiveness (Deem et al., 2008). Despite these similarities, however, academics in Asia and Europe behave in very different ways, due to the vast social and cultural differences between the two continents (Englund et al., 2018). This exploratory study treats Europe and Asia solely as geographical and cultural entities; it does not consider power dynamics or other theoretical perspectives on international relations (Chow & de Kloet, 2014). The purpose is to examine and compare the association between culture and research agendas among academics in Europe and Asia. Hofstede's cultural dimensions model (Hofstede, 2001) and the Multi-Dimensional Research Agenda Inventory–Revised (MDRAI-R) (Horta & Santos, 2020b) are used to explore the following research questions:

Are cultural dimensions associated with academics' research agenda-setting? If so, in what ways are they related? How does this relationship differ between Asia and Europe?

Literature Review

Cultural Disparities between Europe and Asia in Higher Education

Cultures vary across countries. Culture shapes the process of socialisation, through which individuals acquire knowledge and skills (Hofstede, 2001). Although the continents of Europe and Asia are geographically adjacent, together forming Eurasia, their cultures and conventions differ greatly. Higher education systems in Europe and Asia are shaped by the continents' respective cultural characteristics, which have a far-reaching influence on the research production activities and behaviour of academics (e.g., topic selection, intellectual interests, career choices) (Kwiek, 2016; Shin et al., 2014). This study adopts the modern geographical definitions of Europe (subdivided into Central and Eastern Europe, Northern Europe, Southern Europe, and Western Europe) and Asia (subdivided into Central Asia, East Asia, South Asia, Southeast Asia, and West Asia).

Europe was one of the breeding grounds for modern research universities. In the 18th century, the Humboldt University of Berlin, Germany was among the first to recognise research as an integral part of academic life (Moore, 2019), representing a milestone in the development of modern higher education. In the post-World War II era, the role of European universities underwent a transition to help achieve economic and social development objectives (Ranga & Etzkowitz, 2013). Western European higher education institutions spearheaded engagement in intensified global competition under pressure from new social demands arising from the widespread trend of neo-liberalism, followed by Southern Europe and other regions from the 1990s (Capano & Pritoni, 2020). These social and economic forces promoted the modernisation of Europe's higher education systems, emphasising the need for comparable degrees and an academic labour force capable of achieving multiple levels of proficiency in a short period (Moscati, 1988). For example, the number of doctorate holders in European countries has steadily increased in recent years (Santos et al., 2016). Since the Bologna declaration was signed in 1999, European nations – including post-socialist Central and Eastern European countries – have increasingly converged on standardised organisational patterns and procedures in higher education (Noelke et al., 2012).

Although academic freedom and individuality are still championed in Europe (Capano & Pritoni, 2020), academics' freedom has been threatened in recent years by uncertainties over acquiring research funding, which has led academics to pursue more conservative research to secure even the most precarious post-doctoral positions (Miller & Feldman, 2014). Meanwhile, the implementation of

impact-focused evaluation schemes has created perverse incentives to 'game' performance indicators, potentially further curtailing academic freedom (Gunn & Mintrom, 2016; Martin, 2011). Despite the availability of some centralised funding opportunities, the academic profession in Europe is increasingly perceived as highly precarious (Lempiäinen, 2015). How this will affect academia in the coming years remains to be seen.

Historically, Asia has lagged behind Europe in the development of higher education (Mok, 2011). In Asia, the growth of higher education has long been shaped by a cultural legacy of rigid hierarchies and male dominance, a preference for social conduct that exercises restraint, and values prioritising collectivism and public well-being (Collins & Bethke, 2017; Marginson, 2011). This cultural legacy derives from the inheritance of longstanding Asian value systems such as Confucianism, Buddhism, Daoism, and Islam. A typical higher education model prevailing in Asia is the 'Confucian model', which came into being in the late 20th century and represents the cultural and regional features of higher education in Asian, especially East and Southeast Asian, countries and regions, such as China, Hong Kong, Korea, Macau, Singapore, and Taiwan. The Confucian model is characterised by a strong nation-state structure, advocacy for universal tertiary education, the adoption of standardised national examinations for university entry, extensive investment in research, and the objective of establishing globally recognised universities (Marginson, 2011). Alongside their Asian cultural heritage, Asian countries have also begun to adopt Western values (Collins & Bethke, 2017; Isaacs, 2014; Stankov, 2010). With increasing East–West exchange, Western values contrasting with traditional Asian values, such as feminism and individualism, have been introduced to and spread throughout the continent (Collins & Bethke, 2017).

Recently, with the spread of neo-liberal ideas around the globe, internationalisation and massification have become common trends in higher education (Galloway et al., 2020). 'High achievers' in Asian higher education, such as countries in Central Asia, South Asia, and Southeast Asia and economically prosperous West Asian countries (mostly those on the Arabian Peninsula), are striving to promote the development of higher education to align with global pathways and gain entry to the global academic arena (Acedo, 2011; Chatterjee & Barber, 2021; Ng, 2012). A 'catching up' mentality and work ethic are prevalent in Asian countries, where academics commit more time to their professional lives than their international peers do (Collins & Bethke, 2017; Yonezawa et al., 2017). Moreover, international mobility and overseas studies have become increasingly common trends in Asia (Lin, 2020).

Hofstede's Six Cultural Dimensions

'Culture', in general, refers to the products of human creativity, inheritance, and development, which are manifested in many ways within a country, such as in values, social standards, and history (Chow & de Kloet, 2014). Cultural learning and transmission affect people's worldviews and understandings and can also have an impact on their communication and cognitive skills, therefore influencing individuals' decision-making and conduct. Academics have carried out comprehensive analyses and comparisons of cultures (e.g., Chow & de Kloet, 2014). The six cultural dimensions proposed by Hofstede (Hofstede, 2001; Hofstede et al., 2010) have been used as an analytical framework in many disciplines, including management and public affairs. A novel approach to the cross-cultural analysis of broad cultural settings has been made possible by Hofstede's framework (da Costa & Spear, 2020). The six cultural dimensions proposed by Hofstede are *power distance*, *uncertainty avoidance*, *individualism and collectivism*, *masculinity and femininity*, *long-term and short-term orientation*, and

indulgence versus restraint (Minkov & Hofstede, 2014). *Power distance* reflects the perception of inequities in power distribution within institutions or organisations by individuals in a country (Hofstede, 2001). *Uncertainty avoidance* refers to the degree to which people in a given country are troubled by the state of being uncertain and the actions that they take to prevent such uncertainty from arising (Hofstede, 2001). The cultural dimension of *individualism and collectivism* describes the relationship between the individual and the collective that prevails within a society, based on the extent to which people are concerned about individual vs collective interests (Hofstede, 2001). The *masculinity and femininity* index indicates the degree of masculine and feminine qualities present in society (Hofstede, 2001), and relates to societal norms surrounding gender roles, family life, education, behaviour in intimate relationships, and many others. *Long-term and short-term orientation* stands for the degree to which people in a given society emphasise future perspectives over more immediate ones (Hofstede, 2001). The last dimension, *indulgence versus restraints*, is defined as follows. '*Indulgence* stands for a tendency to allow relatively free gratification of basic and natural human desires related to enjoying life and having fun. Its opposite pole, *restraint*, reflects a conviction that such gratification needs to be curbed and regulated by strict social norms' (Hofstede et al., 2010, p. 281).

Hofstede's cultural dimensions model is frequently used in business and other fields, but its inherent limitations must be considered. First, cultures evolve, and a model developed from data obtained years ago may now be out of date. Second, a recent survey of cultural dimensions gathered data from 93 countries/regions, assuming that countries and geographical regions are adequate boundaries for specifying cultures (Gallego-Álvarez & Pucheta-Martínez, 2021). However, some cultural settings within a country/region, such as those in Hong Kong, Macau, and mainland China, showed both convergences and divergences, and the nuances cannot be presented comprehensively by Hofstede's framework. Third, Hofstede's data were gathered through a values survey, but values cannot entirely represent or be equated with culture (da Costa & Spear, 2020). Despite these limitations, the six cultural dimensions outlined in the model are closely associated with the scholarly routines of academics (Hofstede, 2001), and no alternative model incorporates data from all nations in Europe and Asia. We, therefore, adopt Hofstede's cultural dimensions model for our research. To overcome inaccuracies in individual country data, this study examines the connections between cultural dimensions and research agendas at the continental level in Europe and Asia.

Individual strategic research agendas have been shown to determine several aspects of researcher activity (e.g., productivity; see Santos et al., 2022) but also to be influenced by contextual and endogenous factors, including gender (Santos et al., 2021) and cognition (Santos et al., 2020). It thus stands to reason that the cultural dimensions are likely to influence how an individual sets their research agenda; however, to the best of our knowledge, no studies have examined this relationship. As such, we perform an exploratory assessment of how cultural dynamics influence research agendas and how this influence differs by continent, using the Multidimensional Research Agendas Inventory-Revised scale (MDRAI-R; Horta & Santos, 2020b). This framework comprises eight dimensions representing distinct aspects of strategic agenda-setting, and it is to the best of our knowledge the only framework tailored to evaluate the specificity of research agendas. Understanding the links between culture and research agendas is important given how much these agendas shape researchers' work and careers.

Method

Participants

The participants for this study were recruited in the following manner. From June 2017 to August 2018, searches were conducted on the Scopus database to identify corresponding authors who had published papers in any field between 2010 and 2016. As searches in Scopus yield only the first 2,000 matches for any given search string, the results were sorted in multiple ways – default sorting, most relevant, least relevant, and highest cited – to obtain the maximum number of matches. Sorting options beyond these began to yield duplicates, so no further strategies were adopted. This yielded 915,447 corresponding authors.

The identified authors were invited by email to complete a survey on an online platform. The invitations were sent in batches from June 2017 to August 2018. Each invitation included a description of the project, the survey link, and an opt-out link. Accepting the invitation took the participant to an informed consent form, to which they were required to agree before proceeding with the survey.

A total of 21,016 individuals agreed to participate. However, not all of them completed the survey, which took roughly 30 minutes to complete; participants dropped out at various points throughout the survey due to its length. The survey, which was administered in Survey Monkey, contained questions on demographics, employment data, the instruments used in this study, and other items intended for analyses beyond those reported here. As the generated dataset was built with various analyses in mind, the effective sample size varied depending on the variables used. For this exercise, which compared only European and Asian countries, the effective sample size was 6,906 participants.

Approximately two thirds of the effective sample were men (N = 4,667; 67.6%) and the remaining one third were women (N = 2,239; 32.4%), with a mean age of 48 (M = 47.98; SD = 11.60). European countries were the most well represented (N = 5,358; 77.6%), with the remaining participants being from Asian countries (N = 1,548; 22.4%). In terms of regional distribution, the Asian group comprised 371 women (24%) and 1,177 men (76%) and the European group comprised 1,868 women (34.9%) and 3,490 men (65.1%). None of the participants reported a non-binary gender. The mean age of the Asian participants was 45 (SD = 10.88) and that of the European participants was 49 (SD = 11.73). The participants hailed from a broad range of fields: natural and agricultural sciences (N = 1,988; 28.8%), engineering and technology (N = 1,711; 24.8%), medical and health sciences (N = 1,523; 22.1%), social sciences (N = 1,487; 21.5%), and humanities (N = 197, 2.9%). Appendix A provides the country-level descriptive statistics.

Variables

The control variables were Gender, a dummy variable indicating the participant's gender (with 'male' as the reference category); Age, a continuous variable indicating the participant's age; Field of Science (FOS), a categorical variable indicating the field of the participant's PhD, according to the classification schema of the OECD (with 'social sciences' as the reference category and 'agricultural sciences' merged with natural sciences due to the low representation of agricultural sciences in the sample); and Non-Research-Oriented University, a dummy variable indicating whether the participant's institution was ranked in the top 500 on the 2020 Shanghai World University Ranking (with 'ranked' as the reference category).

The first independent variable of interest was Region, a dummy variable indicating whether the participant's working country at the time of the survey was in Europe or Asia (with 'Europe' as the

reference category). This classification was based on geographical location, with trans-continental countries classified based on the region with which they had the greatest cultural and political affinity (for example, Turkey has the bulk of its landmass in Asia but was classified as Europe because it is a historical partner of the European Union's and accession negotiations have been ongoing since 2005). The next variables of interest were scores for the six dimensions in Hofstede's cultural dimensions framework (Hofstede, 2011): power distance, individualism, masculinity, uncertainty avoidance, long-term orientation, and indulgence. These scores were attributed to the participants based on the official scores presented on the Hofstede Insights website for their working countries (Hofstede Insights, 2021).

The dependent variables were the various top-level dimensions in the MDRAI-R: Scientific Ambition, Divergence, Discovery, Tolerance of Low Funding, Collaboration, Mentor Influence, Academia-driven, and Society-driven. Table 1 summarises these constructs.

Table 1: Dimensions of the MDRAI-R

Dimension	*Definition*
Scientific ambition	Desire to acquire recognition and academic prestige in a given field. Being motivated and driven by the desire to publish scientific articles.
Divergence	Desire to expand to other fields of study or topics. Preference for working in multidisciplinary research ventures.
Discovery	Preference for working in fields or on topics with the potential to lead to scientific discovery.
Tolerance of low funding	Willingness to work in fields or on topics for which research funding is scarce.
Collaboration	Desire to engage in collaborative scientific ventures. Having the opportunity and receiving invitations to participate in collaborative scientific ventures.
Mentor influence	Degree of influence of the researcher's mentor (PhD or otherwise) over the researcher's work.
Academia-driven	Extent to which the research agenda is influenced by the scientific priorities determined by consensus in the field. Propensity to align research agenda with research strategy targets of home institution.
Society-driven	Consideration of societal challenges in the research agenda. Influence and participation of laymen and non-experts in the design of the research agenda.

Note: adapted from Santos, Horta, & Zhang (2020).

The MDRAI-R scale was validated in a previous study and found to have excellent psychometric properties in terms of validity, reliability, and sensitivity (Horta & Santos, 2020b). For robustness, we calculated Cronbach's alpha values for the scale in the working sample, as shown in Table 2. All of the values met the proposed threshold (Hair et al., 2014), confirming the reliability of the scale.

Table 2: Cronbach's alpha for MDRAI-R dimensions

Dimension	*Alpha*
Scientific ambition	0.840
Divergence	0.838
Discovery	0.778
Tolerance of low funding	0.839
Collaboration	0.798
Mentor influence	0.931
Academia-driven	0.718
Society-driven	0.855

Procedure

A general linear model (Hair et al., 2014) was specified using the aforementioned variables. Additionally, as the goal of this exercise was to compare the dynamics between Europe and Asia, a two-way interaction term was added between each of the Hofstede dimensions and the region variable. This allowed us to identify whether the cultural effects for each specific dimension operated differently in the two regions. As interpreting interaction terms is usually not very intuitive from regression tables alone, visualisations are provided in the results section.[1] These visualisations were produced using the ggplot2, interactions, and ggpubr R libraries. Given the large number of variables, plots are shown only for the most significant interactions; those that are not shown can be assumed to have had no effect or similar effects between regions, as documented in the results section.

Results

This section reports the findings of this study. Although several effects on the research agenda dimensions were found for the control variables (specifically, Gender, Age, and Field of Science), we do not focus on these because they have already been explored in other works using similar or identical controls (e.g., Horta & Santos, 2020a; Santos et al., 2020, 2021) and for the sake of parsimony, as the remainder of the analysis is quite extensive. Table 3 summarises our findings. To aid comprehension, the remainder of this section is divided into several sub-sections, one for each dependent variable, and graphical representations are provided for significant interactions.

Table 3: Effects of control variables and Hofstede dimensions on research agendas

Variable	Ambiti.	Diverg.	Collab.	Mentor	TOLF	Discov.	Acade.	Socie.

[1] An interaction plot is a line graph that reveals the presence or absence of interactions among independent variables.

Gender (Female)	-0.077**	0.053*	-0.015	0.081*	-0.206***	-0.092***	0.192***	0.155***
	(0.025)	(0.024)	(0.022)	(0.037)	(0.033)	(0.024)	(0.026)	(0.027)
Age	-0.010***	-0.007***	0.002	-0.028***	0.018***	0.006***	-0.012***	0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
FOS (Natural & Agricultural Sciences)	0.024	-0.054	0.285***	0.186	-0.590***	-0.175**	0.300***	-0.474***
	(0.069)	(0.067)	(0.061)	(0.102)	(0.093)	(0.068)	(0.074)	(0.077)
FOS (Engineering & Technology)	-0.073	0.094	0.212***	0.350***	-0.543***	-0.086	0.449***	0.035
	(0.069)	(0.068)	(0.061)	(0.103)	(0.094)	(0.068)	(0.074)	(0.077)
FOS (Medical & Health Sciences)	-0.001	-0.028	0.360***	0.404***	-0.673***	-0.218***	0.501***	0.008
	(0.070)	(0.068)	(0.061)	(0.103)	(0.094)	(0.068)	(0.074)	(0.077)
FOS (Humanities)	0.047	-0.064	0.283***	0.142	-0.212*	-0.140*	0.189*	0.229**
	(0.070)	(0.068)	(0.061)	(0.103)	(0.094)	(0.068)	(0.074)	(0.078)
Non-Research Oriented Uni.	-0.065	0.003	-0.017	0.124*	-0.009	-0.058	0.164***	0.160***
	(0.035)	(0.034)	(0.031)	(0.052)	(0.047)	(0.034)	(0.037)	(0.039)
Region (Asia)	-0.056	-0.131	0.074	0.797**	0.331	-0.010	0.378*	0.517**
	(0.173)	(0.168)	(0.153)	(0.257)	(0.234)	(0.170)	(0.185)	(0.193)
Power Distance	0.004***	0.000	-0.001	0.006***	0.002	-0.002	0.004**	0.005***
	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)
Individualism	-0.002	-0.003**	0.001	-0.005***	-0.006***	-0.001	-0.002	0.000
	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)
Masculinity	0.001	0.000	0.001	0.003**	0.004***	0.001	-0.001	0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Uncertainty Avoidance	-0.005***	-0.000	0.001	-0.004**	0.000	0.001	-0.003***	-0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Long-Term Orientation	-0.002	-0.000	-0.003***	-0.000	0.003**	0.001	0.002*	-0.004***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Indulgence	0.001	0.001	0.004***	-0.005**	-0.001	0.003**	-0.001	0.003*
	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)
Region (Asia) × Power Distance	0.001	0.003	0.003	-0.002	0.004	0.006**	0.004*	0.003
	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)	(0.002)	(0.002)	(0.002)
Region (Asia) × Individualism	0.003	0.002	-0.004	-0.005	0.008*	0.008***	-0.006*	0.000
	(0.002)	(0.002)	(0.002)	(0.004)	(0.003)	(0.002)	(0.003)	(0.003)
Region (Asia) × Masculinity	-0.006*	-0.001	-0.001	-0.005	-0.010**	-0.005	-0.004	-0.003
	(0.002)	(0.002)	(0.002)	(0.004)	(0.003)	(0.002)	(0.003)	(0.003)

Region (Asia) × Uncertainty Avoidance	0.006***	-0.001	0.001	0.003	0.001	-0.002	0.000	-0.003
	(0.002)	(0.002)	(0.001)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Region (Asia) × Long-Term Orientation	0.001	-0.001	-0.001	-0.005*	-0.005*	0.000	-0.005**	0.002
	(0.002)	(0.002)	(0.001)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Region (Asia) × Indulgence	-0.001	-0.001	-0.002	0.003	-0.001	-0.005*	0.002	-0.005*
	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)	(0.002)	(0.002)	(0.002)

Notes: *** p < 0.001; ** p < 0.01; * p < 0.05. FOS = field of science. The reference category for region is Europe. Unstandardized regression coefficients are shown, with standard errors in parenthesis.

Ambition

Two main effects were found for the Hofstede dimensions: power distance was significantly associated with increased levels of scientific ambition (B = 0.004, p < .001) and uncertainty avoidance with lower scientific ambition (B = -0.005, p < .001). Although the interaction term was non-significant for power distance, indicating a similar effect in Europe and Asia, the interaction term for uncertainty avoidance was statistically significant with a positive coefficient (B = 0.006, p < .001), indicating that the effect was reversed in Asia; indeed, Figure 1 reveals that for Asia, the regression slope is nearly flat, suggesting that uncertainty avoidance has at most a negligible effect on ambition in Asia. A significant interaction effect was also found for masculinity (B = -0.006, p < .05). The absence of a significant main effect indicated that masculinity had no effect on ambition in Europe but might have had an effect in Asia. This was confirmed by the graphical analysis, with the negative slope showing that higher levels of masculinity were associated with lower levels of ambition in Asia only.

Figure 1. Moderation plots for the significant interaction terms with Ambition as the dependent variable. Shaded areas indicate 95% confidence intervals.

Divergence

A single main effect was found for divergence: individualism was associated with lower levels of divergence (B = -0.003, p < .01) with no corresponding interaction term, indicating that the effect was present in both Europe and Asia. This aspect of research agendas does not seem to be greatly influenced by cultural factors.

Collaboration

Collaborative agendas were associated with two cultural dimensions: long-term orientation was related to lower levels of collaboration (B = -0.003, p < .001) and indulgence was related to higher levels of collaboration (B = 0.004, p < .001). Again, the corresponding interaction terms showed no significant effects, indicating that this effect was geographically consistent.

Mentor Influence

Several interesting effects were found for mentor influence, suggesting that this aspect of research agendas is highly culturally sensitive. Power distance was associated with higher levels of mentor influence (B = 0.006, p < .001), as was masculinity (B = 0.003, p < .01). Furthermore, three cultural dimensions showed a negative relationship with mentor influence: individualism (B = -0.005, p < .001), uncertainty avoidance (B = -0.004, p < .01), and indulgence (B = -0.005, p <.01). The Region (Asia) dummy variable had a significant effect (B = 0.797, p < .01), indicating higher levels of mentor influence in Asia than in Europe. Finally, a significant interaction term was found for long-term orientation (B = -0.005, p < .05), but without a corresponding main effect. This suggests that there is no association between long-term orientation and mentor influence in Europe. However, the graphical analysis (Figure 2) revealed a negative slope for Asia, suggesting that long-term orientation is associated with lower levels of mentor influence in that region.

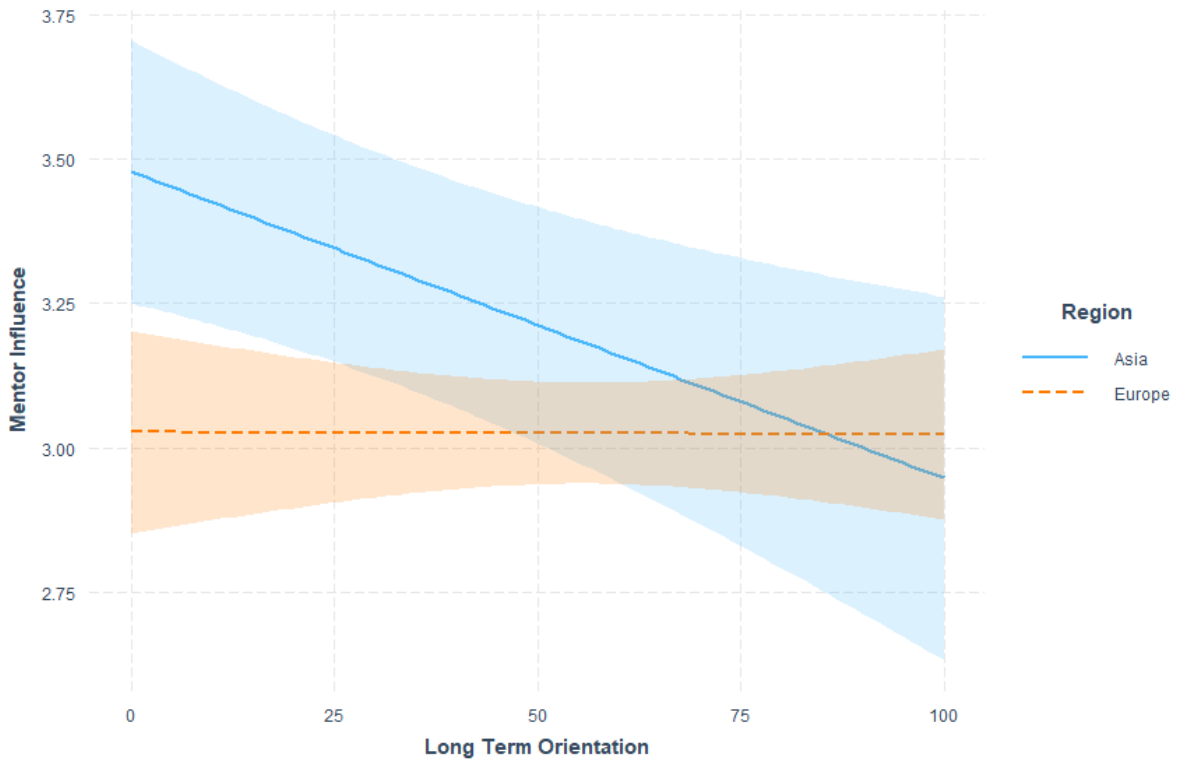

Figure 2. Moderation plots for the significant interaction term with Mentor Influence as the dependent variable. Shaded areas indicate 95% confidence intervals.

Tolerance of Low Funding

Several effects were also found regarding tolerance of low funding. First, individualism was negatively associated with tolerance of low funding (B = -0.006, p < .001), but the significant positive corresponding interaction term suggested that this effect is attenuated in Asia (vs Europe). Second, a significant positive effect was found for masculinity (B = 0.004, p < .001), with a significant negative interaction term (B = -0.010, p < .01) suggesting that this effect is reversed in Asia when compared to Europe. Third, long-term orientation (B = 0.003, p < .01) was associated with higher tolerance of low funding but again with a significant and negative interaction term (B = -0.005, p < .05), indicating the attenuation of this effect in Asia. An analysis of the interaction plots (Figure 3) confirms these results, with the effects of the Hofstede dimensions – most obviously masculinity – reversed for each region.

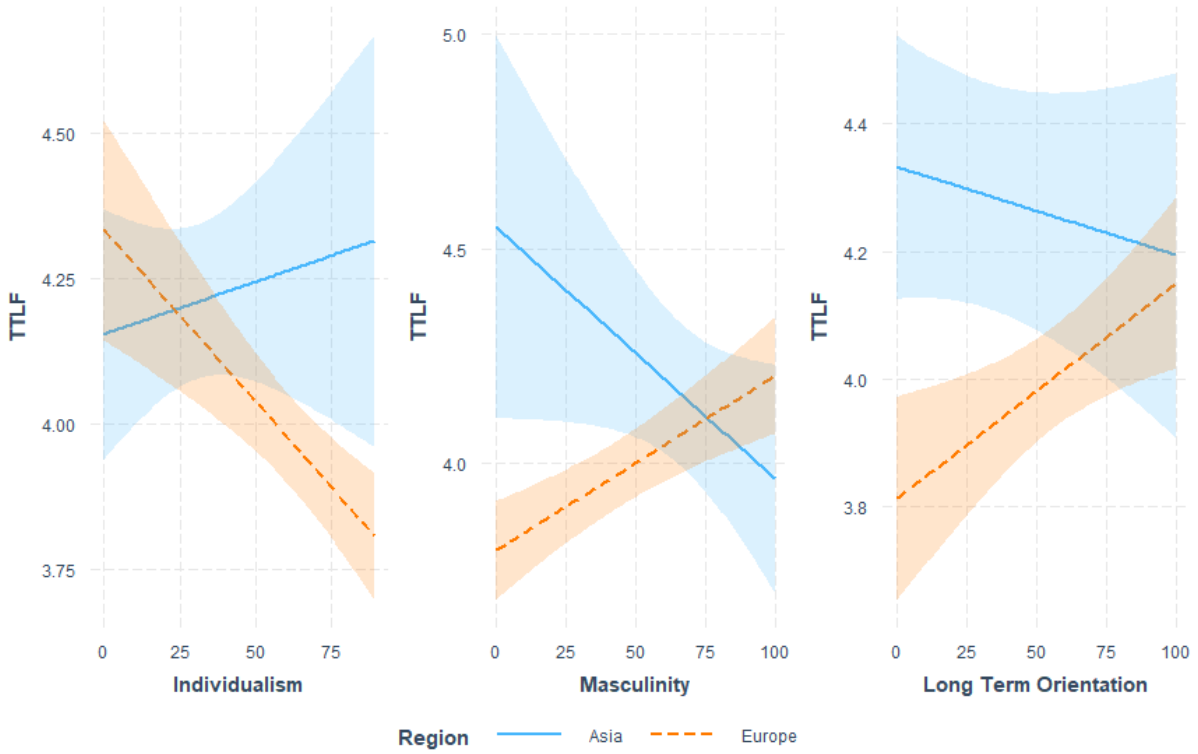

Figure 3. Moderation plots for the significant interaction terms with Tolerance of Low Funding as the dependent variable. TOLF = tolerance of low funding. Shaded areas indicate 95% confidence intervals.

Discovery

The only significant main effect found for discovery was with indulgence, which was associated with higher levels of discovery (B = 0.003, $p < .01$). The corresponding interaction term was also significant in a negative direction, which again suggests a reversal of the effect between continents (B = -0.005, $p < .05$). Two other significant interaction terms were found without a corresponding significant main effect, suggesting Asia-specific effects for power distance (B = 0.006, $p < .01$) and individualism (B = 0.008, $p < .001$). The graphical analysis (Figure 4) confirmed these results. For indulgence, the effect was reversed. For individualism and power distance, there were flat regression slopes for Europe, indicating a non-significant main effect, as expected, but there were notably positive slopes for Asia, suggesting that individualism and power distance are associated with higher levels of discovery in Asia only.

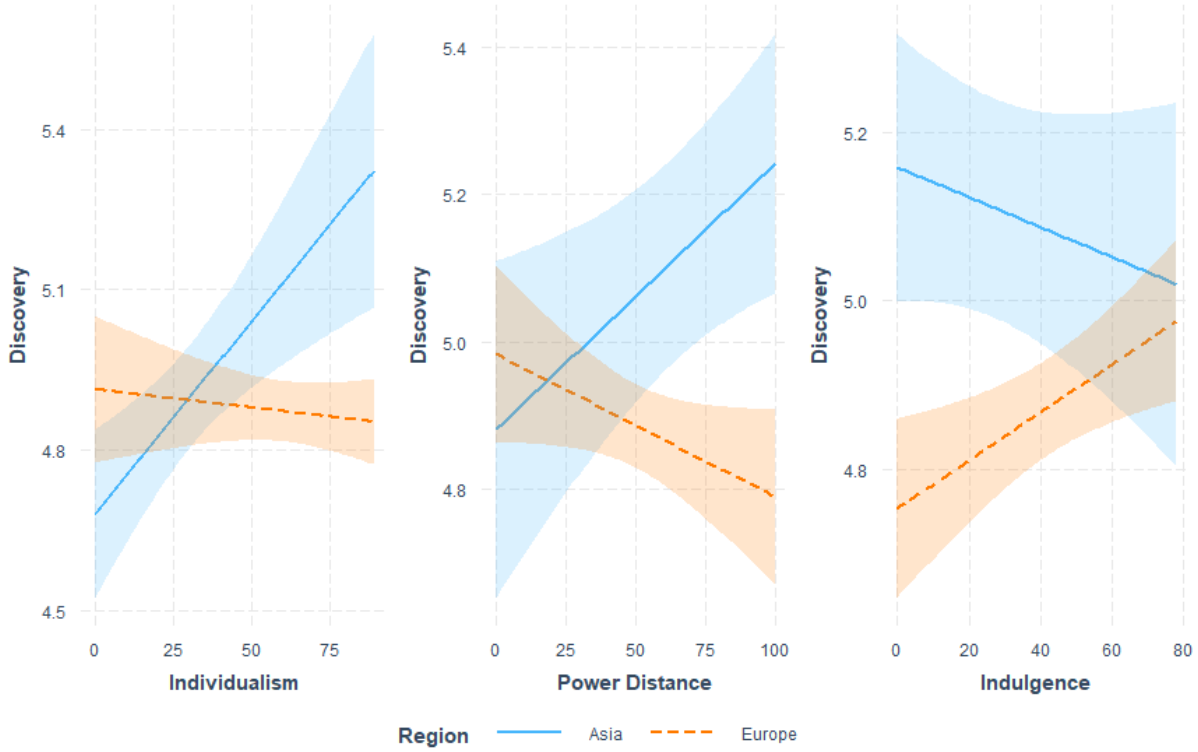

Figure 4. Moderation plots for the significant interaction terms with Discovery as the dependent variable. Shaded areas indicate 95% confidence intervals.

Academia-Driven

Power distance was associated with higher levels of academia-driven agendas (B = 0.004, p < .01), with a corresponding significant and positive interaction term indicating a stronger effect in Asia (B = 0.004, p < .05). However, the graphical analysis (Figure 5) indicates that Asia begins at much lower levels of academia-driven research agendas as a function of power distance compared with Europe, such that even with the enhanced effect of power distance, Asia only surpasses Europe in academia-driven agendas at the highest levels of power distance This applies specifically to the levels of academia-driven agendas as a function of power distance, as Asia showed higher levels of academia-driven agendas than Europe overall, as shown by the significant relationship with the dummy region variable (B = 0.378, p < .05). Uncertainty avoidance was associated with a lower degree of academia-driven agendas (B = -0.003, p < .001) without a corresponding significant interaction term, suggesting a consistent association in both regions. Long-term orientation had a positive relationship with academia-driven agendas (B = 0.002, p < .05), but in this case the interaction term was also significant but negative (B = -0.005, p < .01), indicating an attenuation of the effect in Asia. An interaction term without a corresponding main effect was also found with individualism (B = -0.006, p < .05). The graphical analysis (Figure 5) reveals a region-specific association, with a negative slope for Asia, suggesting lower levels of academia-driven agendas with increased individualism, and a flat slope for Europe, indicating a marginal or non-significant association for this continent.

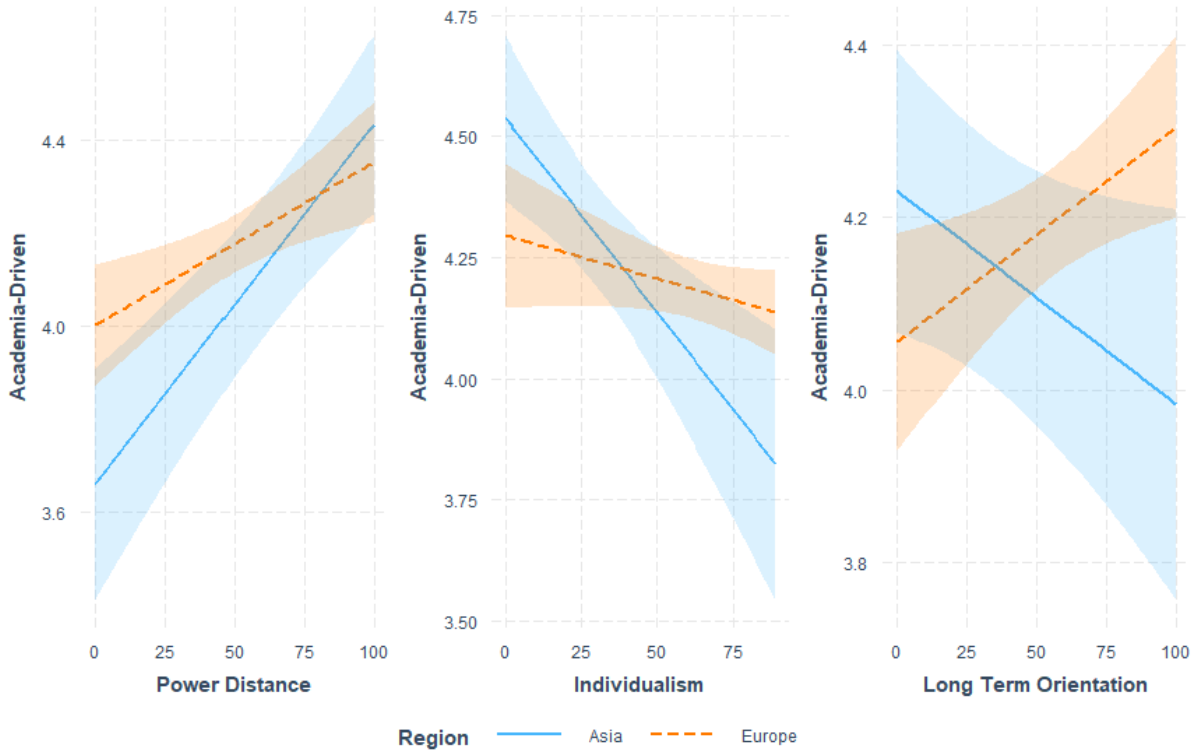

Figure 5. Moderation plots for the significant interaction terms with Academia-driven agendas as the dependent variable. Shaded areas indicate 95% confidence intervals.

Society-Driven

Power distance was positively associated with society-driven research agendas (B = 0.005, p < .001). A non-significant interaction term was found, indicating that this relationship was consistent across continents. Long-term orientation was negatively associated with society-driven agendas (B = -0.004, p < .001), again without a significant interaction term. Finally, indulgence had a positive effect on society-driven agendas (B = 0.003, p < .05), with a corresponding significant but negative interaction term (B = -0.005, p < .05), indicating an attenuation of this effect in Asia. Graphical analysis (Figure 6) confirmed that in Asia, the effect of indulgence on society-driven agendas was negligible.

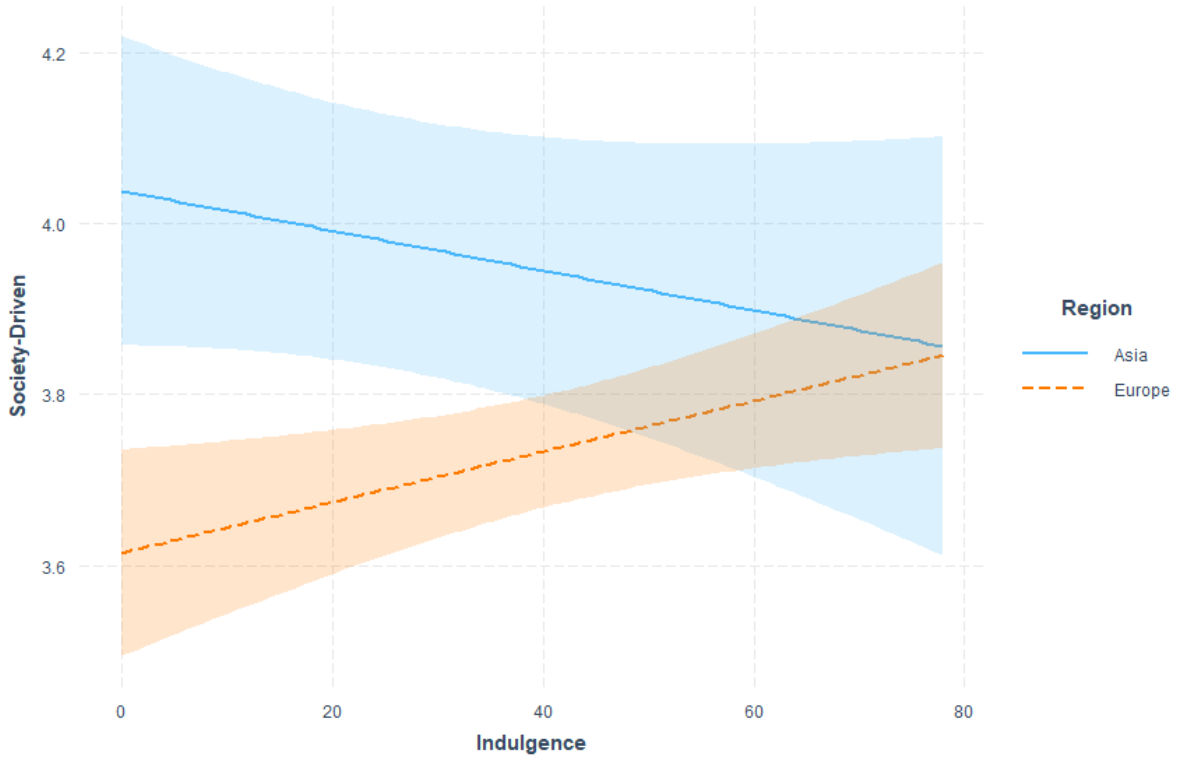

Figure 6. Moderation plots for the significant interaction term with society-driven as the dependent variable). Shaded areas indicate 95% confidence intervals.

Discussion

The findings of this study suggest a close association between culture and research agenda-setting in Asia and Europe. Our examination of how Hofstede's cultural dimensions apply to the research agendas of academics on the two continents revealed that six research agenda strategy dimensions – scientific ambition, mentor influence, tolerance of low funding, discovery, academia-driven agendas, and society-driven agendas – were particularly closely associated with the six cultural dimensions. The research agenda-setting dimension of collaboration was also related to culture, albeit to a lesser degree. Divergence, however, appeared not to be significantly influenced by cultural factors.

Scientific ambition was positively correlated with power distance. Amid the global rise of academic capitalism and academic entrepreneurialism (Kwiek, 2013; Lucas, 2006; Tang, 2014), the intellectual ambitions of academics in both Europe and Asia are intensifying within the rigid hierarchical systems of most universities (Hertig, 2016; Mok, 2015). Knowledge governance is tied to strategic planning and entrepreneurial competition for international university rankings (Erkkilä & Piironen, 2018). Academics' perceptions of agency in shaping their careers are greatly affected by how they interact with organisational structures (see Brew et al., 2018), requiring them to enter into a 'power game' to survive. Academics are facing more stringent quality assurance requirements and emphasis on the global impact of their work (Hollywood et al., 2020; Kwiek, 2019). Cultural issues related to power distance in organisational settings appear to affect the extent to which research agendas are geared toward global competition for university rankings and publishing success. However, we found that scientific ambition was negatively associated with uncertainty avoidance. This result is in line with the changing environment of academia, as the tightening of systems for measuring, reviewing, and

managing academic performance encourages competitive dynamics and uncertainty management (including avoiding uncertainty) (Pucciarelli & Kaplan, 2016; Sirat, 2010). With researchers at all stages of their careers struggling to predict how productive their research processes will be (Fochler & Sigl, 2018), the range of academic choices is limited by uncertainty. The findings further indicate that in Asia, masculinity is associated with scientific ambition. Most Asian societies are characterised by masculine dominance, both within and outside academia. Female academics in Asia are less willing than their male counterparts to assume leadership roles within universities (Morley & Crossouard, 2016; Tang, 2019).

Power distance and masculinity had positive associations with mentor influence. Negative associations were found between mentor influence and individualism, uncertainty avoidance, and indulgence. The data revealed that mentor influence was stronger in Asia than in Europe, perhaps owing to the predominance of Confucianism in higher education systems in Asia. Confucianism tends to foreground the mentoring relationship, echoing the old Chinese saying that 'even if someone is your teacher for only a day, you should regard them as your father for the rest of your life' (Zhou et al., 2019). In addition, the Confucian and Islamic values are intrinsically patriarchal, which explains the masculinity backdrop of Asia (Marginson, 2011).

Tolerance of low funding was positively associated with masculinity and long-term orientation. Funding is crucial to sustain laboratory and research teams, which is particularly important in the natural sciences and other laboratory-based disciplines. In research examining gender disparities in research productivity, a 'motherhood penalty' has been demonstrated: female academics who are also mothers, especially those with young children, are less productive in publishing and have less inclination to apply for funding than male academics (Lawson et al., 2021). Compared with European universities, universities in some Asian countries, including China, Japan, and Singapore, have lower staff–student ratios (McDonald, 2013). Female academics in Asia who are not tenured are less likely to consider childbearing due to their demanding workloads, the imperative to 'publish or perish', and fierce competition in the academic job market for tenure evaluation (Li & Shen, 2020). In regard to long-term orientation, some countries – especially EU member states – are adopting performance-based research funding, which weighs previous assessments heavily when awarding research funding (Zacharewicz et al., 2019). Far-sightedness is thus essential for academic career development and long-term trajectory planning. We found that individualism was negatively associated with tolerance of low funding, especially in the European context. At most universities in Europe, academics are responsible for sourcing their own funding (Gunn & Mintrom, 2016), and competition between academics has increased due to public funding cuts that have affected European universities, especially in continental Europe (Link & Müller, 2020). In contrast, the availability of funding has increased in many Asian countries, which has slightly relieved the pressure on academics, although competition for funding is still the norm (Shin et al., 2020).

Discovery was positively associated with indulgence, which might reflect a more welcoming attitude to non-indigenous civilisations of academics which encourages scientific exploration. In cultures with higher levels of indulgence, academics are more likely to pursue creativity and innovation rather than becoming stuck in a rut; they are more willing to embark on the discovery of the unknown rather than being hampered by rigidity (Hofstede et al., 2010). Our findings suggest that the associations between individualism and discovery and between power distance and discovery are an Asian phenomenon. Asia's higher education landscape has evolved from a teaching-oriented and domestically focused

setting into one that is research-driven and seeks global influence (Neubauer et al., 2019). These changes are largely due to the ongoing processes of internationalisation and globalisation, as well as a growing emphasis on higher education in the knowledge society (Mok & Chan, 2018). The dual pressure from institutions and the international community has led academics in the region to publish work with more impactful outcomes for sake of their career advancement and for the advancement of scholarship (Jørgensen & Hanssen, 2018; Kenny, 2018; Mcalpine, 2012). These trends can explain the positive association between discovery and individualism and power distance in society. Other studies exploring the associations between cultural dimensions and innovation have shown similar results (e.g., a cultural impact on R&D innovation; see Gallego-Álvarez & Pucheta-Martínez, 2021).

Academia-driven agendas were positively associated with power distance and long-term orientation. This may be a consequence of the career development priorities of academics as they seek to advance their careers and establish their reputations, i.e., playing the 'research game' (see Lucas, 2006). The correlation between academia-driven research agendas and uncertainty was negative. As universities across the globe compete for rankings and recognition, they are constantly under pressure to recruit faculty with strong academic credentials. Higher recruiting benchmarks and promotion evaluation requirements exacerbate pressure on academics to perform (Henningsson et al., 2018). Given the tight schedule for academic promotion, academics strive to publish quality research and predict the possible outcomes of pursuing a given research topic (Pietilä, 2019; Tian & Lu, 2017). Uncertainty anticipation and avoidance have therefore become essential for academics as they plan for the future (Fochler & Sigl, 2018).

Society-driven agendas were positively correlated with power distance in both continents and with indulgence in Europe only. As the 'quintuple helix' of university–industry–government–public–environment interactions within a knowledge economy evolved from the 'triple helix' (university–industry–government) and 'quadruple helix' (university–industry–government–society) models after World War II, higher education underwent a series of sweeping transformations worldwide (Leydesdorff, 2012; Todeva, 2013). With a broader range of external sectors, such as the government and the public, involved in shaping research agendas, academics today find it challenging to resist the influence of social issues and free themselves from the hierarchical structures of these external sectors and the universities themselves (Menzies & Newson, 2008). In regard to indulgence, Europe's loose social patterns and positive cultural climate have made academics more sensitive to social factors when setting research agendas. In contrast, we found that society-driven agendas were negatively associated with long-term orientation in both continents. The need for long-term academic trajectory planning and scholarly development may have contributed to this scenario, with academics motivated to strive for a lasting impact and forsake short-term interests (Watermeyer, 2014).

Conclusion

This study examined the research agendas of academics in Europe and Asia with reference to culture, taking a cross-continental perspective. We analysed data on European and Asian countries at the continental level to identify the effects of cultural influences rooted in Europe and Asia. Cultural dimensions were found to relate to specific aspects of research agendas, but the dynamics differed between the two continents and the direction of the relationship was sometimes reversed.

The different index scores for the various cultural dimensions between countries, even those on the same continent, mean that the findings are not necessarily representative of the situation at the

continental level. This is particularly relevant considering the use of a non-probabilistic sample, which makes it difficult to generalise on a large scale. Another limitation of this study is that the data for the dependent variables were self-reported, which always carries the possibility of bias, typically towards more socially desirable responses (McDonald & Ho, 2002). Nevertheless, perceptions tend to correlate with actual behaviour (Pickens, 2005). Furthermore, the Hofstede dimension scores were obtained from Hofstede Insights, which is a third-party source. Although the framework is very well known and widely used, the methodology used to compute the scores is proprietary; we were therefore unable to scrutinise how they were produced. Despite these limitations, this study offers novel insights for future research pertaining to cultural influences on the research behaviour of academics.

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