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Language Choice on University Websites: Longitudinal Trends

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This study analyzes linguistic versions of the Web pages of 1,140 universities in 57 countries via a content analysis of language use at three points in time over a five-year period. The results are partially inconsistent with previous theories of Internet multilingualism. As an alternative, we propose a tri-level multiglossia model in which the national language is the core language used to communicate with the native population of the country; English is the first additional language, aimed at an international audience; and other secondary languages target specific groups. Over the five-year period, the first level remained stable, the second increased, and the third increased the most. This suggests that even in the domain of higher education, the Web is becoming increasingly multilingual.

Introduction

Ever since the mid-1990s when the Internet began to spread rapidly from its origins in the United States to other parts of the world, there have been debates as to its effect on commerce, culture, education, politics, and a host of other issues on a global scale (e.g., Castells, 2000). An unarticulated assumption in many of these debates is that people in different parts of the world communicate across linguistic boundaries via the Internet. However, given that more than 6,000 languages are spoken in the world (Krauss, 1992), most of which are mutually unintelligible, it is an empirical question to what extent, under what circumstances, and for what purposes communication takes place online involving speakers of different languages, and what languages are used. Motivations for language use are complex in a world in which Internet users are increasingly bilingual (especially with English as a second language) or multilingual (Graddol, 2006). A broader question is how language usage online shapes the global linguistic ecology—whether it facilitates the use of some languages at the expense of others, and if so, which languages stand to gain or lose.

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The choice of language(s) used to communicate in international online forums has attracted considerable scholarly attention (e.g., Danet & Herring, 2007; Wright, 2004). A recurrent finding is that English is used as a lingua franca among speakers of mutually unintelligible languages (Durham, 2003; Wodak & Wright, 2007), although this varies by region, with regional languages, such as Spanish and German, serving as lingua francas among diverse ethnic populations within Spain (Climent et al., 2003) and Germany (Androutsopoulos, 2007). The use of indigenous minority languages appears difficult to sustain (Cunliffe & Harries, 2005) and is actively discouraged on some forums (Fernandez, 2001).

Language use on websites has received less empirical attention. Studies have examined the degree to which institutional sites based in the United States provide "localized" versions in the native languages of their intended audiences (e.g., Kelly-Holmes, 2006; Singh & Boughton, 2005; P. M. Singh et al., 2007) and, to a lesser extent, whether sites originating in other languages provide versions in English (e.g., Mateos et al., 2001). For both contexts, the studies tend to report less multilingualism than there could (and should) be, especially in sites targeted at economically disadvantaged populations.

Universities, as institutions of higher education and culture, are well aware of the opportunities the Internet brings for wider international communication. Moreover, they are committed, in principle, to marketing their institutions to foreign students and to promoting international contact (Altbach, 2004; Ho, Ooi, & Amri, 2010). The present study analyzes linguistic versions of the Web pages of universities in different countries around the world. Specifically, the study addresses three questions:

1. To what extent do universities in different countries provide foreign-language Web pages? What languages are used as the primary and secondary languages?
2. Has there been change over time in the languages used?
3. What larger trends, if any, do these results support regarding Internet multilingualism?

The first two questions are addressed via a content analysis of language use in 1,140 universities in 57 countries at three points in time over a five-year period. We address the third research question by interpreting our empirical findings in relation to four theories advanced in the literature that make predictions about the global ecology of languages in the Internet age, which we refer to as the Replacement Theory (e.g., Phillipson, 1992), the Diversity Theory (e.g., Danet & Herring, 2007), the Oligarchy Theory (e.g., Graddol, 1997), and the Diglossia Theory (e.g., Dor, 2004). The analysis reveals a considerable degree of multilingualism in university websites that is increasing over time, while use of English as a secondary language is also increasing. These results are most consistent with the Diglossia Theory, which predicts that English will be used alongside local languages. However, we propose that a better model to explain our findings is one of dynamic multiglossia, with English occupying a status (as global lingual franca) intermediate between national languages, which remain stable, and other secondary languages, which are growing at the fastest rate.

Literature Review

The Linguistic Ecology of the Internet in a Globalizing World

A key question with respect to the linguistic ecology of the Internet is the status of English as a world language and its possible impact on other languages. According to Krauss (1992), in the next century 90% of human languages will disappear or be seriously diminished. Fishman (1998) also predicts the disappearance of a number of languages, especially local languages with fewer than 1,000 speakers. At the same time, English is spreading, especially as a second language and a lingua franca—a common language of communication across groups of speakers of different languages. For Phillipson (1992), the spread of English is an expression of cultural imperialism, dating back to the colonization by England and the United States of countries such as India and the Philippines and perpetuated through ideologies associated with English language teaching. One theme in Phillipson's work is "linguicism"—prejudice that leads to indigenous languages becoming extinct or losing their local eminence due to the rise and competing prominence of English. We refer to this view henceforth as the Replacement Theory.

Some modifications have been proposed to the Replacement Theory, while preserving one or more of its premises. Even without English imperialism, Bruthiaux (2002) predicted the continued hegemony of English because of its morphological characteristics, non-logographic script, flexibility, and perception that it is a vehicle for modernizing values. Crystal (2003) concurred that historically the rise of a language to international prominence is facilitated by military success and economic strength, adding that the prestige or success of the dominant country influences non-native speakers, organizations, and/or countries to emulate that success. The use of English worldwide is not imposed by law or military might; the United States also has a popular culture that is consumed and emulated by other nations, contributing to the spread of English. Finally, Kachru (1996) argued that there is not a single English language, but rather multiple Englishes that have emerged in former British and U.S. colonies, although none of these varieties has yet been recognized with official status. Thus, while English is spreading, in some cases it has been co-opted and domesticated.

Moreover, the dominance of a specific language globally or regionally may change. Fishman (1998) provided a historical overview of the expansion of Russian, showing how Soviet policy was to impose Russian on its ethnic populations. Since the dissolution of the USSR, these same populations are de-emphasizing Russian in public life, to the detriment of their ethnic Russian populations. Wei and Kolko's (2005) survey-based study of Uzbekistan (a former member-state of the USSR) found that Russian is losing ground to English as the most important language on the Internet, even among Uzbeks who are more proficient in Russian than English. Fishman extended this lesson to English, cautioning that English "will not long outlive the technical, commercial, and military ascendency of its Anglo-American power base, if a stronger power arises to challenge it" (p. 39). Moreover, he warns that if English is perceived as a "bully," its importance in the global arena might diminish.

In contrast with the Replacement Theory, some researchers view the spread of English as benign, posing no threat to the existence of local languages. Nunberg (2000) observed that the use of English on websites does not necessarily come at the expense of other languages, nor is the language used in websites necessarily determined by economic factors. Rather, his research (conducted with Schütze prior

to 1999) found that countries with a relatively low number of speakers and a high competency in English were most likely to use English on their websites. Similarly, Danet and Herring (2007) suggested that English should be reconceptualized, from being an imperialist tool to being a multinational tool. The authors note that the use of languages other than English online is steadily rising. Uberuaga (2001) argued that, like radio and television, the Internet provides an outlet for, and thus promotes, minority languages. Indeed, Wright (2006) reported that minority languages and dialects of Europe (like Occitan, Sardinian, Piemontese, Ladin, and Frisian) are used extensively on the Internet, albeit in restricted domains. We refer to the view that the Internet promotes multiple, including minority, language use as the Diversity Theory.

Graddol and Dor offer further nuanced explanations, combining language dissemination as an imperial project with forces that predict the coexistence of local languages. Graddol (1997) predicted the decline of English as the sole hegemonic language in the world, to be replaced by an "oligarchy" of world languages including Chinese, Spanish, Arabic, Russian, Hindi, and Malay by the year 2050. According to this view, dominant languages will persist, but the dominance will be distributed across multiple large languages, each of which will be widespread as a language of commerce and culture in a different region of the world. National languages will also persist, but most minority languages will be lost, consistent with the predictions of Krauss (1992). Graddol's view resembles de Swaan's (2001) conception of the global language system, according to which "peripheral" (local, minority) languages have a more limited scope than "central" (national) languages, which in turn are peripheral in relation to "supercentral" (larger regional) languages.[1] In de Swaan's system, English as the global lingua franca occupies a unique status as the "hypercentral" language, but there is an ongoing struggle among central languages to achieve "supercentral" (and potentially "hypercentral") status. Borrowing Graddol's term, we refer to this as the Oligarchy Theory.

Dor (2004) posited that economic globalization will determine the languages of the Internet to a large extent, but in a way that does not exclusively promote the spread of English, but rather results in a global diglossia, with English used for purposes of international communication and local languages "commodified" for local purposes by savvy international companies. Thus globalization will have an impact on local languages but not result in their extinction or replacement. Relatedly, Warschauer (2002) observed that while the Internet might increase the need for a lingua franca such as English, other factors promote linguistic pluralism, because ethnic and national identities are expressed through language. Warschauer, El Said, and Zohry (2002) surveyed young professionals in Egypt and found that English was predominantly used on the Web and in formal email communication, while the same individuals used a Romanized version of Arabic for informal email exchange and online chats, implying a relationship between languages and their functions. We refer to this henceforth as the Diglossia Theory.

Whether the processes of globalization promote English to facilitate communication or do so in a coercive fashion, such processes can have important consequences. For example, Oakes (2005) found

[1] De Swaan (2001) lists 11 "supercentral" languages: Spanish, Portuguese, French, German, Chinese, Japanese, Russian, Arabic, Hindi, Malay, and Swahili. In addition, English can fulfill "supercentral" functions.

that globalization has strengthened nationalist sentiment in Sweden. Conversely, in Switzerland, a nation-state that has officially embraced multilingualism as a cornerstone of its national identity, that identity is threatened by pressures to "modernize, globalize, and 'Englishize'" (Demont-Heinrich, 2005, p. 66). Ginsburgh and Weber (2006) analyzed statistics regarding the languages spoken in the European Union and demonstrated that if the number of working languages were reduced, as has been suggested as a cost-cutting measure, it could potentially disenfranchise a significant number of its citizens, most dramatically if French and/or German were not retained. Use of English-only would disenfranchise 45% of the population.

The Impact of Globalization on Higher Education

The impact of globalization can also be studied by focusing on a single institution such as higher education. The literature on this topic is predominantly concerned with the use of English, and some of the questions raised overlap with the research on language and globalization discussed above: Does English threaten the use of native languages at universities? How and to what extent have universities and their users adopted English? Is English emerging as, or has it already become, the hegemonic language of science and scholarship, similar to Arabic in the cultural awakening of early Islamic civilization or Latin in the High Middle Ages?

English directly influences international education in myriad ways. In his overview of the effects of globalization on universities, Altbach (2004) noted that most top-flight universities around the world use English to some extent for teaching and research. Likewise, the language of scholarly conferences and publication is mainly English, making English the de facto *lingua franca* in the "knowledge economy" of the 21st century (p. 5). This trend is especially advanced in disciplines like science and mathematics. A number of countries offer English language programs in the hopes of attracting foreign students and increasing the English skills of their domestic students, and joint degree programs from institutions abroad have become increasingly popular. Altbach states unequivocally that "English is the Latin of the 21st century" (p. 9), forcing "small languages" to contemplate whether to change the medium of instruction at their universities completely to English.

Ammon's research (2001) corroborated these trends. English is making inroads even in countries like Germany, which in the early 20th century was regarded as the center of world research and learning. In his study of Swiss universities, Dürmüller (2001) found that although English is not yet widely used as a language of instruction at the undergraduate level, it is featured on university Web pages, and in fields like medicine and natural science English is typically the language of instruction at the graduate level, as well as the language of publication.

The choice to use English in education varies across countries and is often related to the status of the country's native language. An analysis of language usage by a sample of 2,267 students in higher education across eight countries (Ukraine, Poland, Macedonia, Italy, France, Tanzania, Oman, and Indonesia) conducted by Kelly-Holmes (2004) found that students whose native language is prestigious and has many speakers use both their native language and English in their Internet searches. However, students whose native language is not spoken by many people or supported by economic prosperity are increasingly shifting to use of English.

The increasing popularity of English in higher education raises some concerns. Altbach (2004) cited as an example the debate in the Netherlands over the main language of instruction, in which concerns were raised over the future of the Dutch language if English came to dominate higher education. In some cases what is in question is not the survival of the language, but rather the status of the language in the international arena. Kerklaan, Moreira, and Boersma (2008) studied the role of Portuguese at the University of Aveiro and noted the double pressure on the institution to offer English as a medium of instruction—not necessarily to become an international university, but "to become a more prominent and well-established one" (p. 250)—while maintaining Portuguese for first-language speakers and international students coming from former Portuguese-speaking colonies.

The use of English in higher education relates to prestige and career advancement. As Dürmüller (2001) noted, "Swiss academics who publish [in English] get recognition, are quoted, and can become members of the international academic community" (p. 402). This trend is reflected in Pakir's research (1999) on education in Singapore. "English-knowing bilinguals govern the country, walk the corridors of power, preside at boardroom meetings" and enjoy higher incomes (p. 344). In order to preserve their cultural identity, Pakir suggested, Singaporeans must appropriate English to make it "glocal"—globally appropriate while still being culturally relevant.

In summary, the benefits of the use of English in higher education relate to increased prestige and popularity locally and/or internationally, both for institutions and for individuals. There are also economic benefits like increased student enrollment and increased pay for graduates. Access to collaboration and information is also cited frequently. The drawbacks to English adoption include risk of decline and loss of status of the native language, especially if the language does not have many speakers.

Language and Institutional Websites

There is a growing trend for institutions with a global audience to make versions of their websites available in different languages. Economic research related to consumer preferences supports this trend. Consumers generally prefer making purchases in their local language, and it behooves companies to "address the global audience on the Internet in their own language and in a style that is culturally congruent to their local conventions" (Singh & Boughton, 2005, p. 5). Organizations and businesses are adapting to this reality; however, the responses vary by industry. In Singh and Boughton's study, industries found to have low levels of international focus were banking, food and drink, insurance, finance, and retail, whereas a high level of website globalization was noted for electronics, telecommunication, entertainment, and travel. Tedeschi (2004) reported that the American National Basketball Association had nine versions of NBA.com aimed at foreign markets, and news sites such as Washingtonpost.com have advertisers directing their products to their large international readership. In contrast, Singh et al. (2007) estimated that 80% to 90% of the health- and food-related organizations they studied did not translate their websites into multiple languages, even in cases of epidemics.

Kelly-Holmes (2006) analyzed the languages used on the websites of 10 large businesses with international reach, including McDonald's, Nokia, and BMW, at the global, regional, and national levels. English was the primary or exclusive language used on the global dot.com sites, as well as for some

regional sites (such as in the Caribbean), whereas European languages, including small ones, were well represented in the country-level websites. In contrast, English was the only language available on sites in some countries with large numbers of speakers, including India and Malaysia, where English is widely used, as well as in Russia and Arab and African nations, where it is not as widely understood. Kelly-Holmes concludes that for international businesses, economic factors determine which languages are chosen for website localization.

Research into the choice of language in the genre of university websites is nascent, with only a handful of studies. Some of this research adopts a case study approach to examine universities in a specific country and/or region and explores the extent of internationalization based on the metric of making websites available in English. Thus, Mateos, Chamorro, Miranda, and Gonzales (2001, p. 231), for example, reported that only 40% of Spanish university websites were translated into English "which represents a serious obstacle" to internationalization, according to the authors. However, their study was published more than 10 years ago, and its data may no longer be accurate. In a more recent study of academic, research, and special libraries websites in Norway, Torras and Vaagan (2006) reported that the forces of globalization are pushing institutions to provide an increasing range of services in English, especially in light of increased numbers of distance-education students. Ho et al. (2010) found that the Malaysian university websites they studied are offering information in English as well as other prominent regional languages, such as Mandarin, in order to meet the needs of international students.

The largest cross-cultural study of university websites to date was conducted by Callahan (2005), who compared and contrasted university websites from Austria, Denmark, Ecuador, Greece, Japan, Malaysia, Sweden, and the United States, employing a theoretical framework based on Gert Hofstede's (2001) cultural dimensions.[2] The main focus of Callahan's (2005) investigation was the extent to which Hofstede's dimensions corresponded with the graphical characteristics of university websites. She additionally observed that countries varied in the extent to which they included pages in other languages on their websites. While Sweden, Japan, and Austria had high percentages of multilingual websites, the United States and Ecuador placed on the other end of the spectrum, with just one site each in the 20 university sample providing information in another language. While this pattern is not directly predicted by Hofstede's dimensions, it is suggestive of cultural differences. Callahan's observations led us to take up the issue of language versions on university websites more systematically in the present research, including repeated analysis at different points in time to determine longitudinal trends.

[2] Hofstede theorized that countries around the world vary along four dimensions*: power distance, masculinity/femininity, individualism/collectivism,* and *uncertainty avoidance.* A fifth dimension, *short/long time orientation,* was added in the mid-1980s on the basis of the Chinese Value Survey (Hofstede 2001). See Callahan (2005) for further explanation of Hofstede's dimensions of culture.

Methodology

Data

Country Selection

Building on Callahan's (2005) study, our country selection mirrored the countries represented in Hofstede's research, which was based on surveys conducted by IBM of employees in international branches of the corporation in the 1960s. Hofstede's country sample covers most of the globe and has been shown in previous research (e.g., Hofstede, 2001) to exhibit significant cultural variation, including in the graphic design of university websites (Callahan, 2005). Based on this and on Callahan's observations about the languages used in her eight-country sample, we expected Hofstede's full sample to show linguistic variation as well.

Our first sample was collected in 2006 and included almost all of the 50 countries and three regions analyzed by Hofstede, with the exception of eight countries that were omitted (Columbia, Guatemala, Hong Kong, Jamaica, Panama, Singapore, Switzerland, Uruguay) because they did not have enough universities or their universities did not have websites. Hofstede's research did not include Communist countries, since during the Cold War period when the IBM surveys were conducted, IBM had no branches in Communist countries. However, the Oligarchy Theory predicts that Russian and Chinese, as very large languages, will expand their regional influence in the 21st century. Thus we expanded our study in 2007 to include China, Russia, and—as examples of countries that might plausibly show Russian use based on geographical location and historical association with Russia—Poland, Ukraine, and Kazakhstan.[3] In 2011, the sample was expanded again to include seven more countries from the former Soviet bloc (Azerbaijan, Belarus, Georgia, Latvia, Lithuania, Moldova, Uzbekistan). The total number of countries in each sample analyzed in this study is thus: 45 (2006), 50 (2007), and 57 (2011), with the 2007 sample including the same countries as the 2006 sample and the 2011 sample including the same countries as the 2007 sample.

Preserving the consistency of the data for the purposes of longitudinal analysis was somewhat challenging. In Hofstede's methodology, some countries were grouped together and analyzed as regions: Arab countries (Egypt, Iraq, Kuwait, Lebanon, Libya, Saudi Arabia, UAE), East Africa (Ethiopia, Kenya, Tanzania, Zambia), and West Africa (Ghana, Nigeria). This was because the surveys conducted by IBM from these regions came to Hofstede as a set, without indications of the source countries (Hofstede, 2001). Moreover, Yugoslavia was a country at the time of Hofstede's research, and thus Serbia, Croatia, and Slovenia were combined. Our 2006 sample reflected these groupings, and, to allow for longitudinal comparison, the data collected in 2007 and 2011 preserved the same groupings. The only difference is that Hofstede's German data came from West Germany only; our samples came from the modern merged German state.

[3] A number of East and Southeast Asian countries in geographical proximity to China were already included in the original sample.

University Selection

For each country, 20 universities were randomly chosen from lists compiled on the basis of information provided by the Ministry of Education (or a similar governmental organ) of the specific country and the UNESCO university database. We operationalized "university" as any tertiary educational institution granting a bachelor's or bachelor-equivalent degree. The set of universities selected in 2007 and 2011 was the same as that for 2006, with the exception that some original universities were no longer available due to closure, merger, or change of name. If the merger was known, the site of the merged university was substituted for the old one, similarly in the case of a university name change. If, despite our best efforts the fate of the missing university could not be determined, a new university from the country was selected at random. This was done in 16 cases.[4]

Analytical Methods

Content analysis was employed to code each website for country, primary language, and secondary language(s) used. Two coders coded 10% of the websites in the 2006 sample—two randomly selected sites from each of the 45 countries—and achieved an acceptable level of agreement on the coding categories using Krippendorf's alpha. The first author coded the remainder of the 2006 websites and coded all the sites in the 2007 and 2011 samples. The method of presentation of multiple languages (e.g., whether on the same page or different pages) was also noted.

The names of the languages were written on the websites in the native writing system of the language of the intended audience.[5] In most cases, the languages were also designated by a flag on the homepage, however, and were easy to identify. Moreover, often the name of the language in English was part of the URL. In rare cases of uncertainty the page was translated using Google Translate to confirm the researcher's identification. In some cases, the specifics of a language were researched to aid recognition; for example, Serbian is unique in using both the Latin and Cyrillic alphabets. In all cases, the first author learned to recognize the names of the written languages in the original languages, since the research was carried out in stages over several years and involved repeated coding of the same sites and languages. Examples of some of the different ways of linking to pages with other languages are shown in Figures 1–3 (language links are circled in green).

[4] The breakdown of these 16 cases is: Arab countries: two sites; Ecuador: one; India: one; Indonesia: one; Malaysia: one; Philippines: two; Poland: two; Taiwan: four; Thailand: one; Ukraine: one.

[5] Already at the time of our first data collection, Unicode, which allows all the world's major languages to be represented on the Web in their native writing systems, had been widely available for a number of years (Danet & Herring, 2007).

Figure 1. Splash page for Mae Fah Luang University (Thailand): Thai with links to Thai and English site versions.

Figure 2. Homepage of Baku Business University (Azerbaijan): Azerbaijani with links to English and Russian versions.

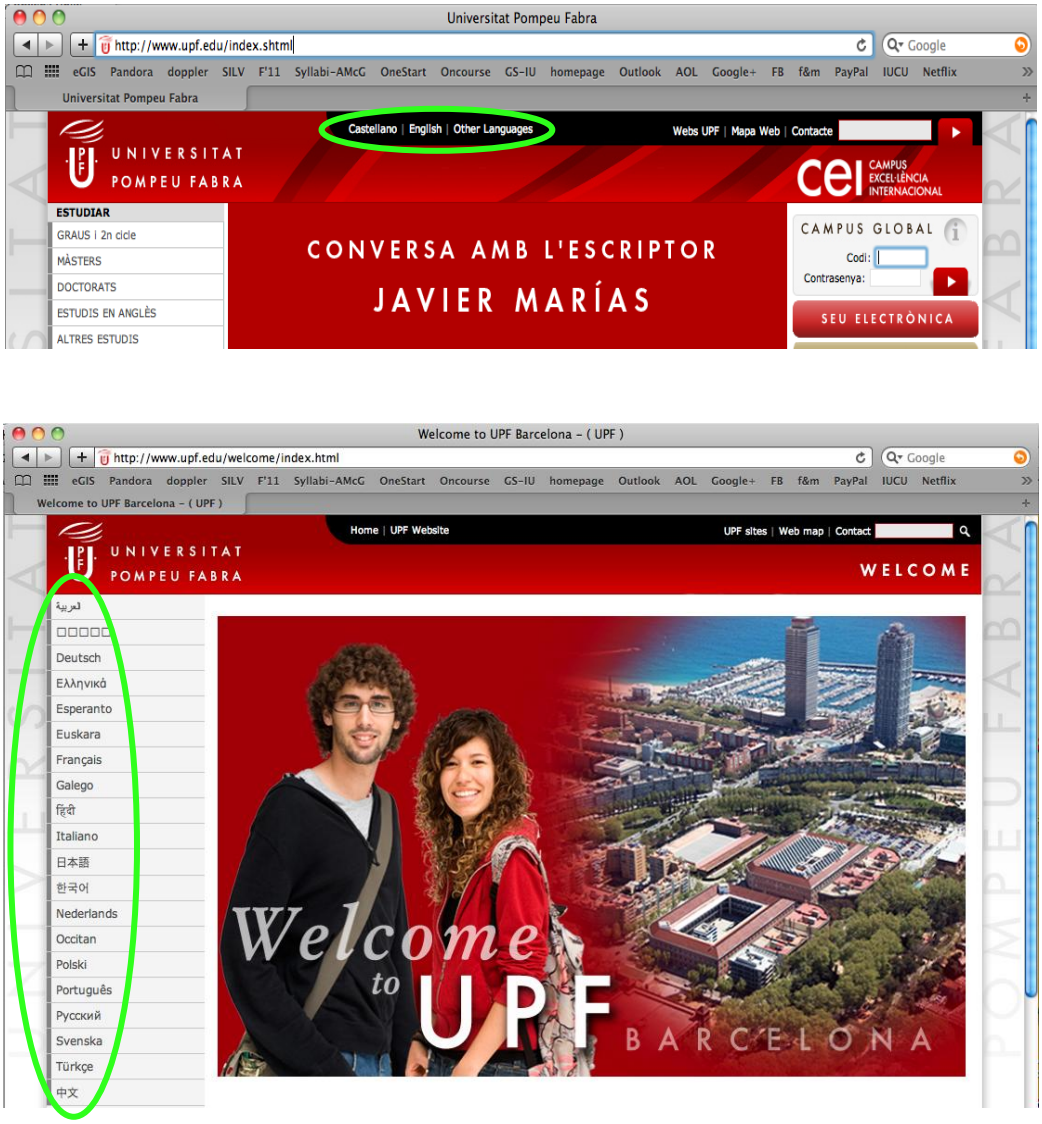

Figure 3. Top: Top portion of the homepage of Universitat Pompeu Fabra (Catalunya, Spain): Catalan with links to Castillian (Spanish) and English versions and to an Other Languages page. Below: Other Languages page in English with links to information in various languages.

Each site was first coded for the primary language used; this was usually the language of the homepage. The homepages were overwhelmingly in one language only, with the following exceptions. An introductory splash page sometimes asked the visitor to choose a language of preference before advancing to the homepage; this practice was mostly limited to sites in Thailand (see Figure 1). Also, some non-English pages included words such as "new," "login," and "news" in English; these appeared to be vestiges of online content-management systems developed in English-speaking countries and were not counted as separate language use. The presence of what we term "secondary" languages was coded by first examining the splash page or the homepage; in most cases, other language pages, if present, were accessible via links from the homepage (see Figure 2). However, some sites, such as those in Australia, New Zealand, and Spain, provided pages in languages other than English from internal pages designated for international students (see Figure 3). Thus pages titled "other languages," "international students," and the like (usually in English) were also checked for links to other language pages, and those pages were counted. Usually the content available in the secondary languages was less than in the primary languages; the secondary language pages tended to be briefer and/or lack dynamic content. The sites that we coded for more than one language could therefore be said to exhibit "limited parallel monolingualism" (cf. Heller, 1999).[6]

We further categorized our data as follows: national language as the primary or secondary language, English as the primary or secondary language, and other language as the primary or secondary language. As a heuristic for the purposes of this research, "national language" was operationalized as the language (or languages) used in everyday communication by a significant majority of the people of a nation, regardless of whether it has official language status.[7] We also recorded the number and names of secondary languages used on the sites, although we did not attempt to rank them in order of accessibility.

The resulting patterns were analyzed longitudinally for changes from 2006 to 2011. As part of the longitudinal analysis, we characterized trends as "increasingly monolingual," "increasingly bilingual," and "increasingly multilingual" based on the numbers of monolingual (one language only), bilingual (two languages), and multilingual (more than two languages) sites over the three time periods studied. For each country, those numbers could *decrease* or *increase*, meaning that there was a steady downward or upward trend over each time period; they could remain *stable*, meaning that the numbers remained

[6] The parallel monolingualism of bilingual and multilingual university websites contrasts with the trend toward heteroglossia, or mixing of languages on the same page, reported by Androutsopoulos (2011) for some social media sites.

[7] In reality, many countries are multilingual, with regional and/or ethnic languages spoken by significant proportions of their populations. For most countries, however, the official language is also the language used for everyday communication by a majority of the population, with the following caveats. Not all the countries in the study have official languages; an example is the United States. In such cases, the language spoken by the majority was considered the national language. Conversely, several countries, such as India, list English is an official language, although it is not the everyday language of a majority of its people; we did not count English as the national language in such cases. In other words, when there was a mismatch, we gave preference to de facto languages used over de jure official language status in determining "national language(s)."

exactly the same; or the numbers could fluctuate, such that no trend could be established; the latter type was coded as *mixed*.

Results

2011 Sample

The overall degree of multilingualism of university websites appears to be rather high, compared with previous reports of website globalization for other institutions as described in the literature review. Out of the 1,140 websites examined in 2011, 592 (52%) had at least one additional page in another language, including 177 sites (16%) that presented information in three or more languages. Several sites also provided an option for machine translation through the Google Translate service.

Primary Languages

English was the single most popular primary language used on the websites. In most countries where English is the native language of a majority of the people, as in the United States, Great Britain, Ireland, Australia, and New Zealand, all university websites were in English. Canada also falls into this category, even though only 16 of its sites were in English because of its national bilingual status. Kachru (1996) refers to these as "inner circle" English-speaking countries. English was also used exclusively as the primary language on the sites of most former U.S. and British colonies: India, Pakistan, Philippines, South Africa, and East and West African countries, which Kachru calls "outer circle" English-speaking countries.[8] Of the above-mentioned countries, the United States, India, Pakistan, East Africa, and West Africa had websites virtually exclusively in English, with no other language pages provided.[9]

A few countries displayed a mixed pattern involving English: Several sites were primarily in English, while the others were in the national language of the country. In this category Malaysia, a former British colony, takes the lead with 16 sites in English, followed by Arabic countries with nine sites in English. Several other countries had one (Indonesia, Israel, Kazakhstan, Lithuania, the Netherlands) or two (Austria, Azerbaijan) sites primarily in English, usually in international or business-oriented institutions.

National languages (including English in "inner circle" countries) were the default choice on most countries' websites. Three categories can be identified for *national languages other than English*. The first category consists of those countries where all sites were primarily in the national language. A number of Spanish-speaking countries (e.g., Venezuela, Ecuador, El Salvador, Peru) had sites that were exclusively or almost exclusively in Spanish. Spanish was the only language, besides English, that was used as the sole language on an entire country's university websites.

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[8] Kachru (1996) also distinguishes a third, "expanding," circle, where "English is not only an access language par excellence, it is a reference point for paradigms of research and methodology" (1996, p. 138). This circle embraces a range of countries including China, Japan, Russia, Indonesia, and Israel.

[9] The only exceptions are one U.S. university's website that provided a page in Turkish and two Indian universities that provided a (secondary) page in a national language, Hindi.

Most other countries used their national language as the primary language, while providing information in at least one other language. This category includes countries with multiple official national languages, such as Belgium, Canada, and the former Yugoslavia. In those cases, most sites were primarily in the national language of the region where the university was located.

The third category showed mixed usage, with some universities in a country employing the national language as the primary language, while others did not. Among those are the Arab countries and Malaysia, which sometimes used English as noted above, and Kazakhstan, where Russian was the primary language on the websites of some universities.

In several cases, a *language other than a national language or English* was the primary language of the site. This was especially the case for Russian in the countries of the post-Soviet bloc: All 20 sites in Belarus, nine in Kazakhstan, five in Uzbekistan, and four in Moldova were primarily in Russian.[10] In Spain, nine of the sites privileged a regional language: Catalan, Galician, Basque, or Valencian. Additionally, one of the sites in the Arabic countries was in French, one of the sites in Israel was in Arabic, and one of the Turkish universities had its site primarily in Kirgiz.

Secondary Languages

English was overwhelmingly the most common of the secondary languages used, being present on 538 websites and accounting for 62% of all secondary languages, followed distantly by Chinese and Russian (at 7% each). Other commonly attested secondary languages were Spanish, French, German, Arabic, Korean, and Japanese. Seventy-seven sites had secondary languages other than those mentioned above; these included a mosaic of world languages, national and local, and even one case in Esperanto. This distribution is shown is Figure 4.

[10] The Russian language has (semi-)official status in some of these countries still, but all also have their own national languages.

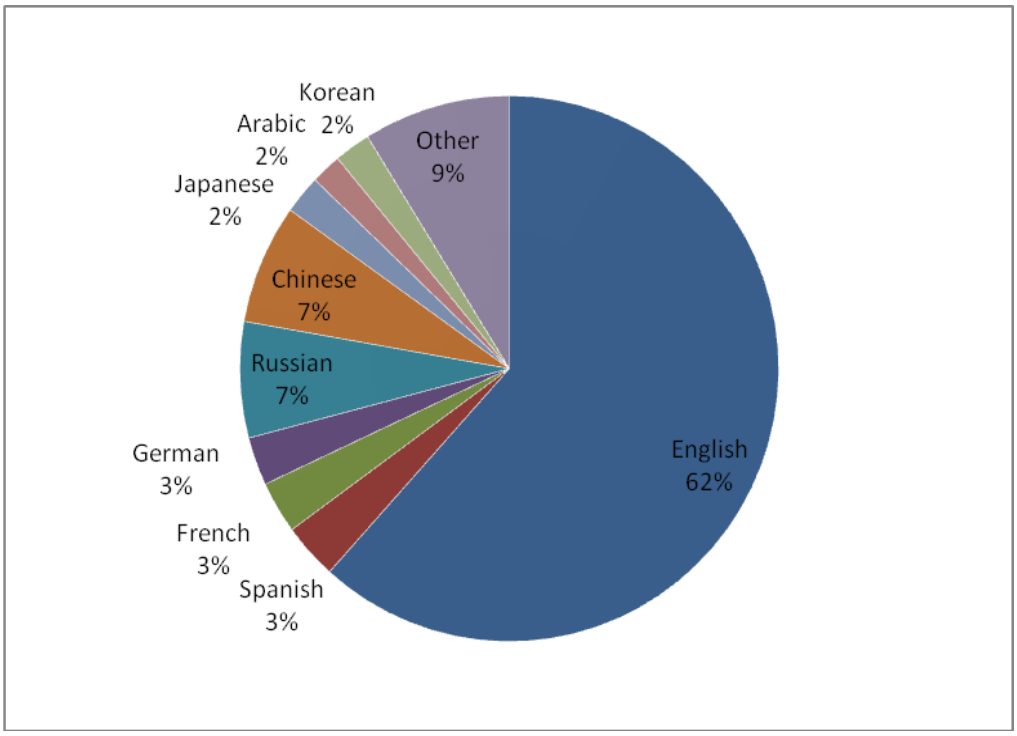

Figure 4. Distribution of secondary languages.

The tendency to include English as a secondary language varies by region, as shown in Table 1. The countries with a high number of universities with secondary English language pages are mostly West European, especially Scandinavian countries, followed by several countries from the post-Soviet bloc. Asian countries—except for Taiwan, with 17 sites with English—are in the middle of the list, while the Latin American countries all fall toward the bottom of the list; these countries use English rarely or not at all. "Inner circle" and "outer circle" English countries (Kachru, 1996) do not tend to use English as a secondary language because most already use it as a primary language. Table 1 presents the data for the number of sites (out of a total of 20) per country that use English as a primary or secondary language.

Table 1. English as a Primary or Secondary Language (2011 Sample).

Country	English as primary language	Country	English as secondary language	Country	English as primary or secondary language
Australia	20	Norway	20	Australia	20
Great Britain	20	Sweden	20	Canada	20
India	20	Turkey	20	Great Britain	20
Ireland	20	Denmark	19	India	20
New Zealand	20	Finland	19	Ireland	20
USA	20	Taiwan	19	New Zealand	20
East Africa	20	Austria	17	USA	20
Pakistan	20	Georgia	17	East Africa	20
Philippines	20	Germany	17	Norway	20
South Africa	20	Greece	17	Pakistan	20
West Africa	20	Netherlands	17	Philippines	20
Canada	16	Spain	17	South Africa	20
Malaysia	16	Ukraine	17	Sweden	20
Arab Countries	9	Iran	16	Turkey	20
Austria	2	Latvia	16	West Africa	20
Azerbaijan	2	Lithuania	16	Austria	19
Indonesia	1	Yugoslavia	15	Denmark	19
Israel	1	Azerbaijan	14	Finland	19
Kazakhstan	1	Belarus	14	Malaysia	19
Lithuania	1	Italy	14	Taiwan	19
Netherlands	1	Kazakhstan	14	Netherlands	18
Argentina	0	Russia	14	Arab countries	17
Belarus	0	Israel	13	Georgia	17
Belgium	0	China	12	Germany	17
Brazil	0	France	12	Greece	17
Chile	0	Japan	12	Lithuania	17
China	0	Korea (South)	12	Spain	17
Costa Rica	0	Belgium	11	Ukraine	17
Denmark	0	Moldova	10	Azerbaijan	16
El Salvador	0	Poland	10	Iran	16
Ecuador	0	Thailand	10	Latvia	16
Finland	0	Uzbekistan	9	Kazakhstan	15
France	0	Arab countries	8	Yugoslavia	15
Georgia	0	Portugal	8	Belarus	14
Germany	0	Indonesia	7	Israel	14

Greece	0	Argentina	6	Italy	14
Iran	0	Chile	6	Russia	14
Italy	0	Costa Rica	6	China	12
Japan	0	Canada	4	France	12
Korea (South)	0	Brazil	3	Japan	12
Latvia	0	Malaysia	3	Korea (South)	12
Mexico	0	Mexico	3	Belgium	10
Moldova	0	Peru	2	Moldova	10
Norway	0	El Salvador	1	Poland	10
Peru	0	Ecuador	1	Thailand	10
Poland	0	East Africa	0	Uzbekistan	9
Portugal	0	Pakistan	0	Indonesia	8
Russia	0	Philippines	0	Portugal	8
Spain	0	South Africa	0	Argentina	6
Sweden	0	Venezuela	0	Chile	6
Taiwan	0	West Africa	0	Costa Rica	6
Thailand	0	Australia	0	Brazil	3
Turkey	0	Great Britain	0	Mexico	3
Ukraine	0	India	0	Peru	2
Uzbekistan	0	Ireland	0	El Salvador	1
Venezuela	0	New Zealand	0	Ecuador	1
Yugoslavia	0	USA	0	Venezuela	0

In all, a striking 41 countries (72%) have English as the primary or secondary language on a majority of their university websites, and English is used as a primary or secondary language to some degree in *all* of the countries except Venezuela (whose websites are exclusively in Spanish).

Countries also varied in the inclusion of other secondary languages on their sites. In 2011, Azerbaijan led in the number of sites that used secondary languages other than English (N = 11), while Australia and Spain led in number of secondary languages used (N = 20 for each country). Australia was also the clear leader in regard to number of pages in secondary languages (N = 62), followed by New Zealand (N = 25) and Spain (N = 23). The Appendix gives detailed counts for each country, excluding and including English.

Longitudinal Comparison

For the second step of the analysis, the same categories were analyzed longitudinally, comparing the data sets from 2006, 2007, and 2011. Since the data sets increased in size for each year of research, the analysis was conducted both by comparing the full sets for each year and by conducting the same comparison just for the original 45 counties, to avoid the possibility that any observed changes are a result of the sample size increase. Both analyses show two main trends: an increase in English as a

secondary language (see Table 2) and an increase in other secondary languages (see Table 4). There was also an increase in the use of the country's national language as the secondary language, mostly in countries where English was the primary language used on the sites but was not the country's national language. Table 2 presents the results for English and other national languages as average number of sites (out of the 20 sampled) per country per year.

Table 2. Longitudinal Trends: National Language vs. English.

Year (countries)	**National language as primary or secondary**	**National language as primary**	**National language as secondary**	**English as primary or secondary**	**English as primary**	**English as secondary**
2011 (57)	17.04	16.40	1.00	13.47	3.02	10.35
2007 (50)	16.96	16.38	0.66	12.39	3.43	8.80
2006 (45)	16.87	16.51	0.44	12.33	3.72	8.28
2011 (45)	16.87	16.40	0.87	13.33	3.85	9.38
2007 (45)	16.87	16.40	0.56	12.51	3.85	8.50
2006 (45)	16.87	16.51	0.44	12.33	3.72	8.28

Change in the use of the national language as the primary or secondary language was observed only in 10 countries. The biggest change occurred in Kazakhstan, which was not represented in the 2006 sample. The number of sites with Kazakh as the primary language increased from one to nine between 2007 and 2011, and the number with Kazakh as a secondary language increased from eight to 10. This dramatic increase reflects an ongoing process of "Kazakhification" (Matuszkiewicz, 2010) and may be a response to a 2010 pronouncement by the Kazakhstan state program for the Functioning and Development of Languages to increase the number of schools with Kazakh language instruction (Najibullah, 2011). Smaller increases in use of a national language as a secondary language were noted in the case of India; in 2011, two pages were in Hindi whereas previously all sites were in English only, and in Ireland, where the number of secondary pages in Gaelic increased from two to five between 2007 and 2011. The Gaelic increase may also reflect language policies: In 2008, the Irish Higher Education Authority (HEA, 2008) announced a plan to increase its services accessible in Irish, including through its website.

An overall increase was observed in the use of English as a primary or secondary language, especially the latter (see Table 2). This varied according to country, however. The majority of countries (*N* = 19) showed an increase; a decrease was seen in six countries; and in eight countries, no trend could be established. Ten countries remained stable, mostly those that already had very high or very low numbers of English language pages. Table 3 lists the countries in each category. The numbers in parentheses indicate the number of sites that changed in the indicated direction from the first sample for that country (either 2006 or 2007, depending on when the country was first sampled) to the last sample (2011).

Countries marked with * show change between only two out of the three data sets for countries for which all three samples were available.

Table 3. Trends in Use of English as a Primary or Secondary Language.

English as primary or secondary language			
Decrease	**Increase**	**Mixed**	**Stable**
China (1)	Austria (6)*	Arab countries	Chile
Finland (1)*	Belgium (1)*	Argentina	East Africa
Greece (2)*	Brazil (3)	El Salvador	India
Israel (1)*	Costa Rica (2)*	Ecuador	Norway
Korea (South) (4)	Denmark (2)*	Malaysia	Pakistan
Thailand (4)	France (4)	Peru	Philippines
	Germany (1)*	Portugal	Poland
	Indonesia (2)	Turkey	South Africa
	Iran (3)*		Sweden
	Italy (7)		Venezuela
	Japan (1)*		West Africa
	Kazakhstan (5)		
	Mexico (2)*		
	Netherlands (1)*		
	Russia (6)		
	Spain (4)*		
	Taiwan (1)*		
	Ukraine (1)		
	Yugoslavia (4)		

Longitudinal changes are also evident in regard to the use of languages other than national languages or English on the university websites. For primary languages, there is an apparent increase in sites where Russian is primary for the total data set, due to the fact that the 2007 and 2011 samples included more post-Soviet countries; in those countries (especially Belarus) Russian is still the language of choice for education. For the 45 original countries, however, the average number of sites primarily in a non-national language other than English remained stable over time, at a low .6 (out of 20) sites.

In contrast, the number of sites with at least one secondary language other than English or the national language increased throughout the years in both the original and the expanded set. The number of *pages* in secondary languages also increased over time, as did the number of different secondary *language choices* offered. These trends are summarized in Table 4. The results in the first column are presented as the average number of sites (out of 20) per country; the second column presents the average number of pages per site; and the values in the third column are raw number totals.

Table 4. Overall Longitudinal Trends for Secondary Languages.

(Other than English and National Language)

Year (countries; sites)	**Avg. sites per country with a secondary language**	**Avg. pages per site with secondary languages**	**Total number of different secondary languages**
2011 (*N* = 57; 1,140)	7.9	.29	41
2007 (*N* = 50; 1,000)	4.4	.20	30
2006 (*N* = 45; 900)	2.6	.12	25
2011 (*N* = 45; 900)	4.7	.29	39
2007 (*N* = 45; 900)	3.7	.19	30
2006 (*N* = 45; 900)	2.6	.12	25

Similar longitudinal trends are evident in the popularity of the most commonly used individual secondary languages; almost all of the languages that were used a minimum of 10 times in the total corpus show a steady increase in usage from 2006 to 2007 to 2011. The breakdown of secondary languages other than English or national language for each year is given in Table 5 in raw numbers, followed in parentheses by percentages of sites in that language out of all sites for that year. The full data set is in the columns on the left, and the 45 country data set is on the right.

Table 5. Longitudinal Breakdown of Secondary Languages Other than English.

2006 (*N* = 900)	**2007** (*N* = 1,000)	**2011** (*N* = 1,140)	**Language**	**2006** (*N* = 900)	**2007** (*N* = 900)	**2011** (*N* = 900)
4 (0.4%)	11 (1.1%)	20 (1.8%)	**Arabic**	4 (0.4%)	9 (1.0%)	19 (2.1%)
20 (2.2%)	39 (3.9%)	62 (5.4%)	**Chinese**	20 (2.2%)	39 (4.3%)	57 (6.3%)
14 (1.6%)	24 (2.4%)	27 (2.4%)	**French**	14 (1.6%)	22 (2.4%)	19 (2.1%)
11 (1.2%)	16 (1.6%)	25 (2.2%)	**German**	11 (1.2%)	15 (1.7%)	18 (2.0%)
2 (0.2%)	3 (0.3%)	9 (0.8%)	**Indonesian**	2 (0.2%)	3 (0.3%)	8 (0.9%)
2 (0.2%)	4 (0.4%)	4 (0.4%)	**Italian**	2 (0.2%)	4 (0.4%)	3 (0.3%)
6 (0.7%)	13 (1.3%)	16 (1.4%)	**Japanese**	6 (0.7%)	12 (1.3%)	15 (1.7%)
8 (0.9%)	12 (1.2%)	20 (1.8%)	**Korean**	8 (0.9%)	11 (1.2%)	19 (2.1%)
1 (0.1%)	3 (0.3%)	6 (0.5%)	**Portuguese**	1 (0.1%)	3 (0.3%)	6 (0.7%)
11 (1.2%)	19 (1.9%)	60 (5.3%)	**Russian**	11 (1.2%)	9 (1.0%)	17 (1.9%)
11 (1.2%)	19 (1.9%)	29 (2.5%)	**Spanish**	11 (1.2%)	17 (1.9%)	26 (2.9%)
5 (0.6%)	7 (0.7%)	7 (0.6%)	**Swedish**	5 (0.6%)	7 (0.8%)	7 (0.8%)
2 (0.2%)	4 (0.4%)	7 (0.6%)	**Turkish**	2 (0.2%)	2 (0.2%)	3 (0.3%)
16 (1.8%)	22 (2.4%)	44 (4.9%)	**Other**	16 (1.8%)	22 (2.4%)	41 (4.6%)

Overall Trends

Overall, the countries in our sample showed a marked trend toward decreasing monolingualism (presenting their university websites in only one language) during the five-year period studied. Monolingualism decreased from 62% to 48% for all sites, and from 62% to 53% for the original 45 countries. Correspondingly, bilingual sites increased from 31% to 36% according to both measures, and multilingual sites increased from 7% to 16% for all countries, and from 7% to 11% for the 45 countries (see Table 6).

Table 6. Longitudinal Trends for Monolingual, Bilingual, and Multilingual Sites.

Year (countries)	**Monolingual sites**	**Bilingual sites**	**Multilingual sites**	**Total sites**
2011 (57)	548 (48%)	415 (36%)	177 (16%)	1,140 (100%)
2007 (50)	566 (57%)	344 (34%)	90 (9%)	1,000 (100%)
2006 (45)	554 (62%)	283 (31%)	63 (7%)	900 (100%)
2011 (45)	477 (53%)	323 (36%)	100 (11%)	900 (100%)
2007 (45)	527 (59%)	301 (33%)	72 (8%)	900 (100%)
2007 (45)	554 (62%)	283 (31%)	63 (7%)	900 (100%)

The number of monolingual sites decreased in 25 countries out of 50, excluding the seven countries added in 2011, for which we did not have a basis for comparison. The greatest decreases occurred for Australia, Austria, Ireland, Italy, and Russia. A decrease in monolingualism corresponds with increasing bilingualism and multilingualism, albeit not necessarily both. Kazakhstan sites decreased sharply in bilingualism but show a huge increase in multilingualism. There is also some bilingualism decrease in Finland, Israel, and Poland, countries whose websites were mainly bilingual to start with. Interestingly, those countries show an increase in both monolingualism and multilingualism, depending on the university. Bilingualism increased the most for Italy, the Netherlands, Russia, and Spain, and multilingualism increased substantially in Australia and France. As in the case of English, the countries in the stable category usually already had very high or very low levels of multiple language use to start with.

These trends are presented in Table 7. The numbers in parentheses represent the increase in number of sites from 2006 to 2011 for the original 45 countries, and from 2007 to 2011 for China, Poland, Kazakhstan, Ukraine, and Russia. As in Table 3, an asterisk means that the increase or decrease occurred between only two of the periods for those countries for which all three periods were sampled.

Table 7. Trends Over Time in Monolingual, Bilingual, and Multilingual Sites.

Monolingual			
Decrease	**Increase**	**Mixed**	**Stable**
Australia (8), Austria (7), Brazil (3), Canada (5), Chile (5)*, Costa Rica (2)*, Denmark (2)*, France (3), Germany (3), India (2)*, Indonesia (2)*, Iran (4), Ireland (6), Italy (7), Kazakhstan (3), Mexico (2)*, Netherlands (1)*, New Zealand (2)*, Russia (6), South Africa (1)*, Spain (5), Taiwan (1)*, Thailand (1)*, Ukraine (1), Yugoslavia (2)*	China (2), Finland (1)*, Greece (1)*, Israel (1), South Korea (1)*, Poland (1)	Arab Countries, Argentina, El Salvador, Ecuador, Great Britain, Malaysia, Peru, Philippines, Portugal, Turkey, USA	Belgium, East Africa, Japan, Norway, Pakistan, Sweden, Venezuela, West Africa
Bilingual			
Decrease	**Increase**	**Mixed**	**Stable**
China (2), Finland (4), France (3)*, Israel (4), Kazakhstan (7), Poland (4)	Australia (1)*, Austria (7), Brazil (2), Canada (3), Chile (4)*, Costa Rica (2)*, Germany (2), India (2)*, Indonesia (1)*, Iran (3)*, Ireland (4)*, Italy (6), Mexico (2)*, Netherlands (4), New Zealand (1)*, Norway (1)*, Russia (4), South Africa (1)*, Spain (5), Yugoslavia (2)	Arab Countries; Argentina, Denmark, Ecuador, Greece, Japan, Malaysia, Peru, Philippines, Portugal, South Korea, Sweden, Taiwan, Turkey	Belgium, East Africa, El Salvador, Great Britain, Pakistan, Thailand, Ukraine, USA, Venezuela; West Africa
Multilingual			
Decrease	**Increase**	**Mixed**	**Stable**
Greece (1)*, Netherlands (3), Norway (1)*	Arab countries (2), Argentina (1)*, Australia (7), Brazil (1)*, Canada (2)*, Chile (1)*, Finland (3), France (6), Germany (1)*, Indonesia (1)*, Iran (1)*, Ireland (2), Israel (2), Kazakhstan (10), Poland (3), Russia (2), Thailand (1)*, Turkey (2)*, Ukraine (1)	Austria, Denmark, El Salvador, Great Britain, Italy, Japan, Korea (South), Malaysia, New Zealand, Sweden, Taiwan, USA, Yugoslavia	Belgium, China, Costa Rica, East Africa, Ecuador, India, Mexico, Pakistan, Peru, Philippines, Portugal, South Africa, Spain, Venezuela, West Africa

Discussion

Considerable variation in the sample is evident for historical and other reasons (e.g., colonization; ease of learnability of a language; language policy) according to language and country/region. However, certain generalizations can be posited, which we organize below as responses to the study's research questions.

Our first research question asked to what extent universities in different countries provide foreign language Web pages, and what languages are used as primary and secondary languages. Our survey of 57 countries found that foreign-language Web pages were provided often in 2011, especially in English. The extensive use of English as a secondary language fulfills many of the motivations that support its continued global dominance, as identified by Phillipson (1992): It is well established; it confers status and economic advantage; it symbolizes modernity and an international identity; and it is a practical language of cross-cultural communication. Other secondary languages are also used for practical purposes; for example, to attract foreign students. This is the case in countries of the European Union, which are participating increasingly in cooperative international scholarship programs, and in Australia and New Zealand, whose universities attract a broad spectrum of students from South and Southeast Asia; these countries' websites are among the most multilingual. Inclusion of pages in another language can function as direct marketing to specific groups of prospective students, such as when an Australian university includes pages targeted at students from Poland, or as indirect marketing, such as when pages in English on a Malaysian site provide information about courses of research and study available to foreigners, without specifying any group (Ho et al., 2010). Inclusion of content in minority languages may also serve to promote the local language and culture, as, for example, with Catalan and Galician in Spain.

In most countries and on most sites, the primary language used is a national language. The main exception to this is the use of English in postcolonial countries (Kachru's "outer circle") at the expense of their native tongues. Thus Hindi is the largest native language spoken in India and is among the top five languages in the world in terms of number of native speakers (Wikipedia, 2011a; see also Kelly-Holmes, 2006), yet only two Indian universities had a secondary page in Hindi (none had a primary page), and those pages did not appear until the 2011 sample. No Swahili is used in East African sites, and no Filipino is used in sites from the Philippines in 2011—down from one site in each country in earlier years. Even in Malaysia, where four sites use Malay as their primary language and four as their secondary language—more native language use than in any other former British or U.S. colony—there is currently a push to ramp up English education, so that students in rural areas, especially, will not be disadvantaged by their lack of English (*Math and science,* 2009). Thus the projected trend in these "outer circle" countries seems to be for continued English use, rather than a reclaiming of native languages, at least in the domain of higher education.

It is notable that English is either the primary or secondary language on most sites in most countries, with the exception of Spanish-speaking countries in Central and South America. The universities in these countries, it seems, do not feel the need to attract students or represent themselves outside the Hispanic world. Considering that Spanish has the second-largest number of native speakers in the world (Wikipedia, 2011a) and that it is spoken natively in more than 20 countries—the legacy of colonization by

Spain starting in the 15th century (Wikipedia, 2011b)—this monolingualism can be sustained. Spain itself, however, has university websites that are highly multilingual. The Spanish situation contrasts strikingly with that of Chinese. Chinese is also a very large (indeed, the largest) world language, with more than twice as many native speakers as Spanish (Wikipedia, 2011a); yet the sites in native Chinese-speaking countries are not monolingual. All the university sites in China and Taiwan are primarily in Chinese, but 60% of sites in China and 95% of sites in Taiwan have secondary pages in English, and several other languages are represented on both countries' sites. China patterns more in this regard like Spain than like the latter's former colonies, although unlike Spain, it lacks overseas colonies. These observations suggest, somewhat paradoxically, that former colonies are more likely to be monolingual than native locales. The monolingualism of the former British colonies, including the United States, relative to Great Britain is further evidence of this.

Our second research question asked whether there has been any change over time in the languages used on university websites. We found a clear trend toward an increasing use of more than one language and, indeed, (limited) parallel use of multiple languages, over the five-year period we studied. The national language (or English, in the case of former British and U.S. colonies) remained the primary language of choice for most countries, but secondary languages were increasingly added, including English. The use of individual non-English secondary languages grew quickly and at similar rates, roughly doubling from 2005 to 2011, with the exception of Chinese (which tripled) and Arabic (which quadrupled). The rate of growth of secondary English pages was slower (see Tables 3 and 5).

Finally, we asked what larger trends, if any, these results support regarding Internet multilingualism. The Replacement Theory is only supported to a limited extent: Even though use of English is increasing over time, so is the use of multiple languages other than English. The Diversity Theory is partially supported, although it does not account for the heavy use of English, including its increased use as a secondary language, unless English is considered as just one language among others, which ignores its global, "hypercentral" status (de Swaan, 2001). Nor are many minority languages represented on the websites, outside of those in Spain; Welsh, for example, appears on just one site in one year. The Oligarchy Theory is supported for Spanish, but no other "supercentral" language save Russian has a strong regional spread, and Russian is losing ground in former Soviet bloc countries since the break up of the USSR (de Swaan, 2001; Fishman, 1998; Wei & Kolko, 2005), as evidenced in our data from Kazakhstan. Chinese is fairly popular as a secondary language, but not just in Southeast Asia and not as a primary language outside China and Taiwan. As for the other supercentral languages hypothesized by Graddol (1997) to form part of the future oligarchy, Malay and Arabic use is weak even inside their native-speaking countries, and Hindi use is almost nonexistent. Use of these three languages is eclipsed by English, consistent with Kelly-Holmes' (2006) findings for country-level international business sites.

Our results best comport with the Diglossia Theory, as proposed by Dor (2004). The majority of countries where English is not the national language use both their national language(s) and English on their university websites to market to different audiences and for different purposes (e.g., international recognition vs. serving local student constituencies). The only exceptions are the monolingual "outer circle" English countries and monolingual Spanish countries, which constitute special historical cases as former colonies of Britain and Spain, respectively, as noted above.

The findings of this study in relation to the four theories set out in the beginning of the article are summarized in Table 8.

Table 8. Summary of Findings in Relation to Theories.

Theory	Findings
Replacement	Limited support for spread of English, but not for replacement of other languages
Diversity	Partial support: especially for Australia, Finland, France, Kazakhstan, Russia, and Spain; but doesn't account for spread of English
Oligarchy	Support for Spanish; limited support for Russian and Chinese; no support for Arabic, Hindi, or Malay
Diglossia	Support, except for a few monolingual countries

However, even the Diglossia Theory fails to capture the use of more than two languages on a country's websites, which was common in our data. We suggest that a better model for explaining our overall findings is one of tri-level *multiglossia*. In this model, the national language is the primary language, used to communicate with the native population of the country; English is the secondary language, aimed directly or indirectly at an international audience; and additional languages target specific groups of prospective students and/or signal local and cultural identities. Examples of this multiglossic situation include sites in Spain (Spanish, English, Catalan/Galician), Finland (Finnish, English, Swedish), Iran (Farsi, English, Arabic), Israel (Hebrew, English, Russian), Japan (Japanese, English, Chinese), and Azerbaijan (Azerbaijani, English, Russian). In some of these cases, the "third" language is a supercentral language or regional lingua franca, as predicted by the Oligarchy theory, albeit not always; in other cases, it is what de Swaan (2001) called a "peripheral" language. The "second" language is almost invariably English, however. Moreover, use of the languages at the three levels appears to be changing at different rates: National languages are stable; English is increasing over time; and languages at the third level are increasing the fastest. This dynamic multiglossic pattern is depicted in Figure 5.

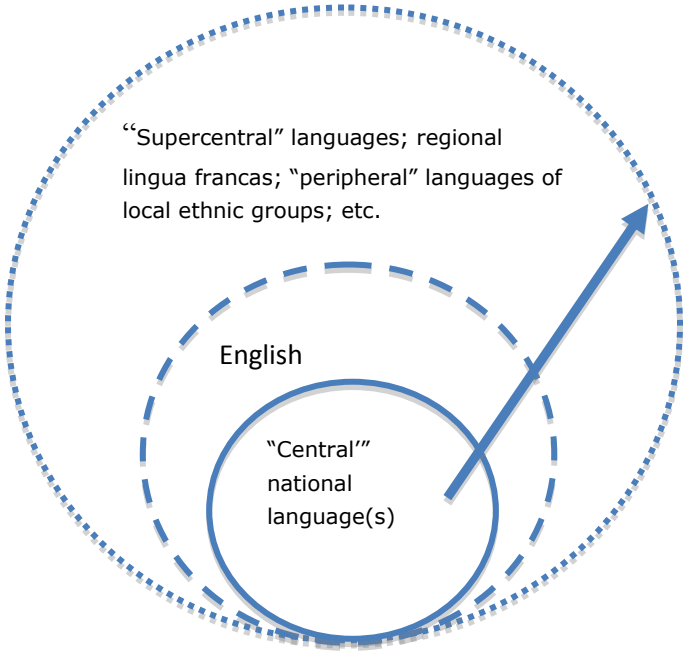

Figure 5. Dynamic multiglossia in a country's university websites.

It is not just multiglossic countries that exhibit this pattern. If the second and third levels are allowed to be optional, with the third being more optional than the second (as represented by dotted lines in the figure), the model characterizes most of the countries in our sample. ("Inner circle" English countries skip the second level by definition, and some "outer circle" countries skip the first level in practice.) The model is dynamic, in that there is a trend over time for countries to expand from the first to the third levels, adding languages to their university websites in the order indicated by the arrow in Figure 5. This model helps conceptualize how it is that English is expanding, but the use of other languages is expanding more, without threatening the core position of the national language(s) of the country.

Conclusions

The findings of this large-scale, longitudinal study of university websites around the world suggest several conclusions. First, English continues to spread as a global language of higher education. However, except in former U.S. and British colonies, it is not eclipsing the use of other languages, at least not on university websites. On the contrary, national language use is holding steady, and the inclusion of

other languages is increasing at a faster rate than English, resulting in an overall net increase in multilingualism. The motivations for this are symbolic as well as practical. Even if universities do not offer coursework in multiple languages, providing foreign language Web pages may make them seem welcoming to speakers of those languages and suggests that the university is experienced in educating international students. It may also serve to communicate and reassure parents of foreign students who are not themselves fluent in the language of instruction. The site may also be easier to discover through Web searches if the student's initial queries are in his or her native tongue.

These motivations, together with the longitudinal trends evident in the present study, lead us to predict that the overall degree of multilingualism of university websites will continue to increase. A possible confounding variable, however, is machine translation: Whereas most foreign language pages in the sites we analyzed appeared to have been manually created, a small but growing number of sites offered the option of translating pages automatically using tools such as Google Translate.™ In the future, university websites could all be available in a wide array of languages, which could increase the practical outreach of the institutions but would considerably dilute the symbolic significance of their language choices.

The wide scope of the present study notwithstanding, the countries included in our sample were not selected at random; this is a methodological limitation that we tried to overcome by adding countries to Hofstede's sample from different regions and political backgrounds. Nonetheless, a number of countries were not included in the investigation. Moreover, some smaller and less developed countries included by Hofstede were excluded because they did not have 20 universities or their universities did not have websites, and some countries were grouped together with others as regions. Research on the Web presence of universities in countries that were not included in the present study is a desideratum for future research. Another limitation of the study is that it did not account for the amount or type of information presented in different linguistic versions, as this would have required knowledge of the languages of the countries studied. It would be interesting to know whether the same content is presented in different versions or whether it is customized for the target linguistic community, and if the latter, in what ways.

This study examined one genre of online communication: university websites. Although we do not claim that the findings generalize to other website genres nor to the Web as a whole, we believe that the results are all the stronger for the fact that English was the dominant and growing global language of higher education before this study (Ammon, 2001; Crystal, 2003), and many countries model their universities on the British or U.S. systems. If anything, one might have expected that English usage would continue to increase at the expense of other languages, fueled by the effects of the English-dominant, U.S.-originated Internet. The finding that use of non-English languages increased more than English is especially surprising in the higher education domain, and it gives hope that other Web genres, some of which have even stronger reasons to "localize" (e.g., health sites; cf. Singh et al., 2007), may follow a similar trajectory. Clearly, however, future longitudinal research is needed for multiple Web genres to determine whether increasing multilingualism on the Web is a widespread, long-term trend.

Appendix

Country	Number of sites with secondary language (English excluded)	Number of sites with secondary language (English included)	Country	Number of different languages (English excluded)	Country	Total number of pages in secondary languages (English excluded)	Total number of pages in secondary languages (English included)
Azerbaijan	11	15	Australia	20	Australia	62	NA
Australia	9	NA	Spain	20	New Zealand	25	NA
Ukraine	9	16	New Zealand	12	Spain	23	40
Latvia	8	16	Ireland	10	Ireland	14	NA
France	8	12	Austria	7	France	14	26
Japan	8	12	Germany	7	Japan	14	26
Kazakhstan	8	12	Malaysia	7	Malaysia	12	15
Finland	7	19	Lithuania	6	Finland	11	30
Korea (South)	7	13	France	5	Ukraine	11	28
New Zealand	6	MA	Sweden	5	Azerbaijan	11	25
Moldova	6	11	Turkey	5	Korea (South)	11	23
Uzbekistan	6	9	Ukraine	5	Turkey	10	30
Turkey	5	20	Belarus	4	Germany	10	27
Yugoslavia	4	15	China	4	Latvia	8	24
Belarus	4	14	Italy	4	Belarus	8	22
Sweden	4	12	Taiwan	4	Sweden	7	27
Poland	4	10	Finland	3	Austria	7	24
Ireland	3	NA	Great Britain	3	Lithuania	7	23
Iran	3	16	Iran	3	Italy	7	21
Italy	3	15	Israel	3	Moldova	6	16
Russia	3	14	Poland	3	Uzbekistan	6	15
Malaysia	3	9	Arab countries	2	Iran	5	21
Georgia	2	18	El Salvador	2	Russia	5	19
Germany	2	17	Georgia	2	Poland	5	15
Lithuania	2	17	Japan	2	Taiwan	4	23
Spain	2	16	Kazakhstan	2	Israel	4	17
Taiwan	2	15	Korea (South)	2	China	4	16
Israel	2	13	Latvia	2	Great Britain	3	NA
Thailand	2	9	Russia	2	Kazakhstan	3	17
Canada	2	5	Uzbekistan	2	Georgia	2	19
Great Britain	1	NA	Argentina	1	Thailand	2	12

South Africa	1	NA	Azerbaijan	1	Canada	2	6
Austria	1	18	Brazil	1	El Salvador	2	3
Netherlands	1	17	Canada	1	Netherlands	1	18
China	1	12	Chile	1	Yugoslavia	1	16
Arab countries	1	8	Indonesia	1	Arab countries	1	9
Argentina	1	6	Moldova	1	Indonesia	1	8
Chile	1	6	Netherlands	1	Argentina	1	7
Indonesia	1	6	Philippines	1	Chile	1	7
Brazil	1	3	South Africa	1	Brazil	1	4
El Salvador	1	1	Thailand	1	Philippines	1	1
Philippines	1	1	Yugoslavia	1	South Africa	1	1
East Africa	0	NA	Belgium	0	USA	0	NA
India	0	NA	Costa Rica	0	Norway	0	20
Pakistan	0	NA	Denmark	0	Denmark	0	19
USA	0	NA	East Africa	0	Greece	0	17
West Africa	0	NA	Ecuador	0	Belgium	0	11
Norway	0	20	Greece	0	Portugal	0	8
Greece	0	17	India	0	Costa Rica	0	6
Denmark	0	15	Mexico	0	Mexico	0	3
Belgium	0	11	Norway	0	Peru	0	2
Portugal	0	8	Pakistan	0	Ecuador	0	1
Costa Rica	0	6	Peru	0	East Africa	0	0
Mexico	0	3	Portugal	0	India	0	0
Ecuador	0	1	USA	0	Pakistan	0	0
Peru	0	1	Venezuela	0	Venezuela	0	0
Venezuela	0	0	West Africa	0	West Africa	0	0

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