

Technology Generation and Media Usage in B-2-B Communication: A Cross-Cultural View

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Abstract. In this work culture-specific and cross-cultural influences on frequency of use of media and trust in media for B-2-B communication purposes were explored, taking Brazil and Germany as exemplary countries. Using an online survey, 236 respondents from Brazil and Germany were examined regarding their professional media usage. Findings show both culture-specific as well as cultural insensitive media usage in B-2-B communication. Brazilians use new media more frequently than Germans. However, it was also revealed that cross-cultural variables as age, gender and technical self-efficacy influence even more significantly the frequency of use of media. Furthermore, trust in media for B-2-B communication showed to positively correlated with the frequency of use of media in both countries.

Keywords: Business-to-business · B-2-B · New media · Social media · Culture · Age

1 Introduction

Due to new technology developments, enterprises from all over the world have been facing the challenge of rebalancing between traditional and new media so as to effectively conduct local and global business-to-business (B-2-B) communication [1, 2]. From the perspective of Social, Media and Communication Sciences, this phenomenon is not only challenges regarding the question of which media and communication means might be appropriate and accepted for different professional areas and communication needs, more so, cultural identity and forms in social media usage in professional areas are not adequately considered so far.

The modern world is highly interconnected through information and communication technologies [3, 4]. New forms of electronic media keep constantly reshaping the ways of communicating all over the globe and in all areas of human interaction. In the

so-called global information society [5], the integration of new media in corporate settings is already a reality, following the enormous success of these new communication forms in the private sphere [6, 7]. For the business-to-business (B-2-B) communication field, which concerns enterprise communication to and among internal and external stakeholders, such changes have demanded a challenging process of rebalancing between traditional and new media [8]. Yet, there is still a considerable need for research in this area.

International B-2-B communication is on the rise, since cross-border transactions have become significantly more intense over the past 20 years [9, 10]. In spite of B-2-B's essential importance for the global economy, most of the actual reports and studies address primarily business-to-customer (B-2-C) communication issues, which are often not pertinent in B-2-B settings [11]. Besides, most trend studies and surveys on these topics provide findings that target mainly advertising and market aspects [12, 13], leaving aside the complexity of media usage or media effects patterns. Furthermore, there is not much investigation of the influence of cultures, cross-cultural individual determinants or even of the constantly changing media paradigms. Understanding and keeping pace with the changes in such a complex system that englobes media-based B-2-B communication reverberate in a positive way for marketing professionals or information system researchers [14].

B-2-B Communication. Opposite to business-to-customer (B-2-C), B-2-B-oriented companies do not target private consumers, but design and sell products and services mainly to organizations, [15]. The B-2-B sector is responsible for a very significant part of the total industry revenues worldwide. B-2-B communication regards all communicative activities performed by a company towards the human being as part of a procuring organization. With respect to the subject matter of communication, not only products and services can be promoted but also the company as a whole; hence, the term B-2-B is also regarded in marketing as 'corporate communication' [16]. Corporate communications aims not only to the formation and development of a strong and unique image of the company's personality, it also represents communication tools and activities that are used to represent the company and its services to the relevant internal and external target groups of communication [17]. More specifically, corporate communications can be divided into three branches: the market communication, the employee communication and public relations (Fig. 1).

'Public relations' ensure the company's fundamental sphere of influence [18], for constructing and keeping relationship and trust in social and political contexts [19, 20]. 'Market communication', in contrast, seeks the economic objective of advertisement, which means selling products and services to other companies. 'Employee communication' concerns internal necessities and processes, and it is oriented to organizational stakeholders so as to ensure their incorporation in internal decision-making processes that aim the corporate development [17]. The latter seeks for higher employee satisfaction and loyalty, as well as higher productivity and distribution of information and knowledge inside the organization. The present work refers to the communication activities of B-2-B-oriented organizations, which target external and internal stakeholder groups [21].



Fig. 1. Corporate communications regarding its functions [22]

Media Usage B-2-B Communication. In what concerns the typology of media, there is primarily the differentiation between individual and mass media [23]. The individual media can also be termed ‘1:1 media’, since they enable a two-sided interpersonal (synchronous or asynchronous) communication. Examples are mail, e-mail or telephone. Mass media (1:n media) allow to transmit content to many recipients. Typical mass media are TV, radio, newsletters, but also classical websites that are based on one-way communication [24].

With the further development of Internet as ‘Web 2.0’ and of technical devices, as well as due to the advent of social media tools, another type of media type has emerged: the so-called ‘n:n media’, which is characterized by the possibility of many senders communicate with many recipients on a global and public scale. Due to the intensification of use of n:n media, there is a switch from push to pull communication. Within push communication stimuli are sent unilaterally and the recipients respond to it or not. Pull communication, in contrast is based on dialogue. The users search actively for the information they need, recommend – or not – services and products (the ‘word-of-mouth’), and step into dialogues with companies, not only for information but also in order to give feedback.

Due to the increasing development and successful diffusion of the already mentioned Web 2.0 technologies, companies were induced to gradually adopt the new tools for means of corporate communication. While B-2-C-oriented enterprises adapted more quickly to the new reality, B-2-B companies are still beginning to keep pace with the times [11]. Finally, since B-2-B communication is situated in the middle of a process of turnaround from push to pull communication strategies, it is still characterized by the broad use of both traditional and new media. Therefore, investigating the media usage in this context requires contemplating both kinds of media (Fig. 2).

Regarding the traditional 1:1 media, the present work focuses on some non-electronic media for interpersonal communication, which are face-to-face communication, telephone, FAX and mail. On the other hand, new – and hence electronic-based – 1:1 media is represented in this work by e-mail, videoconferencing, instant messenger (e.g. *WhatsApp*) and online chat (e.g. *Google Talk*).

	1:1 media	1:n media	n:n media
TRADITIONAL	Face-to-face Telephone FAX Mail	Brochures Magazines and Newspapers Scientific papers Specialized trade fairs	
NEW	E-mail Videoconferencing Instant messenger SMS Online chat	Websites News portals	Enterprise/ Commercial social media Search engines Online encyclopedia Enterprise weblogs Video portals RSS feeds Podcasts Social bookmarks

Fig. 2. Chosen media for this research

The new 1:n media that are regarded here are websites (in its traditional, not dialog-based forms) and news portals. Since scientific papers can also be accessed online, they are also assigned to the category of new 1:n media. As new n:n media online encyclopedia, weblogs, social networks (both corporate and public), social bookmarking, RSS feeds, podcasts, video portals and search engines are explored.

Cultural Determinants in B-2-B Communication. In order to operationalize the concept of culture, the present work is based on the cultural dimensions used in the GLOBE study, that focuses on culture and leadership and comprises of 61 countries [25] and reports cultural values and practices across countries, identifying organizational practices and leadership attributes [26]. Overall, nine dimensions were developed: (1) *Uncertainty avoidance*: the extent to which members of a society or an organization strive to avoid uncertainty by reliance on norms and defined processes. (2) *Power distance*: the degree to which members of an organization expect and agree that power should be equally shared. (3) *Collectivism I (societal)*: the degree to which social and organizational practices encourage and reward collective distribution of resources and collective action. (4) *Collectivism II (in-group)*: the degree to which individuals express pride, loyalty and cohesiveness in their groups. (5) *Gender Egalitarianism*: extent to which a society or an organization minimizes gender role differences and discrimination. (6) *Assertiveness*: degree to which individuals in organizations are assertive, confrontational and aggressive. (7) *Future Orientation*: degree to which individuals engage in future-oriented behaviors such as planning and investing in the future. (8) *Performance Orientation*: extent to which an organization encourages or rewards group member for performance improvement. (9) *Humane Orientation*: degree to which individuals encourage and reward others for being fair, altruistic, friendly, generous, caring and kind to others.

Age and Technical Generations. Historically, new technologies have caused visible changes in the way of living, of communicating and even of understanding the world. A huge body of knowledge is prevailing regarding the influence of age on technology

acceptance [27, 28, 29]. Outcomes revealed that older adults are more hesitant and show higher levels of difficulty when dealing with new technologies as well as a significantly different understanding of technology [30]. In this context, the concept of technology generation does play an important role in the way of dealing with media and technology. Based on the technological paradigm that reigned in different formative periods [31] distinguish basically between three generational groups: the Early-technical Generation (65 years old or more), the Household Revolution Generation (49 to 64 years old) and the Computer Generation (26 to 44 years old) as well as the Internet generation (14 to 25 years old). This work will rely on this expanded model of technical generations in order to analyze the influence of age in frequency of use of media and the trust in media for B-2-B communication purposes.

2 Methods

In this paper we explore the Media Usage in B-2-B Communication and the questions if media usage is depending on the technology generation and in how far different cultures do use media differently.

Selection of Countries and Cultures: Brazil and Germany. In order to shed light on culture-specific and cross-cultural influences on media usage for B-2-B communication, we chose Brazil and Germany as two exemplary countries, which are comparably different, and have frequent business collaborations on a B-2-B communication basis. Although Brazil's cultural traits had large influence of European cultures – due to the mother country Portugal and the European immigration in the 19th century –, a first-time interaction of Brazilians with Germans reveal some clear differences between both countries.

The mixture of races and cultures, together with the tropical climate, are said to have produced in Brazil “people of easy-going disposition” [32], who also tend to have a close distance of comfort, to be tactile and informal. Germans are known worldwide for their effectiveness, straightforward communication and serious and formal approach [32]. Ultimately, such culture-related characteristics and tendencies may also influence specific recurrent patterns of media usage [33]. On the base of an interview, which was done prior to the questionnaire study, a Brazilian marketing specialist, who is also CEO at a big marketing agency in the country, affirmed that Brazilians “generally try to take the warmth of relationships into connections through new media, including for professional issues”. Furthermore, he also claimed, that “Brazilians show a high level of acceptance and vivid interest for new technologies and media”. In contrast, an interviewed German press and communications professional stated that the Germans “always look first for the fly in the ointment (...) when dealing with new technologies and new media”, since they would tend to be very conservative, perfectionist and cautious.

Questionnaire. The questionnaire consisted of 30 questions and it was divided into six main parts: (a) culture and decision-making style; (b) self-efficacy when dealing with technology; (c) typification of the enterprise and working environment; (d) way of dealing with texts in the B-2-B context; (e) media usage in the B-2-B communication; and (f) demographic data. The survey was developed in German and translated into

Table 1. Item example of approval of information collection

Cultural dimensions:	Which item applies for your country?
Collectivism	• The system of seeks for individual interest
Power distance	• Heads have the full authority and need obedience
Humane orientation	• Most people have a clearly structured life with only few unexpected changes
Collectivism	• Group loyalty dominates individual interests
Collectivism	• Clerks are loyal towards the firm they are working for
Assertiveness	• Most people here avoid conflicts
Gender egalitarianism	• We have gender equality in professional careers is
Future orientation	• Most people live for the moment rather than the future
Performance orientation	• Students are encouraged to engage for high performance

Portuguese in order to be distributed both in Germany and in Brazil. The questionnaire was delivered online through personal and professional networks, social media and third-part indications. Its completion was estimated to take between 15 and 20 min. In the following we report those sections in greater detail, which will be reported later. Other parts remain uncovered due to space restrictions.

The first relevant section concerned culture and decision-making style. All culture-related items were adopted from a short version of the original GLOBE questionnaire.

The six-point scale ranged from ‘fully applies’ to ‘does not apply at all’ (Table 1).

The next section dealt with media usage for B-2-B communication and collected data about preferences and frequency of media usage in the working context. The items displayed both 1:1 and n:n traditional and new media. The seven and six-point scales (respectively) enabled the frequency range from ‘never’ to ‘every day’.

Sample. A total of 236 people took part, 129 respondents from Brazil and 107 from Germany. Among the Brazilians, 69 % were male (21.3 % female). Among the Germans, 61.7 % were male (34.5 % are female). *Technology generation.* The majority (71 %) belongs to the computer generation (26–48). The second biggest group is represented by the Internet generation (14–25) with a total of 14 % of all respondents. The household revolution generation (49–64) is represented by 8 % of participants. *Education.* Overall, the sample was highly educated. 72 % of the Brazilians are or have been in college, or have a higher-level education, being a Master or a post-graduation qualification. Among the Germans, 62 % also have a Bachelor or Master degree. Around 8 % of the Brazilians and 5 % of the Germans have done a doctorate. *Professional experience.* Around 97 % of the Brazilian and 89 % of the German respondents have already been or are professionally active. 45 % of Brazilians have already worked abroad, most of them (13 %) for more than two years. 36 % of the Germans have worked or are currently working abroad, the majority (15 %) for less than six months. 57 % of Brazilian women against 47 % of men have been working outside Brazil, while 47 % of German men opposite to only 22 % of women have already worked elsewhere than in Germany. Most of respondents that are working abroad belong to the computer generation (26–48 years). 5 % of the Gameboy generation (14–25 years) from Brazil has already been working abroad.

3 Results

Technology Generation and Self-competence when Using Technology. In Fig. 3, outcomes in technical self-competence are depicted, assessed by a scale of [34]. This personality attitude is considerably related to technology generation. Putting nationality aside, the means for the technical generations are $M = 76.8$ (Gameboy), $M = 75.7$ (Computer) and $M = 66.3$ (Household Revolution). Concerning gender, men had significantly higher scores ($M = 78.9$) compared to women ($M = 65.1$). Nationality, in contrast, did not impact technical self-competence.

Cultural Dimensions in Brazil and Germany. When plotting the means of cultural dimensions on a radar z, the cultural differences become obvious (Fig. 4).

Mann-Whitney U tests show significant differences between both cultures for the following cultural dimensions ‘Humane Orientation’ ($p = .000$), ‘Uncertainty

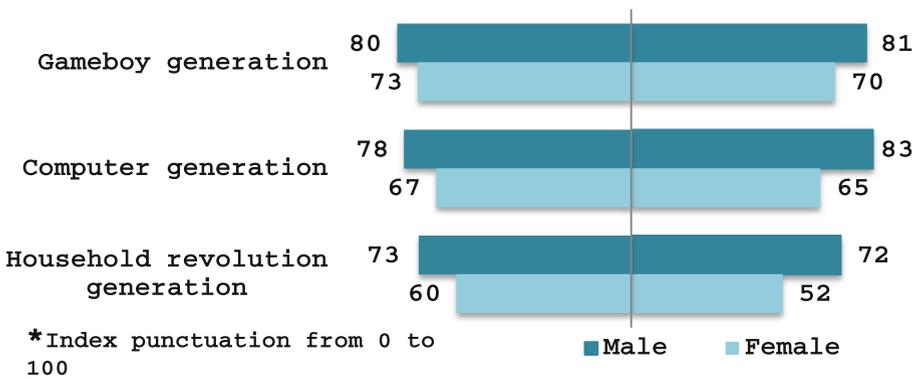


Fig. 3. Technical self-competence for gender and technology generations in both countries

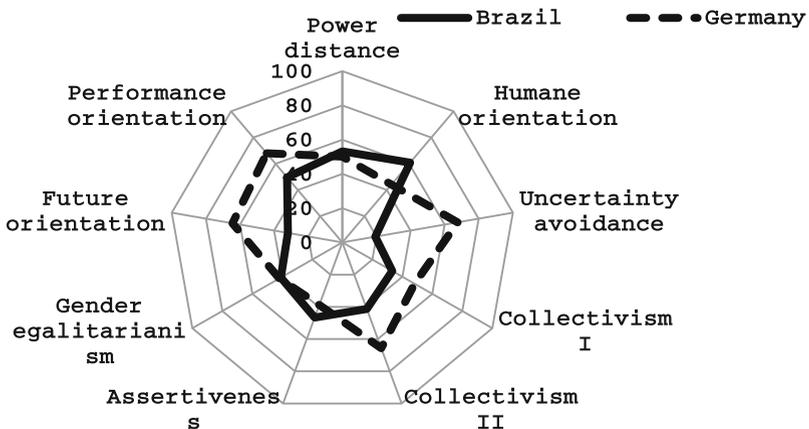


Fig. 4. Cultural dimensions for Brazil and Germany (Index ranges from 0–100 points)

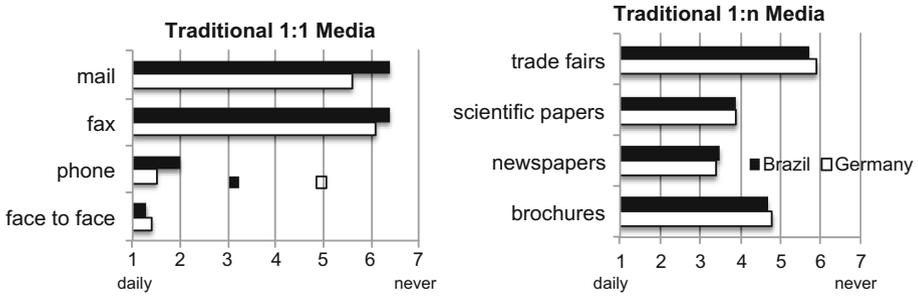


Fig. 5. Usage of traditional media in both countries

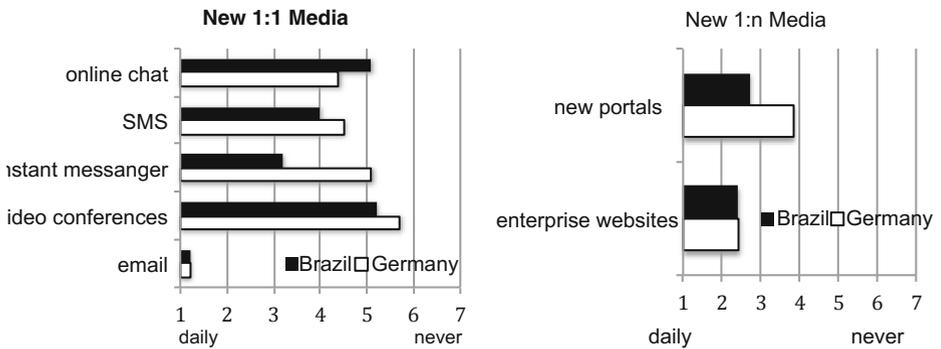


Fig. 6. Usage of new media in both countries

Avoidance' ($p = .000$), 'Collectivism I' ($p = .000$), 'Collectivism II' ($p = .000$), 'Performance Orientation' ($p = .000$) and 'Future Orientation' ($p = .000$).

Use of Media in Brazil and Germany. In the following the media usage in both countries is reported. Figure 5 shows outcomes in traditional media.

As can be seen, both countries show differences in traditional media usage. By means of non-parametric Mann-Whitney U tests, the frequency of use of telephone ($p = .002$), FAX ($p = .005$), and mail ($p = .000$) was more often used in Brazil in contrast to Germany, while the traditional 1: n media were used comparably often. The next analysis regarded the New Media (1:1, and 1:n, Fig. 6). Again significant differences between media usage in both countries showed up. In Germany, instant messenger ($p = .000$) and news portals ($p = .002$) are used less frequent in comparison to Brazil.

Finally we explored the usage frequency of new n:n Media (Fig. 7). Overall it could be revealed that new n:n Media are statistically significant more frequently used in Brazil in comparison to Germany (commercial social media tools ($p = .014$), enterprise web blogs ($p = .000$) and video portals ($p = .000$)).

In order to find out if media usage is impacted by technology generation, we run Spearman correlation analyses, revealing indeed effects of generational influences

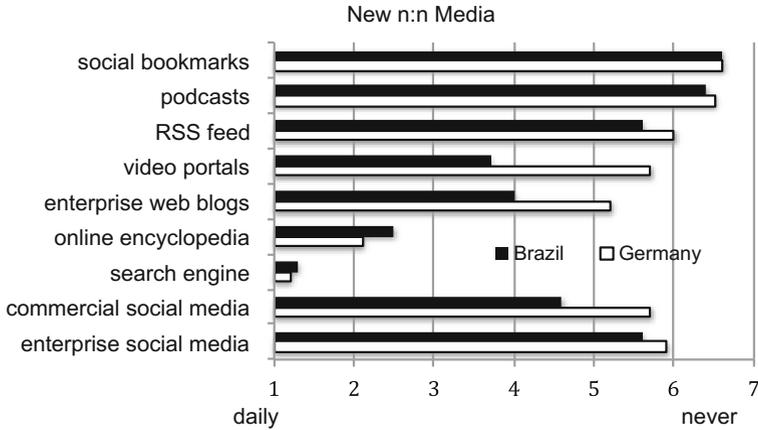


Fig. 7. Usage of new n:n media in both countries

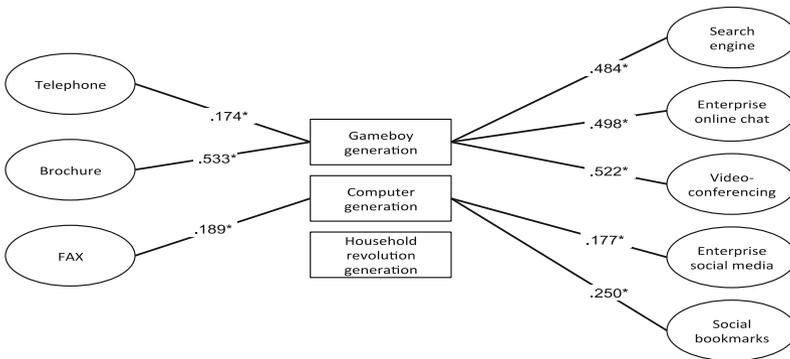


Fig. 8. Correlations between technology generation and media usage

(Fig. 8). All correlations are positive, which means that the higher the age, the more often the specific media are used for B-2-B communication purposes. However, the oldest technical generation does not correlate significantly with the frequency of use of any medium, which probably is due to the small sample. Moreover, concerning the use of social media for private purposes, the Gameboy generation presents the higher frequency levels: 78 % of the group said to use social media at home very frequently.

4 Discussion

This work showed that Brazil and Germany have significant differences in their cultural dimensions: while Brazilians tend to be more relationship-oriented and less meticulous about the future, Germans tend to avoid uncertainty and prize performance. At the same time, gender inequality seems to be an issue in both countries. Specific cultural values

of both countries also proved to influence patterns of etiquette regarding formal addressing and texts for B-2-B purposes. Yet, there is a culture-independent consensus regarding general formal addressing and the proper use of language, which might be influenced mainly by the working context.

When it comes to the question if there are differences in media usage across both countries, at a first glimpse, the general patterns of frequency of use of media are quite similar. However, there were also differences: Germans tend to use traditional media more often than Brazilians, who tend to give preference to new media. This finding was confirmed by the fact that Germany had higher scores regarding the use of traditional media (telephone, FAX and mail), while Brazil's higher scores were for the use of new media (Instant Messenger, news portals, commercial social media tools, enterprise weblogs and video portals). In order to assess to what extent individual characteristics impact the use of media for B-2-B communication purposes, age and technology generations was focused. A construct that clearly bounds age and gender regarding the use of technology is technical self-efficacy. Findings showed that technical self-efficacy is closely related to age and gender, and independent from nationality. Both in Brazil and in Germany, men always report higher self-confidence than women, and younger people also higher scores than older persons. The cultural-insensitive pattern corroborates earlier findings according to which different technical generations experience technology in a different way [27, 29]. Whilst older persons prefer the use of telephone, fax or video portals, showing older people using traditional media more frequently than new medium, the technical generations correlated differently from 'age' when combined separately with specific new media – such as social bookmarks and enterprise social media. Finally, technical self-efficacy displayed greatest impact on the frequency of use especially of new n:n media. This shows that higher levels of confidence when dealing with technology also influence the acceptance and adoption of new communication technologies in a positive way.

Of course, this work represents only a first insight in the complex phenomenon "culture". Critically speaking, culture was treated like a "black box", which is related to political, geographic and historical frames. Yet, it is reasonably to assume that the use of a country as a proxy for culture may be misleading. Although this decision has helped to operationalize the concept of culture, relevant regional differences from each country were not taken into account. Also, individual cultural differences were also not considered. Thus, even though the results regarding cultural dimensions for both countries were similar to the GLOBE outcomes for both countries, conclusive assumptions may be premature and have to be replicated in future research.

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