Investigating the Prevalence and
Predictors of Media Multitasking Across Countries

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This study provides insight into the prevalence and predictors of different forms of media multitasking across different countries. Results of a survey of 5,973 participants from six countries (the United States, the United Kingdom, Germany, the Netherlands, Spain, and France) demonstrated that media multitasking is most common in the United States and is least common in the Netherlands. The study demonstrates that the type of media multitasking differs across countries. Whereas media multitasking with combinations of new media is most prevalent in countries characterized as polychronic, media multitasking with traditional media is most prevalent in countries that can be characterized as monochronic. Demographics predict media multitasking differently across countries, with the exception of age, which is a universal predictor.

Keywords: media multitasking, polychronicity, monochronicity, time orientation

Media are omnipresent and consumed 24 hours a day. This overwhelming media environment encourages individuals to increasingly engage in one or more media activities at a time, so-called media multitasking (Holmes, Papper, Popovich, & Bloxham, 2005; Pilotta, Schultz, Drenik, & Rist, 2004; Rideout, Foehr, & Roberts, 2010; Voorveld, 2011). For instance, an individual may watch television while surfing social networking sites or read the news on a laptop while listening to music. Research demonstrates that

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people engage in media multitasking during about 25% to 50% of their media consumption time (Foehr, 2006; Pilotta et al., 2004; Shih, 2013; Voorveld & Van der Goot, 2013). Media multitasking is an important topic for communication scholars, because media multitasking can influence message processing and effects (Jeong & Hwang, 2012; Jeong, Hwang, & Fishbein, 2010).

This study provides insight into the phenomenon of media multitasking and investigates whether this type of media behavior differs across countries. Understanding this is essential, because research on media multitasking historically has been based on data from one country only (the United States). The existing research, therefore, neglects the perspective that communication and media use can be viewed as part of a national culture (Craig & Douglas, 2006) and may differ across countries. A valuable exception is the recent study of Kononova (2013), who investigated differences between students in the United States, Kuwait, and Russia and found that media multitasking was most prevalent in the United States. Kononova, however, calls for the inclusion of more countries and more representative and larger samples. Therefore, the first aim of this study is to answer this call by comparing the prevalence of different forms of media multitasking worldwide.

It is especially interesting to investigate countries that differ regarding their time orientation. Certain countries have a time orientation that can be characterized as monochronic, whereas the time orientation of other countries can be characterized as polychronic. Monochronic individuals prefer to do things in a structured and linear manner and employ a one-step-at-a-time approach (Lee, Tan, & Hameed, 2006). For polychronic individuals, schedules have less meaning, and individuals tend to be more flexible and less regimented, preferring to handle multiple tasks simultaneously. Polychronicity is a characteristic that differs across countries (Bluedorn, Felker Kaufman, & Lane, 1999; Hall, 1959). Hall observed that North Americans and North Europeans are typically monochrons, whereas Latin Americans and South Europeans have a more polychronic time orientation. Polychronicity could explain differences in media multitasking among countries. Therefore, the second aim of the current study is to test whether people in polychronic countries engage in different amounts and forms of media multitasking than people in monochronic countries.

Finally, this study provides insight into which variables predict media multitasking. Key variables typically studied as possible predictors of media multitasking include demographics such as age, gender, and level of education (Jeong & Fishbein, 2007). There is, however, no current knowledge concerning whether these factors predict media multitasking universally across countries. It might be that these factors are not equally important in different countries (Rojas-Méndez, Davies, & Madran, 2009), which is useful information for communication practitioners who develop media strategies for different countries. Therefore, the final aim of our study is to investigate whether demographic variables affect media multitasking universally or whether the predictive value of demographics differs across countries.

Theory

Media multitasking is defined as engaging simultaneously in two media-related tasks (Pilotta et al., 2004; Voorveld & Van der Goot, 2013). The current study focuses on predictors of media multitasking. It is typically suggested that two factors broadly explain media use and, thus, media multitasking: media

factors and audience factors (Voorveld & Viswanathan, 2014; Webster, Phalen, & Lichty, 2000). Media factors (Webster et al., 2000) are comprised of structural media factors (e.g., media market) and individual media factors (e.g., media ownership). Audience factors are characteristics of individuals such as sociodemographic factors, psychological factors such as sensation seeking (Jeong & Fishbein, 2007) and impulsivity (Jeong & Fishbein, 2007; Sanbonmatsu, Strayer, Medeiros-Ward, & Watson, 2013), and motivations (Hwang, Kim, & Jeong, 2014). The current study focuses on both types of factors.

The Prevalence of Different Types of Media Multitasking

People who engage in media multitasking with one medium do not necessarily engage in media multitasking with another medium in a similar way (Carrier, Cheever, Rose, Benitez, & Chang, 2009). For example, an individual might simultaneously use the television and the Internet more often than he or she would combine print and social media. It is expected that certain media characteristics render certain media more suitable for media multitasking than others for three reasons. First, the ease of switching is an important medium characteristic that increases a medium's multitasking suitability, because people tend to constantly switch their attention during media multitasking (Brasel & Gips 2011; Yeykelis, Cummings, & Reeves, 2014). The switching of media using a computer with another medium is less cumbersome than switching using print media or video games, because there is a difference between passive, active, and interactive media use. Passive (externally paced) media, such as television and radio, are easily combined with other media, because these media can be used as a background medium (Parry-Husbands & Bowman, 2003). Active (internally paced) media, such as newspapers and magazines, require a higher level of cognitive engagement that renders this type of media harder to combine with other media. Finally, interactive media such as computers stimulate interaction between the medium and the user and therefore stimulate multitasking behavior (Holmes et al., 2005).

Second, multitasking implies that multiple goals can be achieved simultaneously (Sanbonmatsu et al., 2013). Certain media are more suitable because they facilitate engagement in multiple tasks within one medium. For example, the computer is built to multitask, because several tasks can be accomplished using one device (e.g., the simultaneous use of e-mail and social media or instant messaging), and multiple programs or windows can be open at the same time (Holmes et al., 2005). This type of behavior demands rapid task-switching capability within one medium (in this case, the computer), which is commonly described as media multitasking (Arndt, Arnold, & Landry, 2006; Circella, Mokhtarian, & Poff, 2012; Yeykelis et al., 2014). Third, certain media have features that incite multitasking behavior, such as computer loading times and pop-up screens (Foehr, 2006) or television commercial breaks (Rojas-Méndez et al., 2009). These natural breaks stimulate engagement in other tasks.

These medium characteristics that stimulate media multitasking are more visible in new media (e.g., computers and mobile phones) than in traditional media (e.g., newspapers, television, and radio). We therefore hypothesize the following:

H1:   Media multitasking is more prevalent with new media than with traditional media.

Differences Across Countries

Earlier research on the prevalence of media multitasking has yielded different statistics concerning the prevalence of this behavior. Certain studies conclude that media multitasking constitutes 50% of media use time (Pilotta et al., 2004), whereas other studies conclude that media multitasking constitutes only 22% of media use time (Voorveld & Van der Goot, 2013). One likely explanation for the differences in the findings might be the country in which the research was undertaken. Many studies were performed in the United States (e.g., Carrier et al., 2009; Foehr, 2006; Jeong et al., 2010; Pilotta et al., 2004; Rideout et al., 2010), whereas only a few studies were conducted in a European country (e.g., Voorveld & Van der Goot, 2013). Only one study has directly compared the prevalence of media multitasking in its different forms across multiple countries. Kononova (2013) tested differences in media multitasking among students in the United States, Kuwait, and Russia and found that media multitasking was most common in the United States. The differences between these three countries were attributed to differences in press freedom and ownership of new technologies. More research is required, because not only does research indicate that media multitasking differs across countries, but an interesting theoretical base exists that can be used to predict how media multitasking might differ across countries.

Polychronicity Versus Monochronicity

An important cultural characteristic that might explain why media multitasking prevalence differs across countries is the time orientation that is dominant in a country. The time use preference of a country, or polychronicity versus monochronicity, could explain the different prevalence levels of media multitasking among countries. Poly- versus monochronicity is a cultural construct from the mid-1980s (Bluedorn et al., 1999; Hall, 1984), which was later conceptualized as an individual-level variable (Slocombe, 1999). In this study, we use the original conceptualization and see mono- versus polychronicity as a cultural trait. The polychronicity of a culture can be described as a point on a continuum ranging from monochronic to polychronic (Slocombe, 1999). Monochronicity is defined as a preference for engaging in one activity at a time (Hall, 1959). Members of a monochronic culture typically prefer to do things in a structured and linear manner and use a one-step-at-a-time approach (Lee et al., 2006). Polychronicity is defined as "the extent to which people prefer to engage in two or more tasks or events simultaneously" (Kaufman-Scarborough & Lindquist, 1999, p. 288). For members of polychronic cultures, schedules are less significant, and polychrons are typically more flexible and less regimented, preferring to conduct multiple tasks simultaneously.

Hall (1959) was among the first to identify polychronicity variations across countries (Bluedorn et al., 1999; Lee et al., 2006). Hall observed that North Americans and North Europeans typically are monochrons, whereas Latin Americans and South Europeans have a more polychronic time orientation. Earlier research revealed that, also within Europe, large cultural differences exist with respect to polychronicity (Van Everdingen & Waarts, 2003). For example, the French are viewed as polychrons, whereas Germans are viewed as monochrons (Hall, in Lee et al., 2006).

It is likely that the cultural dimension of mono- versus polychronicity translates into different levels of media multitasking across countries. Polychronicity and multitasking are separate theoretical

constructs that are conceptually related (König & Waller, 2010). Whereas multitasking is the *behavior* of engaging in multiple tasks simultaneously, polychronicity refers to a *preference* for doing so (König & Waller, 2010; Poposki & Oswald, 2010; Sanderson, 2012). It is likely that a preference for undertaking multiple tasks simultaneously (polychronicity) translates into the actual behavior of conducting multiple tasks simultaneously (multitasking) (Circella et al., 2012). Although the relation between polychronicity and the prevalence of *media* multitasking has not been investigated, several organizational and management science studies report that polychronicity in an organizational culture is related to multitasking behavior and indicate that when an individual prefers to engage in multiple tasks simultaneously, the individual is more likely to do so. Thus, preference (polychronicity) will drive behavior (multitasking) in an organizational setting (König, Overarcher, & Kleinmann, 2010; Sanderson, 2012). We believe this relationship is also visible with regard to cross-country differences in media multitasking. In a culture or country where members of that culture "prefer to be engaged in two or more tasks or events simultaneously" (Bluedorn, Kalliath, Strube, & Martin, 1999, p. 207) and can be more easily disrupted than monochronic people (Hall, in Bluedorn, 1998), it is likely that this preference translates into one's media use behavior.

To our knowledge, no research exists concerning the relationship between polychronicity and *media* multitasking. However, based on the conceptual definitions and on research from organizational sciences, we argue that polychronicity and media multitasking are positively related. We therefore formulate the following hypotheses:

H2:   *The prevalence of media multitasking differs across countries.*

H3:   *Media multitasking is more prevalent in polychronic countries than in monochronic countries.*

Additionally, it would be interesting to investigate whether there are differences between countries in the type of media used for media multitasking. Such differences could be expected based on country differences in media use and on different media systems. First, countries differ in terms of the time spent on different types of media (Livingstone, d'Haenens, & Hasebrink, 2001), and earlier research has demonstrated that people multitask most with the media that they most frequently use (Voorveld & Van der Goot, 2013). For example, newspapers are more popular in Northern Europe than in Western Europe (Livingstone et al., 2001), and the Internet is used more often in Northern European than Southern European countries (Internet World Stats, 2012). However, research also suggests that polychronicity is positively correlated to Internet use, because the Internet is a flexible technology that allows users to multitask (Lee et al., 2006). Research also has shown that polychronic cultures are more facilitative to the adoption of mobile phones (Stump, Gong, & Chelariu, 2010).

Second, media systems differ worldwide. For example, the European broadcasting landscape features public-service broadcasters, whereas the United States features commercial broadcasters. An important characteristic of the European public-service broadcasters is that they offer advertisement-free programming (Livingstone et al., 2001). While not empirically proven, it is often posited that people engage in media multitasking when they watch (or avoid watching) television with commercials (Jayasinghe & Ritson, 2013; Voorveld & Viswanathan, 2014). Therefore, individuals from countries with

public-service broadcasters may engage in media multitasking less when watching television than individuals from countries with more abundant television advertising. Because the literature does not indicate the direction of the differences in the type of media multitasking between countries, we pose the following research question:

RQ1:   To what extent do differences exist between various media multitasking combinations in polychronic and monochronic countries?

Demographic Factors as Predictors of Media Multitasking

Several studies have investigated how demographic factors predict the amount of media multitasking (e.g., Hwang et al., 2014; Jeong & Fishbein, 2007; Shih, 2013). Regarding age, it is a popular belief that young people engage in media multitasking more than older people; however, only two earlier studies have focused on how age is related to media multitasking. One study was conducted in the United States (Carrier et al., 2009) and one in the Netherlands (Voorveld & Van der Goot, 2013). These studies demonstrate that in both countries, media multitasking is most prevalent among the youth. Furthermore, it was found that age differences in media multitasking can be explained by life span– and generation-related differences in media use in general (Voorveld & Vander Goot, 2013); young and old people have distinctive media preferences, which are reflected in the media with which they multitask.

Another common belief is that women engage in multitasking more often than men and that women are more effective at multitasking. This might be because women tend to be more polychronic than men (Manrai & Manrai, 1995; Rojas-Mendez et al., 2009. Although no studies have focused on gender-related *media* multitasking only, several studies have included gender as a possible predictor of multitasking with media (i.e., combining media with non-media-related activities, e.g., Jeong & Fishbein, 2007; Jeong et al., 2010), and one study investigated both forms of multitasking together (Hwang et al., 2014). This research has found that women are more likely than men to combine media usage with nonmedia activities. Psychological research on the differences in multitasking ability and performance between men and women is inconclusive, but it ascribes the potential differences to differences in the ability to coordinate spatial relations (Mäntylä, 2013) and executive functioning (Strayer, Medeiros-Ward, & Watson, 2013).

Regarding the role of educational levels and family income, no theoretical explanation is available for why these variables might predict the amount of media multitasking. Kaufman, Lane, and Lindquist (1991) found that educational level was positively correlated with polychronic time use, but their study did not focus on media use. Foehr (2006) investigated whether level of education and family income predicted media multitasking but found no significant results.

The current study investigates the demographic factors of age, gender, educational level, and family income and is especially focused on whether these variables predict media multitasking in a universal way, because earlier research suggested that the influence of demographics is culture-bound (Rojas-Méndez et al., 2009). There is strong evidence of a universal relationship between demographics and media multitasking when the predicting value of demographics is similar in different countries.

Because no earlier empirical work focuses on the influence of these factors across countries, we formulated the following research question:

RQ2:   *To what extent do demographic factors predict media multitasking in different countries?*

Method

Data

The data were collected in July 2012, using an online questionnaire that was simultaneously administered in six countries (N = 5,973). According to Hall (1984), and Hall and Hall (1990), monochronic time is dominant in the United States (n = 999), the United Kingdom (n = 1,000), Germany (n = 996), and the Netherlands (n = 989), whereas polychronic time prevails in France (n = 998) and Spain (n = 991). Although the categorization of these countries into monochronic and polychronic countries is heavily cited and used in empirical research (Gong, 2009; Lee et al., 2006; Lindquist & Kaufman-Scarborough, 2007; Nonis, Teng, & Ford, 2005; Wolburg, 2001), it might be problematic that Hall did not provide any country scores that could be used in empirical research (Garcia-Gavilanes, Quercia, & Jaimes, 2013). Fortunately, some earlier studies ranked countries worldwide on Hall's dimensions: Morden (1999), Kotabe and Helsen (2001), and Van Everdingen and Waarts (2003). In the most recent of these studies (Van Everdingen & Waarts, 2003), countries were scored on a scale from 1 (*very monochronic*) to 20 (*very polychronic*). Germany was given a score of 1, the United States a score of 2, the United Kingdom a score of 4, the Netherlands a score of 7, France a score of 9, and Spain a score of 17 (Van Everdingen & Waarts, 2003). Consistent with these earlier studies, we categorized Germany, the United States, the United Kingdom, and the Netherlands as monochronic countries and categorized France and Spain as polychronic countries.

A random sample of individuals who were 16 years or older was collected in each country from MetrixLab's Internet consumer panel "OpinionBar." This panel consists of individuals who have participated in previous research by MetrixLab (MetrixLab, 2013). The respondents were invited to participate by e-mail. Within two to three days following the distribution of the invitations, the data collection was terminated, because the desired number of about 1,000 completed questionnaires from each country had been attained. This procedure resulted in response rates that were artificially low (the United States 6.6%, the United Kingdom 6.1%, Germany 8.1%, the Netherlands 17.7%, France 5.7%, and Spain 7.7%).

Measurement

Media multitasking. We first measured the average amount of time spent on every medium type by measuring the number of days per week a medium is typically used and the average minutes per day a medium is typically used. We studied the media multitasking behavior of individuals across a broad range of eight media: traditional media (newspaper, magazine, radio, and television) and new media (Internet, social media, e-mail, and mobile phones). Consistent with the previous multitasking literature (Carrier et al., 2009; Foehr, 2006; Zhang & Zhang, 2012), the different online activities were distinguished as separate media: Internet, e-mail, and social media.

The study was conducted single source; all respondents answered questions for all eight media, allowing us to establish all media multitasking combinations. The question for each medium type was highly comparable, for instance: "When I watch TV, I [never/sometimes/often/always] make use of [medium depicted in the picture]. A similar four-point scale had been used by Ophir, Nass, and Wagner (2009) and Sanbonmatsu et al. (2013). After reading the question, respondents viewed pictures with different media and were asked to choose (grab and drop) the relevant pictures. This enabled respondents to assess for each medium whether they multitasked and, if so, which media they combined and how often.

Demographics. Each participant's age, gender, level of education, and family income were measured. To denote respondent age, participants were asked for their year of birth (mean age = 46; SD = 13). The gender of participants was measured by the question, "Are you male or female?" The total sample was 57% male and 43% female. The education level of participants was measured with the question, "What is your highest level of completed education?" Because the educational system in each country is different, we translated respondent answers to EQF levels with the assistance of the European Qualifications Framework comparison website of the European Commission (2013) and the country modules of Nuffic (2013). The scores ranged from 1 (*lowest level*) to 8 (*highest level*) (M = 4.41 and SD = 1.81). The annual household income before taxes was requested in five broad categories that differed for each country.

Results

To investigate whether media multitasking with each medium type can be treated as a one-dimensional construct, we performed principal component analysis with Varimax rotation on the questions that measured media multitasking for each medium type. For the traditional media (except TV), these analyses all revealed one component (radio: eigenvalue (EV) = 4.21, R^2 = 0.60., newspapers: EV = 4.21, R^2 = 0.60, magazines: EV = 4.29, R^2 = 0.61). For the new media and TV, all principal component analyses revealed two components: one dimension representing media multitasking with only one new medium and one dimension representing media multitasking with two new media (TV: EV = 3.62, R^2 = 0.52 and EV = 1.13, R^2 = 0.16; Internet: EV = 3.32, R^2 = 0.47 and EV = 1.13, R^2 = 0.16; e-mail: EV = 3.32, R^2 = 0.47 and EV = 1.22, R^2 = 0.17; social media: EV = 3.29, R^2 = 0.47 and EV = 1.28, R^2 = 0.18; mobile: EV = 3.75, R^2 = 0.54 and EV = 1.18, R^2 = 0.17). One index score for each component was obtained by calculating the mean of the items representing the media multitasking combination. These mean scores are presented in Table 1.

To test whether we can extract higher-order factors (Gorsuch, 1983; Thompson, 2004), the new index variables for the 13 different media multitasking combinations were used as input for another principal component analysis. This analysis demonstrated that the index scores for the 13 dimensions loaded on two higher-order factors (EV = 8.01; R^2 = 0.62 and EV = 1.69; R^2 = 0.13). The first factor represented media multitasking with at least one traditional medium (e-mail and traditional media; social media and traditional media; Internet and traditional media; magazines and other media; mobile and traditional media; newspapers and other media; TV and traditional media; radio and other media; and TV and new media), and the second factor represented media multitasking with only new media (e-mail and

new media; social media and new media; Internet and new media; and mobile and new media). Thus, the 13 media multitasking combinations can be further categorized into two types of media multitasking with at least one traditional medium (Type 1) and media multitasking with only new media (Type 2).

Table 1. Prevalence of the Different Forms of Media Multitasking

	M	SD
Social media and new media	2.47[g]	0.74
TV and new media	2.45[a]	0.75
Internet and new media	2.42[ab]	0.74
E-mail and new media	2.38[bd]	0.76
Mobile and new media	2.33[di]	0.84
Radio and other media	2.13[e]	0.70
Internet and traditional media	1.89[f]	0.63
Magazines and other media	1.84[c]	0.68
Newspapers and other media	1.84[c]	0.68
TV and traditional media	1.84[c]	0.65
E-mail and traditional media	1.81[c]	0.63
Social media and traditional media	1.81[c]	0.64
Mobile and traditional media	1.79[ch]	0.66
Type 1: media multitasking with traditional media	1.93[a]	0.56
Type2: media multitasking with new media	2.40[b]	0.69

Note: Means with different superscripts differ significantly at $p < .05$ in pairwise comparisons.

Prevalence of Different Media Multitasking Combinations

The results of a repeated-measures analysis of variance with Greenhouse-Geisser correction demonstrated differences in the prevalence of various media multitasking combinations ($F(5.71, 9931.25)$ = 679.25, p = .00, η = .28). The post hoc Bonferroni tests demonstrated that the three most prevalent media multitasking combinations were the simultaneous use of social media and other new media, the simultaneous use of TV and new media, and the simultaneous use of the Internet and other new media (see Table 1). The combination of mobile and traditional media, the combination of social media and traditional media, and the simultaneous use of e-mail and traditional media are the three least common media multitasking combinations. Thus, combining multiple new media is a more common way to media multitask than combining two traditional types of media, or combining one traditional medium with a new medium.

A similar analysis with the two overall types of media multitasking (Type 1: media multitasking with at least one traditional medium, and Type 2: media multitasking with only new media) confirmed this conclusion and demonstrated that multitasking with new media was more prevalent than multitasking with traditional media ($F(1, 1738)$ = 1227.93, p = .00, $M_{\text{traditional media}}$ = 1.93, SD = 0.56; $M_{\text{new media}}$ = 2.40, SD = 0.69). Thus, Hypothesis 1 is supported.

Differences Across Countries

To test whether there are differences in media multitasking among the six countries, we performed a multivariate analysis of variance (MANOVA) using the country as the independent variable and the 13 different media multitasking combinations as the dependent variables. This analysis demonstrated that there are significant overall differences among the six countries (Wilks' Λ (65, 8,137) = .76, F = 7.60, p = .00). The subsequent analyses of variance revealed differences among the countries for all media multitasking combinations (see Table 2). The mean scores and post hoc Bonferroni tests revealed that all forms of media multitasking were most prevalent in the United States. The country with the least prevalent multitasking was less univocal; however, for most media multitasking combinations, the Netherlands exhibited the lowest levels of media multitasking.

We then conducted a MANOVA using the country as the independent variable and the two overall types of media multitasking as dependent variables (Wilks' Λ (10, 3,464) = .87, F = 24.44, p = .00). This analysis demonstrated that media multitasking with traditional media was most prevalent in the United States and the United Kingdom, whereas media multitasking with new media was most prevalent in the United States, Spain, and France (see Table 2). Therefore, Hypothesis 2 was supported.

Differences Between Monochronic and Polychronic Cultures

To test whether the differences in polychronicity could explain the differences between countries with respect to media multitasking, we categorized the six countries into two groups, one representing polychronic countries (France and Spain) and one representing monochronic countries (the United States, the United Kingdom, Germany, and the Netherlands). A MANOVA with polychronicity versus

monochronicity as the independent variable and the different media multitasking combinations as dependent variables revealed an overall significant effect (Wilks' Λ (13, 1,725) = 0.94, F = 8.10, p = .00). The subsequent analyses of variance demonstrated significant differences for the large majority of media multitasking combinations (see the last three columns in Table 2). The pattern of results demonstrated that multitasking with traditional media was more common in monochronic countries, whereas media multitasking with new media was more prevalent in polychronic countries. A final MANOVA using the two overall types of media multitasking (with traditional and with new media) as dependent variables confirmed this result (Wilks' Λ (3, 1,735) = 0.97, F = 16.27, p = .00). Controlling for general media use and demographics did not change the magnitude and direction of these effects. Therefore, we found partial support for Hypothesis 3.

Table 2. Prevalence of Different Forms of Media Multitasking in Different Countries.

	USA	UK	DE	NL	FR	SP	*F*	M-time	P-time	*F*
Newspapers and other media	2.14[a] (0.84)	1.79[b] (0.63)	1.75[b] (0.59)	1.72[b] (0.58)	1.77[b] (0.63)	1.81[b] (0.64)	16.22***	1.87 (0.70)	1.79 (0.64)	5.13*
Radio and other media	2.41[a] (0.76)	2.14[b] (0.68)	2.14[b] (0.62)	2.01[bc] (0.67)	1.97[bc] (0.69)	2.09[bc] (0.67)	15.45***	2.20 (0.70)	2.04 (0.68)	21.99***
Magazines and other media	2.11[a] (0.80)	1.81[b] (0.63)	1.76[b] (0.60)	1.68[b] (0.58)	1.76[b] (0.64)	1.84[b] (0.66)	14.58***	1.86 (0.70)	1.81 (0.65)	3.01†
TV and traditional media	2.11[a] (0.74)	1.86[b] (0.57)	1.81[b] (0.65)	1.58[c] (0.55)	1.77[b] (0.61)	1.79[b] (0.62)	19.56***	1.87 (0.67)	1.78 (0.62)	7.25**
TV and new media	2.74[a] (0.74)	2.58[ac] (0.72)	2.20[b] (0.74)	2.11[b] (0.69)	2.46[c] (0.73)	2.47[c] (0.73)	26.89***	2.44 (0.77)	2.46 (0.73)	0.48
Internet and new media	2.66[a] (0.75)	2.19[b] (0.71)	2.19[b] (0.69)	2.32[b] (0.68)	2.48[c] (0.75)	2.56[ac] (0.71)	22.12***	2.36 (0.74)	2.52 (0.73)	21.01***
Internet and traditional media	2.17[a] (0.70)	1.89[bc] (0.61)	1.75[bd] (0.58)	1.67[d] (0.54)	1.83[bcd] (0.59)	1.91[c] (0.60)	22.69***	1.89 (0.65)	1.87 (0.59)	0.45
E-mail and traditional media	2.13[a] (0.73)	1.85[c] (0.59)	1.70[bd] (0.56)	1.57[d] (0.54)	1.68[bd] (0.59)	1.81[bc] (0.59)	29.35***	1.84 (0.65)	1.75 (0.59)	8.85**

E-mail and new media	2.54[a] (0.78)	2.17[b] (0.74)	2.24[bc] (0.71)	2.39[ac] (0.70)	2.46[a] (0.78)	2.43[a] (0.73)	10.19***	2.34 (0.76)	2.44 (0.75)	7.75**
Social media and new media	2.65[a] (0.77)	2.23[b] (0.72)	2.35[bd] (0.72)	2.45[cd] (0.69)	2.54[ac] (0.79)	2.53[ac] (0.70)	12.12***	2.43 (0.74)	2.53 (0.74)	8.09**
Social media and traditional media	2.13[a] (0.73)	1.89[b] (0.59)	1.68[cd] (0.59)	1.60[d] (0.55)	1.70[bcd] (0.59)	1.79[bc] (0.60)	26.88***	1.85 (0.66)	1.75 (0.60)	9.79**
Mobile and new media	2.48[a] (0.86)	2.07[b] (0.79)	2.26[bc] (0.81)	2.36[ac] (0.83)	2.36[ac] (0.88)	2.40[ac] (0.80)	8.38***	2.30 (0.84)	2.38 (0.84)	3.69†
Mobile and traditional media	2.05[a] (0.77)	1.80[bd] (0.63)	1.66[cd] (0.60)	1.60[c] (0.56)	1.72[bc] (0.62)	1.80[b] (0.62)	16.50***	1.80 (0.68)	1.77 (0.62)	0.84
Type 1: MMT with traditional media	2.22[a] (0.67)	1.96[b] (0.51)	1.83[bc] (0.50)	1.73[c] (0.47)	1.85[bc] (0.51)	1.92[b] (0.52)	27.69***	1.96 (0.58)	1.89 (0.52)	5.80*
Type 2: MMT with new media	2.58[a] (0.72)	2.17[b] (0.66)	2.26[bd] (0.65)	2.38[cd] (0.63)	2.46[ac] (0.71)	2.48[ac] (0.66)	14.99***	2.36 (0.69)	2.47 (0.68)	11.20***

Note: Means in the same row with different superscripts differ significantly at $p < .05$ in Bonferroni post hoc analyses. MMT = media multitasking, M-time = monochromic countries, P-time = polychronic countries.† $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

To test the influence of demographic variables on the two different types of media multitasking in the different countries, we performed two multiple regression analyses for every country, with one for each type of media multitasking. The independent variables were gender, age, level of education, and family income. The results demonstrated that only age is a universal predictor of media multitasking (see Table 3). For media multitasking with new media, age was a significant predictor in all the countries. For media multitasking with traditional media, age was a significant predictor in the United States, the United Kingdom, and Spain. Thus, it can be concluded that younger people engage in media multitasking more often than older people, especially when combining new media.

Table 3. Multiple Regression Analysis of How Demographic Factors Explain Media Multitasking

	USA		UK		DE		NL		FR		SP	
	Trad. media	New media	Trad. media	New media	Trad. media	New media	Trad. media	New media	Trad. media	New media	Trad. media	New media
Gender	-.05	-.01	.03	-.02	-.08	.04	-.07	.06	.03	.001	.06	.09*
Age	-.32 ***	-.34 ***	-.28 ***	-.31 ***	-.12	-.23 ***	-.14	-.22 ***	-.07	-.28 ***	-.21 ***	-.24 ***
Education	-.03	.01	.01	-.03	-.03	-.09	-.16 *	-.07	-.20 ***	-.10 *	-.12 *	-.12 **
Income	.13*	.03	-.12 *	-.07	-.08	-.11 *	-.05	.004	.06	.03	-.08	-.02

* p < .05, ** p < .01, *** p < .001, Trad. media = Traditional media

For all other predictors, the effects vary across countries. The gender of participants was a significant predictor of media multitasking only with new media in Spain, where women engaged more often in media multitasking with new media than men. Participants' level of education was a significant predictor of media multitasking with new and traditional media in France and Spain. The results implied that in polychronic countries, the higher the level of education, the lower the level of media multitasking. Finally, family income was not a significant predictor in most countries and for most types of media multitasking; it was positively related to media multitasking with traditional media in the United States, whereas this influence was negative in the United Kingdom. In Germany, family income was negatively related to media multitasking with new media. Thus, we found only age to be a universal predictor of media multitasking, whereas the influence of gender, level of education, and family income varies across countries.

Conclusion and Discussion

This study contributes to the body of knowledge concerning media multitasking from an international perspective. The study provided insight into whether the prevalence of media multitasking differs across six countries. The study also investigated whether an explanation for these differences can be found by examining a country's dominant time orientation in terms of monochronicity or polychronicity. Finally, the study examined the predictive power of demographics with respect to multitasking in different countries.

We found differences across countries with respect to media multitasking, which emphasizes the importance of cross-national data concerning this phenomenon. Differences were found in the prevalence of media combinations, the type of media multitasking, and in demographic factors underlying media multitasking. In general, media multitasking is most prevalent with new media. Media multitasking with two new media is also more prevalent than media multitasking with a combination of a traditional and a new medium. Previous studies concerning media multitasking demonstrated that new media are central to media multitasking and that new media are likely to be paired with other new media (Holmes et al., 2005;

Shih, 2013; Voorveld & Van der Goot, 2013). Thus, the results of studies with single-country data are now confirmed with cross-national data.

The results also demonstrated differences in media multitasking prevalence across countries. Media multitasking is most prevalent in the United States. This result is remarkable because the current research concerning the prevalence of media multitasking originates from the United States. Multitasking is least prevalent in the Netherlands. This finding might explain the conflicting results in the studies of, for example, Pilotta et al. (2004) and Carrier et al. (2009) for the United States and Voorveld and Van der Goot (2013) for the Netherlands. The differences between countries, however, depend on the type of media multitasking. These results demonstrate that, in addition to the type of media multitasking, the country should be taken into account in media multitasking research and communication strategies.

Furthermore, the results demonstrated differences in the prevalence of media multitasking between countries that are typically considered monochronic and countries that are typically considered polychronic. The results showed that it is especially the type of media multitasking that differs between monochronic and polychronic cultures; monochrons tend to media-multitask with traditional media, and polychrons tend to media-multitask with new media. We propose three explanations for this conclusion. The first explanation is that the characteristics of new media might correspond with the preferences of polychrons. Examining the relation between polychronicity and Internet use, Lee et al. (2006) found that polychronicity is positively related to the perception that the Internet is a useful and convenient tool. These findings are explained by the fact that the Internet (and other new media) suits polychrons' taste. The Internet and other new media are flexible, erase the necessity to follow a static schedule, and offer the possibility to perform multiple tasks within the one medium (Lee et al., 2006). In addition, the literature suggests that people engage in media multitasking with mobile phones to take advantage of the technological possibilities these devices offer (Norman, 1988, in David, Xu, Srivastava, & Kim, 2013), and that mobile phones are more facilitative for people from polychronic countries (Stump et al., 2010). Traditional media, such as television and radio, consist of one task and are more linear in nature, which seems to correspond with monochronic preferences.

A second explanation is that differences in time spent on different medium types (without taking media multitasking into account) can partially account for the differences between mono- and polychronic countries. There are several differences between monochronic and polychronic countries in our data. People in polychronic countries spend more time on new media such as the Internet, social media, mobile phones and e-mail, but differences were less clear regarding traditional media such as watching television, listening to the radio, and reading magazines and newspapers. Earlier research found that people multitask most with the medium they use the most (e.g., Voorveld & Van der Goot, 2013); thus, the fact that people in polychronic countries spent more time using new media could explain why they multitasked more with this type of media. However, controlling for the time spent on different medium types did not affect the magnitude and direction of the effects found when analyzing the differences between monochronic and polychronic countries. So differences in general media use is not the only explanation for differences in media multitasking between mono- and polychronic countries.

Finally, the third possible explanation is that in countries that are predominantly polychronic, human interactions are more important than time (Hall, 1984 in Reinecke, Nguyen, Bernstein, Näf, & Gajos, 2013) and that people in polychronic countries are relationship oriented (Hall, in Bluedorn, 1998), whereas the motives of people in monochronic countries are more material (Polanyi, 1975, in Todd, 2009). Translated to the media used in our study, one could argue that new media such as social media, the Internet, and mobile media are more important to obtain social gratifications, which are more important for people living in polychronic countries than for individuals in monochronic countries, and therefore also used more frequently for media multitasking.

A remarkable finding of the present study is that people from the United States engaged most in all forms of media multitasking. This is remarkable, because the literature traditionally considers the United States to be a very monochronic culture (Hall, 1984; Kotabe & Helsen, 2001; Morden, 1999; Van Everdingen & Waarts, 2003). Future research should focus on providing an explanation for this remarkable finding. It could be fruitful to investigate whether the United States is still such a monochronic culture as suggested in the literature, because there are some indications that the country is rather polychronic. A recent conference paper of Kononova and Chiang (2014), based on data collected at the end of 2013, investigated at an individual level the polychronicity of people in the United States and Taiwan. Results indicated that the participants from the United States were more likely than the Taiwanese participants to prefer doing several things at a time. Although these findings are very preliminary because they are based on nonrepresentative samples from only two countries, they can be used as an initial explanation why media multitasking was more prevalent in the United States than in the other countries. Therefore, we believe this issue is worth further investigation.

Another explanation for our finding that people from the United States engaged more frequently in all forms of media multitasking is the presence of situational factors. As suggested by König and Waller (2010), there is not necessarily a link between preferring to engage in multiple tasks simultaneously and actually doing so. So, whereas people from the United States might have a preference for doing one thing at a time and performing tasks sequentially, situational factors such as a heavy workload or stress might drive them to engage in multitasking. In addition, media ownership is also shown to be an important predictor of media multitasking (Jeong & Fishbein, 2007; Kononova & Chiang, 2014). It might be that people from the United States own more media devices than people from other countries, and therefore more frequently engage in media multitasking. Future research should therefore focus on differences between countries other than mono- versus polychronicity that might explain differences in media multitasking.

Finally, we tested the demographic predictors of media multitasking across countries. The results demonstrated that only age is a universal predictor. All other factors vary significantly across countries. In polychronic countries, levels of education predict media multitasking. The higher the level of education, the lower the level of media multitasking. It could be that highly educated people in polychronic countries are taught that planning and working in a structured way is more efficient. Future research could provide insight into the explanations for these differences.

Although our study constitutes an important contribution to existing research, it also has some limitations. First, we posited that cultural differences in polychronicity could be an underlying explanation for differences between countries. Polychronicity is, however, only one (important) possible underlying factor that might explain the differences between countries with respect to media multitasking. Countries and cultures differ in many ways besides polychronicity or monochronicity. Future research should therefore investigate the influence of other factors.

Second, polychronicity is treated as a cultural antecedent. Although mono- versus polychronicity is originally seen as a cultural variable instead of an individual characteristic (e.g., Todd, 2009), there is a debate as to whether countries consistently differ in their polychronicity (König & Waller, 2010). The discussion centers on whether polychronicity can be treated as a cultural antecedent or whether it should be treated as an individual character trait. We assigned the participants to either a polychronic or monochronic category according to their country of origin, based on Van Everdingen and Waarts (2003). However, we did not include a variable that measured whether the participants perceived they lived in a monochronic or polychronic culture. Future research should therefore measure group perception of a culture or individual levels of polychronicity and their relationship to media multitasking. Although we believe this is an important limitation of the current study, we want to emphasize that the use of mono- versus polychronicity as an individual variable, and especially the measurement of mono- versus polychronicity with surveys, is not without criticism, because Hall originally based the categorization on cultures and observational research (Todd, 2009).

Third, as is often the case in cross-cultural research, the samples in the different countries were not completely similar regarding demographics. In our overall sample, people from Spain had the highest level of education, income was highest in the Netherlands, and respondents from Germany were the oldest. And in most countries, the sample consisted of more men than women, except the Netherlands. As stated before, controlling for demographics did not affect the magnitude and direction of the effects found when analyzing the differences between monochronic and polychronic countries. Future cross-cultural research should invest in acquiring samples that are exactly similar regarding important background characteristics in different countries.

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