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Audience, Media, and Cultural Factors as Predictors of Multiscreen Use: A Comparative Study of the Netherlands and the United States

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Statistics about the prevalence of media multitasking differ in stating that this behavior entails 20%–50% of our media time. An explanation of these differences could be the country of research. Previous cross-country studies have found that media multitasking was most prevalent in the United States and the least prevalent in the Netherlands. The current study seeks explanations of these differences by comparing survey data from the United States (n = 314) and the Netherlands (n = 328) and examining audience, media, and cultural factors as predictors of multiscreening, as a specific form of media multitasking. The results showed that multiscreening was more prevalent in the United States than in the Netherlands. Media factors are the most important predictor of multiscreen use. Audience and cultural factors differed by country and screen combination. This emphasizes the importance of cross-country research and examining predictors of a specific type of media multitasking.

Keywords: multiscreening, cross-country, polychronicity, long-term orientation, uncertainty avoidance

Media multitasking, the use of multiple media at the same time, is a pervasive phenomenon. Statistics about the prevalence of media multitasking vary among studies, stating that approximately 20%–50% of our media time consists of media multitasking (e.g., Pilotta, Schultz, Drenik, & Rist, 2004; Segijn, Voorveld, Vandeberg, Pennekamp, & Smit, 2017). Explanations of this difference in prevalence can be found in multiple factors. One of these is the country where such studies have been conducted. Most studies on prevalence of media multitasking have been conducted in the U.S. (e.g., Carrier, Cheever, Rosen, Benitez, & Chang, 2009; Foehr, 2006; Pilotta et al., 2004), reporting relatively high numbers of media multitasking compared with the few studies conducted outside of the U.S. (e.g., Segijn et al., 2017; Voorveld & van der Goot, 2013). Furthermore, cross-country studies have shown that media multitasking is the most prevalent in the U.S. (Kononova, 2013; Kononova & Chiang, 2015; Voorveld, Segijn, Ketelaar, & Smit, 2014) and the

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least prevalent in the Netherlands (Voorveld et al., 2014). Although previous studies have provided some explanations of this difference, it is still relatively unknown what the predictors of media multitasking across countries are. Because most studies on media multitasking have been conducted in the U.S., it is important to get a better understanding of why the behavior is more prevalent in this country compared with other countries, such as the Netherlands.

To our knowledge, only three studies have looked at predictors of media multitasking across countries (Kononova, 2013; Kononova & Chiang, 2015; Voorveld et al., 2014). Overall, these studies found that media multitasking was most prevalent in the U.S. compared with any of the other countries. Explanations were sought in different predicting factors—namely, audience (e.g., demographics), media (e.g., screen ownership), and cultural (e.g., polychronicity; the preference of doing multiple things at the same time) factors. However, no research has looked at all three types of predictors within the same study. Examining this can provide an interesting theoretical base to predict media multitasking differences across countries. Therefore, the current study will explore the three types of predictors within one study. In addition, this study will focus on one specific form of media multitasking—namely, multiscreening. Multiscreening is the use of multiple screens (e.g., television, smartphone, laptop) at the same time. Previous research has shown that predictors of multiscreening may vary for different screen combinations (Segijn et al., 2017). Thus, more relevant information can be gathered by zooming in on one specific form of media multitasking. Knowledge about the predictors of multiscreening, as a form of media multitasking, is lacking. Only information about audience factors within one country are available for this type of media multitasking, which is remarkable because it is the most prevalent form of media multitasking (Segijn et al., 2017). Therefore, the current study will examine the predictors of this type of media multitasking by comparing audience, media, and cultural factors in the U.S. and the Netherlands.

Literature Review

Multiscreening Across Countries

Three studies have compared the prevalence of self-reported media multitasking behaviors across multiple countries (Kononova, 2013; Kononova & Chiang, 2015; Voorveld et al., 2014). First, Kononova (2013) compared young adults in the U.S., Kuwait, and Russia. She found that media multitasking was most common in the U.S., followed by Kuwait. The high rates of media multitasking in these countries were predicted by structural, macro-level media factors such as advancement of ICT and press freedom index, as well as individual factors such as individual media ownership—that is, possession of electronic devices. Second, Voorveld et al. (2014) compared representative samples from the U.S., United Kingdom, Germany, Spain, and the Netherlands. Again, media multitasking was most prevalent in the U.S. Explanations were sought by looking into audience (i.e., demographics) and culture (i.e., polychronicity) factors. Results showed that age was a predictor of multitasking behaviors in all countries. In addition, they showed that the prevalence of screen compositions differed by country. Finally, Kononova and Chiang (2015) compared Internet user samples from different ages in the U.S. and Taiwan to confirm that American respondents were heavier multitaskers. Explanations were sought in media (i.e., media ownership) and cultural (i.e., polychronicity) factors measured as individual-level variables.

Predictors of cross-country differences in media multitasking behaviors have been sought in different factors. The theoretical framework underlying these predictors is the model of Webster, Phalen, and Lichty (2000) and the extended model of Jeong and Fishbein (2007). In the extended model, media multitasking behavior is predicted by audience factors (e.g., age, gender) and media factors (e.g., screen ownership). Jeong and Fishbein's (2007) model has been designed to examine predictors of media multitasking within a country. However, countries might differ not only in terms of individual-level but also with regard to structural-level characteristics. Such macro-level characteristics pertain to the overall situation in a media market and the freedom of information flow (e.g., Kononova, 2013, explored ICT and democratic developments in three national markets) as well as culture (Hofstede, 1980). Although the cross-national studies of media multitasking behaviors reviewed above offered a rather straightforward approach to measuring macro-level media predictors (e.g., press freedom index, ICT development level), culture as a predictor has been explored to a lesser degree due to the complexity of this concept and limitations of its quantitative operational definitions. Voorveld et al. (2014) treated this predictor as a macro-level factor, comparing mono- and polychronic countries in terms of their media multitasking rates. Polychronicity, however, was not measured in that study directly. Instead, they used previous literature to distinguish between Northern European and South European countries as being either monochronic (North) or polychronic (South; Bluedorn, 1998

; Hall, 1959). Kononova and Chiang (2015) focused on psychological representations of polychronicity, treating it as an individual-level factor. This study continues the investigation of cultural factors relevant to time management, perception, and orientation.

This study's theoretical novelty is in looking at three types of predictors (i.e., audience, media, and culture) and measuring various culture-related variables, such as polychronicity, uncertainty avoidance, and short- and long-term orientation as predictors of media multitasking. In addition, previous studies have looked at media multitasking in general, whereas this study deals with one, but the most prevalent, form of this behavior—multiscreening. Thus, this study will compare audience, media, and cultural predictors of multiscreening in the U.S. and the Netherlands. Before looking into the predictors of multiscreening, we first need to test whether the assumption that multiscreening is more prevalent in the U.S. compared with the Netherlands still holds. In line with previous research, we expect that multiscreening is more prevalent in the U.S. compared with the Netherlands:

H1: People in the U.S. multiscreen more than people in the Netherlands.

Audience Factors

According to the extended model of Jeong and Fishbein (2007), audience factors are important predictors of media multitasking. Most studies that have explored the prevalence of media multitasking have looked at audience factors, such as demographics. Age has been found to be a universal predictor of media multitasking across multiple countries (Voorveld et al., 2014). The younger people are, the more they multitask with media. Also, for multiscreening, age appeared to be a significant predictor (Segijn et al., 2017). Although all age groups engaged in multiscreening at least once, it was found that the younger people are, the longer they multiscreen. A plausible explanation for the age difference can be found in adoption rates of media, which are different for different generations (Brasel & Gips, 2011; van der Goot,

Rozendaal, Opree, Ketelaar, & Smit, 2016). Age groups tend to use the medium of their generation. People between 17 and 34 years of age are, for example, more likely to use new media (van der Goot et al., 2016). In addition, new media are easy to combine with other media (Voorveld et al., 2014). Support for this assumption has also been found in another study that showed that the average age of people who combine television with a smartphone is younger compared with the combination of television with a laptop or tablet (Segijn et al., 2017).

H2: Age will negatively predict multiscreening.

Gender is another audience factor that is often taken into account as a predictor of media multitasking. So far, the results have been mixed. Some studies have found that women are more likely to media multitask compared with men (e.g., Duff, Yoon, Wang, & Anghelcev, 2014; Hwang, Kim, & Jeong, 2014; Jeong & Fishbein, 2007), one study has found that men multitask more than women (Segijn et al., 2017), and other studies have found no significant differences between men and women in the amount of media multitasking (e.g., Kononova, 2013; Voorveld et al., 2014). Kononova (2013), however, has shown that the lack of the gender effect is observed in countries such as the U.S. where gender roles are not strictly defined. The gender effect was found in Kuwait and Russia, which are considered to be more traditional countries with a more rigid gender structure. Thus, gender differences in multitasking rates and types can be explained by culture, which study samples represent, as well as the composition of media. For example, Segijn et al. (2017) have found that men multiscreen more than women do, but only with the smartphone–television combination. Thus, it is important to take this audience factor into account when looking at predictors of specific screen compositions across countries. Because positive, negative, and nonsignificant results were found for gender as a predictor, we formulated the following research question:

RQ1: To what extent does gender predict multiscreening?

Media Factors

According to the extended model of Jeong and Fishbein (2007), media factors could also influence media multitasking behavior. Individual-level media factors consist of media ownership or time spent with the medium. Previous research has shown a positive relation between the availability of media and media multitasking behavior. For example, it has been found that people who are in the possession of screens such as a computer, laptop, and television are more likely to media multitask (Foehr, 2006). Other studies, including the ones conducted cross-nationally, have also found that the more media and devices people own, the more they multitask (Jeong & Fishbein, 2007; Kononova, 2013; Kononova & Chiang, 2015). Also, for multiscreening, it was found that the more screens people own, the more they multiscreen (Segijn et al., 2017). Looking at differences between countries, it has been found that countries differ in media-related factors, such as ownership of media devices and amount of time spent on different types of media (Kononova, 2013; Livingstone, d'Haenens, & Hasebrink, 2001). In addition, research has shown that people most likely multitask with media they most frequently use (Voorveld & van der Goot, 2013). Therefore, it is likely to assume that multiscreening behaviors not only will be predicted by media ownership but also differ by country because of differences in media factors.

H3: Screen ownership (a) and time spent using screen devices (b) will positively predict multiscreening.

Cultural Factors

In addition to audience and media-related factors, we include cultural factors as predictors of multiscreening use when comparing data from different countries. In the current study, we examine polychronicity, uncertainty avoidance, and long-term orientation as possible cultural factors that are directly related to how people in different cultures perceive and organize time.

Polychronicity

Previous research has examined polychronicity as a cultural factor approached as both a macro-level (Voorveld et al., 2014) and individual-level (Kononova & Chiang, 2015) variable that could explain media multitasking prevalence. On the macro level, the construct of polychronicity is defined as a characteristic of a culture where people have shared values related to time and shared ways to manage it. The studies of media multitasking that treated polychronicity as an individual-level predictor defined polychronicity as "the extent to which people prefer to engage in two or more tasks or events simultaneously" (Kaufman-Scarborough & Lindquist, 1999, p. 288). Monochronic individuals prefer to engage in one activity at a time, whereas polychronic-oriented people have the tendency and the preference of doing multiple things simultaneously (Kaufman-Scarborough & Lindquist, 1999; Poposki & Oswald, 2010). Although, polychronicity and media multitasking are separate constructs, they are conceptually related (König & Waller, 2010). Again, polychronicity is the preference of doing multiple things (these things are not always related to media and technology use), and media multitasking is conceptualized as an actual behavior rather than a preference, in the case of our study, using screens, such as smartphones, computers, and television at the same time. Previous studies have found a relation between polychronicity and media multitasking (Kononova & Chiang, 2015; Voorveld et al., 2014). The more polychronic-oriented people report to be, the greater the extent of media multitasking they engage in (Kononova & Chiang, 2015), especially with new media, such as smartphones (Voorveld et al., 2014).

H4: Polychronicity will positively predict multiscreening.

Uncertainty Avoidance

Uncertainty avoidance reflects the culture's capacity to cope with the unpredictable future and the overall unexpected. People (and societies) who are considered to be highly avoidant of the uncertainty of the future tend to deal with it by creating rigid schedules and following plans. When unexpected events or changes to the schedule occur, they are perceived negatively, as a threat (de Mooij & Hofstede, 2011). Low-avoidant individuals and cultures are less likely to be stressed and anxious about changes in plans and the unpredictability of the future. According to Hofstede Insights (n.d.), the Netherlands (53) scores slightly higher on the dimension of uncertainty avoidance than the U.S. (46). In other words, in the Netherlands people are more avoidant of uncertainty compared with people in the U.S. As the uncertainty avoidance construct somewhat resembles the construct of polychronicity when it comes to the discussion of schedule and changes in plans, where high levels of polychronicity may be associated with low levels of uncertainty avoidance, we hypothesize the following:

H5: Uncertainty avoidance will negatively predict multiscreening.

Long-Term Orientation

This dimension can be best described in terms of a societal or individual perception of the past, present, and future. Short-term societies lean toward being more conservative and traditional, where preserving the existing norms is viewed as a more desirable benefit than intangible outcomes of future progress. On the other hand, long-term orientation is more characteristic of societal or individual pragmatism, where the present is managed and manipulated to achieve a positive change and future outcomes. Rigid norms are secondary in such societies or for such individuals (Hofstede Insights, n.d.; de Mooij & Hofstede, 2011). The Netherlands scores 67 on the long-term orientation dimension, whereas the United Sates scores 26 (Hofstede Insights, n.d.). Thus, in the Netherlands, people tend to be more oriented to the long term compared with people in the United States. We view this dimension as relevant to explore in the context of media multitasking, as media multitasking can be a behavior of choice when the pragmatic, long-term benefits are not primary. When long-term outcomes are the goal, we predict that individuals will be more likely to focus and less likely to attend to additional concurrent media activities.

H6: Long-term orientation will negatively predict multiscreening.

Predictors Across Countries and Screen Compositions

The aim of the study is to examine the predictors of multiscreening by looking at audience, media, and cultural factors. We will include age and gender as audience factors; screen ownership and screen time as media factors; and polychronicity, uncertainty avoidance, and long-term orientation as cultural factors. We focus on individual-level factors because we believe it is important to distinguish between individuals within one country (Yoo, Donthu, & Lenartowicz, 2011). Thus, all factors will be measured on an individual level rather than a country level. To examine which of these factors explains multiscreen use most, and to examine if predictors vary across countries and screen compositions, we formulated the following research questions:

RQ2: What factor (individual-level audience, media, and cultural factors) explains the most variance in multiscreen use?

RQ3: To what extent do individual-level audience, media, and cultural predictors of multiscreen use differ by country?

RQ4: To what extent do individual-level audience, media, and cultural predictors of multiscreen use differ by multiscreen composition?

Method

Sample

Two identical surveys were administered online simultaneously in the U.S. and the Netherlands, using the online software Qualtrics. Participants were recruited through the student subject pools of two universities, using convenience sampling strategies. Every participant registered in the subject pool could participate in the study. The surveys were advertised on the online website of the subject pools. The study started with a consent form, followed by questions about cultural dimensions, screen ownership, time spent using screens, and multiscreening. At the end, respondents reported demographic information. Participants received extra credit for participation. In the U.S., the survey generated 474 initial responses, of which 427 were completed. In the Netherlands, a total of 450 responses were generated, of which 406 were completed. The final sample of participants, after the proper cleaning, totaled in 642, with 191 cases being removed. Reasons to remove people were (1) participants took the survey twice or did not provide their identification number, which made it impossible to determine whether it was a unique case (n = 26); (2) outlier for age (n = 1); (3) repeating response patterns (n = 2); (4) failing the attention checks (n = 90); and (5) all cases where English was not identified as the native language in the U.S. sample and all cases where Dutch was not the native language in the Dutch sample, as we aimed at looking at homogenous representations of culture within each sample (n = 72). The final sample consisted of 642 participants (M_{age} = 21.57, SD_{age} = 1.60, 72.6% female), with 314 participants in the U.S. (M_{age} = 21.54, SD_{age} = 1.31, 65% female) and 328 (M_{age} = 21.59, SD_{age} = 1.83, 79.9% female) participants in the Netherlands.

Independent Variables

Country

This variable states whether the participant filled out the survey in the U.S. (−1) or in the Netherlands (1) to distinguish between the two countries.

Audience Factors

We measured age by asking the year the participant was born and calculated their age based on the year. In addition, we asked about gender (1 = women, −1 = men).

Media Factors

First, we measured screen ownership by asking whether participants owned a certain screen (yes/no) and if yes, how many. A sum score was calculated to get the number of screens a participant owns (M = 5.15, SD = 1.14). Second, to measure media use, we asked, "During the last week, how many hours and minutes did you spend . . ." using different screen media. We asked this question for television, smartphone, laptop, desktop computer, tablet computer, and video-game console. Participants had to indicate their media use per screen in hours (M = 48.93, SD = 33.81).

Cultural Factors

First, we measured polychronicity (Poposki & Oswald, 2010) with 15 items (Cronbach's alpha = .89, *M* = 3.66, *SD* = 0.93). Second, we measured uncertainty avoidance and long-term orientation with five items each (Yoo et al., 2011). Both uncertainty avoidance (Cronbach's alpha = .89, *M* = 5.15, *SD* = 1.01) as well as long-term orientation (Cronbach's alpha = .80, *M* = 5.20, *SD* = 0.91) appeared to be reliable. All cultural dimensions were measured on a 7-point Likert scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*).

Dependent Variable

An adapted version of the Media Multitasking Index (Ophir, Nass, & Wagner, 2009) was used to measure the amount of multiscreening. Because we were interested in multiscreen use, we only focused on screen media (i.e., Multiscreening Index, MSI). The items included television, smartphone, laptop, desktop computer, tablet computer, and video-game console. Similar to Ophir et al. (2009), we measured the total number of hours and minutes a week each participant spent using each of the screens. Then, participants rated the frequency of using each possible combination of the two screens, where either one screen or another screen use was indicated to be the primary activity. The frequency was measured on ordinal 5-point scales ranging from *never* to *all of the time*. Each frequency anchor was later recorded into numerical format: *never* = 0, *rarely* = .25, *sometimes* = .5, *often* = .75, and *all of the time* = 1. These scores and the total time spent with all five screens were used to calculate the MSI index (see formula in Ophir et al., 2009).

Results

H1: Multiscreening in the U.S., versus the Netherlands

An independent-samples *t* test was conducted with country as the independent variable and MSI as the dependent variable. As expected, the participants in the U.S. were heavier multiscreeners (*M* = 1.90, *SD* = 0.68) compared with the participants in the Netherlands (*M* = 1.52, *SD* = 0.54), $t(639) = 7.90$, $p < .001$. Thus, the first hypothesis is accepted. In addition, we looked at screen ownership across countries (see Table 1). Almost every participant owned a television (U.S., 96.2%; Netherlands, 86%), a smartphone (100% in both samples), and a laptop (U.S., 98.4%; Netherlands, 99.1%). Percentage of screens owned differed significantly per screen between participants in the U.S. and the Netherlands, except for the smartphone, laptop, and tablet. Besides total percentage of screens owned, the number of screens owned by country differed significantly, $t(640) = -6.09$, $p < .001$. The participants of the U.S. owned significantly more screens (*M* = 5.42, *SD* = 1.05) compared with the participants in the Netherlands (*M* = 4.89, *SD* = 1.17). Table 1 shows that this is true for the total number of screens owned and the number per screen type, with the biggest differences between the number of televisions (U.S., *M* = 2.92, *SD* = 2.30; Netherlands, *M* = 1.49, *SD* = 1.17) and the number of game devices (U.S., *M* = 1.29, *SD* = 1.56; Netherlands, *M* = 0.62, *SD* = 0.95).

Table 1. Screen Ownership by Country.

	Total % that owns a screen		Number of screens per person	
	U.S.	NL	U.S.	NL
TV	96.2%[a]	86%[b]	2.92 (2.30)[a]	1.49 (1.17)[b]
Smartphone	100%[a]	100%[a]	1.23 (0.97)[a]	1.07 (0.44)[b]
Laptop	98.4%[a]	99.1%[a]	1.25 (0.80)[a]	1.14 (0.56)[b]
Tablet	41.5%[a]	35.5%[a]	0.55 (0.84)[a]	0.4 (0.60)[b]
Desktop	39.5%[a]	28%[b]	0.59 (1.42)[a]	0.36 (0.72)[b]
Game device	68.3%[a]	41.2%[b]	1.29 (1.56)[a]	0.62 (0.95)[b]
Total	–	–	5.42 (1.05)[a]	4.89 (1.17)[b]

Note. The average number of screens per person per country are presented in the last two columns with standard deviation presented within parentheses. NL = the Netherlands. Different superscripts indicate significant differences across countries. Thus, significantly more people in the U.S. own a television compared to people in the Netherlands (96.2% [a] vs. 86% [b]), but no significantly differences exist between the percentage of people that owns a laptop (U.S. = 98.4%[a] vs. NL = 99.1%[a])

Predicting Variables of Multiscreening

To examine to what extent individual-level audience, media, and cultural factors predict multiscreen use, three hierarchical-regression analyses were conducted, one for each country sample and one with all participants. The dependent variable in all regression models was MSI, and the individual-level audience (Step 1), cultural (Step 2), and media factors (Step 3) were added as the independent variables. Country (U.S. vs. the Netherlands) was also added in the model, with all participants to the first step as a control variable.

The results are presented in Table 2. The models explained 23.8% of the variance in multiscreen use for all participants, 18.7% of the variance in multiscreen use in the U.S., and 21.5% of the variance in multiscreen use in the Netherlands. Overall, the most important predictors of multiscreen use appeared to be the media factors. Both screen ownership (all $b^* = .33$, $p < .001$; U.S. $b^* = .39$, $p < .001$; $b^* = .30$, $p < .001$) and screen use (All $b^* = .19$, $p < .001$; U.S. $b^* = .13$, $p = .013$; $b^* = .30$, $p < .001$) had a significant impact on multiscreen use, with screen ownership being the strongest predictor of multiscreen use. Furthermore, age appeared to be a predictor within the two countries. However, the results were in the opposite direction. In the U.S., the older the participants are, the more likely they are to multiscreen ($b^* = .14$, $p = .013$), whereas in the Netherlands, the younger the participants are, the more likely they are to multiscreen ($b^* = -.11$, $p = .030$). The individual-level cultural factors did not have a significant impact on multiscreen use.

Table 2. Hierarchical Regression MS Index.

Predictor	All Participants			U.S.			The Netherlands		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Step 1—Demographics									
Country	−0.30***	−0.29***	−0.26***			–			–
Age	0.00	−0.01	−0.01	0.09	0.10	0.14*	−0.07	0.08	−0.11*
Gender	−0.00	−0.01	0.01	−0.00	−0.01	−0.00	0.04	0.03	0.06
Step 2—Cultural dimensions									
Polychronicity		0.03	0.03		0.03	0.05		0.04	0.03
Uncertainty avoidance		−0.01	−0.03		−0.08	−0.08		0.06	0.00
Long−term orientation		0.06	0.05		0.07	0.05		0.07	0.07
Step 3—Media factors									
Screen ownership			0.33***			0.39***			0.30***
Screen use in hours			0.19***			0.13*			0.30***
R^2	0.09	0.09	0.24	0.01	0.02	0.19	0.01	0.02	0.22
Adjusted R^2	0.09	0.09	0.23	0.00	0.00	0.17	0.00	0.00	0.20
F for change in *R*	20.71	0.72	60.59	1.51	0.68	31.94	1.30	1.11	40.24

Note. The table presents standardized regression coefficients (beta). Variance inflation factor (VIF) diagnostics showed no multicollinearity issues (VIFs < 1.34). *p < 05. **p < .01. ***p < .001.

Predicting Variables per Multiscreen Composition

To examine predictors of multiscreen use for different multiscreen compositions, we looked at multiscreening with television, smartphone, and laptop. The other multiscreen compositions (i.e., tablet, desktop computer, and video console) were not prevalent enough to conduct reliable analyses. The amount of multiscreening with a certain screen served as the dependent variable. Models for all participants and for the two samples by country were examined. The same independent variables were entered as for the models in Table 2. Screen use in hours is now the screen that is examined instead of general screen use. In addition, the number of devices of the examined screen are included as a media factor.

Multiscreening With Television

The results for multiscreening with television are presented in Table 3a. The models explained 24.9% of the variance in multiscreen use with television for all participants, 19.4% of the variance in multiscreen use with television in the U.S., and 21.8% of the variance in multiscreen use with television in the Netherlands. Overall, media factors appeared to be the most important predictors of multiscreening with television. Total number of screens has the highest impact on multiscreen use with television (all $b^* = .30$, $p < .001$; U.S. $b^* = .33$, $p < .001$; Netherlands $b^* = .36$, $p < .001$). The higher the total number of screens someone owns, the more they will multiscreen with the television. In addition, total television use in hours had a significant impact on multiscreening with television for all participants ($b^* = .17$, $p < .001$) and in the Netherlands ($b^* = .26$, $p < .001$), but not in the U.S. However, total number of televisions owned affected multiscreening with television in the U.S. ($b^* = .12$, $p = .045$) and not in the other two samples.

In addition to the media factors, some audience factors predicted multiscreen use with television. In the U.S., older participants were more likely to multiscreen with television ($b^* = 15$, $p = .12$), and in the Netherlands, female participants multiscreened more with television ($b^* = .13$, $p = .012$). Finally, the cultural factor polychronicity affected multiscreening with television in the Netherlands ($b^* = .10$, $p = .047$). Higher participant scores on the scale of polychronicity in the Netherlands (i.e., the more polychrome this person is) were correlated with greater levels of multiscreening with television.

Table 3a. Hierarchical Regressions for Multiscreening With Television.

Predictor	All Participants			U.S.			The Netherlands		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Step 1—Demographics									
Country	−0.30***	−0.31***	−0.23***						
Age	0.04	0.04	0.04	0.10	0.11	0.15*	0.01	0.01	0.04
Gender	0.01	0.00	0.03	0.04	0.04	−0.03	0.09	0.09	0.13*
Step 2—Cultural dimensions									
Polychronicity		0.06	0.07		0.03	0.06		0.11	0.10*
Uncertainty avoidance		−0.02	−0.03		−0.07	−0.08		0.02	−0.00
Long-term orientation		0.00	0.00		0.02	0.01		0.01	0.02
Step 3—Media factors									
TV use in hours			0.17***			0.10			0.26***
Number of televisions			0.07			0.12*			−0.09
Total number of screens			0.30***			0.33***			0.36***
R^2	0.09	0.10	0.25	0.02	0.02	0.19	0.01	0.02	0.22
Adjusted R^2	0.09	0.09	0.24	0.01	0.01	0.17	0.00	0.00	0.20
F for change in *R*	21.69	0.95	42.76	2.49	0.65	21.66	1.22	1.15	27.27

Note. The table presents standardized regression coefficients (beta). Variance inflation factor (VIF) diagnostics showed no multicollinearity issues (VIFs < 1.69). *p < .05. **p < .01. ***p < .001.

Multiscreening With Smartphone

The results for multiscreening with smartphone are presented in Table 3b. The models explained 21.6% of the variance in multiscreen use with smartphone for all participants, 19.2% of the variance in multiscreen use with smartphone in the U.S., and 20.2% of the variance in multiscreen use with smartphone in the Netherlands. Overall, media factors appeared to be the most important predictors of multiscreening with smartphone. Total number of screens had the highest impact on multiscreening with smartphone (all $b^* = .32$, $p < .001$; U.S. $b^* = .37$, $p < .001$; Netherlands $b^* = .29$, $p < .001$). The higher the total number of screens someone owned, the more they reported they used a smartphone while using other screens. Similar to multiscreening with television, total smartphone use in hours had a significant impact for all participants ($b^* = .14$, $p < .001$) and in the Netherlands ($b^* = .28$, $p < .001$), but not in the U.S. Total number of smartphones owned had a significant impact for all participants ($b^* = .10$, $p = .004$) and in the U.S. ($b^* = .11$, $p = .045$), but not in the Netherlands. Of the other variables, only the audience factor gender ($b^* = -.09$, $p = .020$) and cultural factor long-term orientation ($b^* = .09$, $p = .036$) were related to multiscreening with smartphone for all participants. Men are more likely to multiscreen with smartphone than women are, and people who score higher on the scale for long-term orientation are more likely to multiscreen with smartphone.

Table 3b. Hierarchical Regressions for Multiscreening With Smartphone.

Predictor	All Participants			U.S.			The Netherlands		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Step 1—Demographics									
Country	−0.23***	−0.20***	−0.13**						
Age	−0.01	0.02	−0.00	0.06	0.06	0.10	−0.06	−0.07	−0.08
Gender	−0.08	−0.09*	−0.09*	−0.07	−0.08	−0.08	−0.07	−0.08	−0.08
Step 2—Cultural dimensions									
Polychronicity		0.04	0.04		0.01	0.03		0.08	0.06
Uncertainty avoidance		0.01	0.01		−0.05	−0.05		0.06	0.03
Long-term orientation		0.10*	0.09*		0.12	0.11		0.09	0.09
Step 3—Media factors									
Smartphone use in hours			0.14***			0.07			0.28***
Number of smartphones			0.10**			0.11*			0.06
Total number of screens			0.32***			0.37***			0.29***
R^2	0.06	0.07	0.22	0.01	0.02	0.19	0.01	0.02	0.20
Adjusted R^2	0.06	0.06	0.21	0.01	0.01	0.17	0.00	0.01	0.18
F for change in *R*	14.31	2.13	38.55	2.00	1.12	21.15	1.04	1.74	24.02

Note. The table presents standardized regression coefficients (beta). Variance inflation factor (VIF) diagnostics showed no multicollinearity issues (VIFs < 1.35). *$p < .05$. **$p < .01$. ***$p < .001$.

Multiscreening With Laptop

The results for multiscreening with laptop are presented in Table 3c. The models explained 18.7% of the variance in multiscreen use with laptop for all participants, 13.3% of the variance in multiscreen use with laptop in the U.S., and 13.4% of the variance in multiscreen use with laptop in the Netherlands. Again, media factors appeared to be the most important predictors of multiscreening with laptop. As with the previous two screens, total number of screens owned had the highest impact on multiscreening with laptop (all $b^* = .26$, $p < .001$; U.S. $b^* = .28$, $p < .001$; Netherlands $b^* = .30$, $p < .001$). The more total number of screens someone owns, the more he or she will multiscreen with laptop. In addition, total laptop use in hours had a significant impact on multiscreening with laptop for all participants ($b^* = .09$, $p = .013$) and in the Netherlands ($b^* = .18$, $p = .001$), but not in the U.S. This was similar to the multiscreening with television and multiscreening with smartphone.

In addition to media factors, some of the audience factors predicted multiscreen use with laptop. In the U.S., older participants were more likely to multiscreen with laptop ($b^* = 14$, $p = .19$), and in the Netherlands, female participants multiscreened more with laptop ($b^* = .13$, $p = .014$). Finally, in the U.S., the cultural factors polychronicity ($b^* = .13$, $p = .020$) and uncertainty avoidance ($b^* = -.16$, $p = .008$) also affected multiscreening with laptop. The higher someone scores on the scale of polychronicity or the less someone avoids uncertainty situations, the more likely this person will multiscreen with a laptop.

Table 3c. Hierarchical Regressions for Multiscreening With Laptop.

Predictor	All Participants			U.S.			The Netherlands		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Step 1									
Country	−0.33***	−0.33***	−0.30***						
Age	−0.05	0.04	0.05	0.10	0.11	0.14*	0.02	0.01	0.02
Gender	−0.05	0.05	0.05	0.04	0.02	0.02	0.11	0.10	−0.13***
Step 2									
Polychronicity		0.07	0.07		0.11*	0.13*		0.04	0.03
Uncertainty avoidance		−0.05	−0.06		−0.17*	−0.16**		0.07	0.04
Long-term orientation		0.05	0.04		0.07	0.07		0.04	0.05
Step 3									
Laptop use in hours			0.09**			0.01			0.18***
Number of laptops			0.06			0.07			0.01
Total number of screens			0.26***			0.28***			0.30***
R^2	0.01	0.11	0.19	0.01	0.05	0.13	0.01	0.02	0.13
Adjusted R^2	0.01	0.01	0.18	0.00	0.03	0.11	0.01	0.01	0.11
F for change in *R*	24.48	1.74	19.87	1.18	4.03	10.37	1.79	0.98	13.99

Note. The table presents standardized regression coefficients (beta). Variance inflation factor (VIF) diagnostics showed no multicollinearity issues (VIFs < 1.35). *p < .05. **p < .01. ***p < .001

Discussion

The aim of the current study was to examine the predictors of multiscreening by looking at audience, media, and cultural factors and by comparing data from the U.S. with the Netherlands. This was necessary for at least three reasons. First, previous research had found that media multitasking was most prevalent in the U.S. and the least prevalent in the Netherlands. However, limited explanations of these differences were provided. Second, previous research into predictors of media multitasking have looked at audience, media, and cultural factors as predictors of this behavior. However, they never compared these three types of factors within the same cross-country study. Third, previous research found mixed results on the predictors of media multitasking. Differences in results might be explained by the use of the different media combinations. Therefore, the current study focuses on the most prevalent form of media multitasking, namely, multiscreening (Segijn et al., 2017). This study compared multiscreening prevalence between the U.S. and the Netherlands and looked at predictors of multiscreen use.

First, we confirmed that participants in the U.S. multiscreen more than participants in the Netherlands. That differences between countries exists is important when comparing statistics about the prevalence of multiscreening that is derived from different countries—for example, when comparing Nielsen data from the U.S. with the Dutch numbers from Voorveld and van der Goot (2014). These results emphasize the importance of cross-country research. The difference found between the U.S. and the Netherlands is in line with previous research that found that media multitasking was most prevalent in the U.S. and least prevalent in the Netherlands (Voorveld et al., 2014). In addition to prevalence, this study showed differences in screen ownership. Both screen saturation and total number of screens owned differed significantly between the two countries. Participants from the U.S. owned more screens compared with Dutch participants. Future research should therefore ask whether people own a screen and also the number of screens per screen type.

Second, we looked at predictors of multiscreening by comparing audience, media, and cultural factors. Overall, media factors appeared to be the best predictors of multiscreen use for both countries. People who own more screens and consequently spend more time with these screens will also be more likely to multiscreen. Media-related factors are also the most important predictors when looking at multiscreening with television, smartphone, or tablet. Interestingly, the total number of hours spent with a specific screen is only a predictor in the Netherlands, whereas the number of specific screens owned is only a predictor in the U.S. An explanation could be that participants in the U.S. own multiple devices of the same screen (e.g., they own multiple televisions), whereas in the Netherlands, this is less common (see Table 1). In both countries, total screen ownership had the biggest impact on multiscreen use. This was also the only predictor that had a significant impact on multiscreen use across all samples and every multiscreen combination. Because media factors are consistent predictors across countries, it will be interesting for future research to examine whether affordances of media drive multiscreening use. In other words, future research should be devoted to examining what screen-device properties facilitate multiscreening behavior. For example, a television viewer might check additional information about a TV show on her tablet screen. Thus, in this example, a tablet affords the user to multiscreen while watching TV.

Third, some of the audience factors also had an impact on multiscreen use. Age appeared to be a predictor of total multiscreen use. Older participants were more likely to multiscreen in the U.S., and younger participants were more likely to multiscreen in the Netherlands. A possible explanation of this opposite result can be found in the media predictors. In the U.S., the number of screens owned is a better predictor of multiscreen use than the hours spent with a screen, whereas in the Netherlands, it is the other way around. It is likely that the older people get, the more access they have to more screens, but younger people have more time to spend with media. In addition to age, gender had an impact on multiscreen use with the smartphone in the total sample. Contrary to the results of multiscreening with television and laptop, these results showed that men multiscreen more with smartphone than do women. This is in line with previous research in multiscreening with smartphone (Segijn et al., 2017). Furthermore, gender appeared to be a predictor for specific multiscreening combinations. Women multiscreen more with television and laptop. However, these results were only observed for participants in the Netherlands. In the U.S., gender did not affect multiscreen use, which provides support for the argument that a lack of a gender effect could be observed in countries where gender roles are not strictly defined (Kononova, 2013).

Finally, we examined individual-level cultural factors as predictors of multiscreen use. Results differed by multiscreen combinations and per sample. Polychronicity appeared to be a predictor of multiscreening with television in the Netherlands and multiscreening with laptop in the U.S. As expected, the more people prefer to do multiple things at the same time, the more they engage in multiscreening. Uncertainty avoidance appeared to be a significant predictor of multiscreening with laptop in the U.S. Consistent with our predictions, American participants who reported they did not cope well with an unexpected future were less likely to multiscreen. This goes back to our argument that individuals who try to reduce uncertainty are more likely to follow a schedule and do one thing at a time. Finally, long-term orientation appeared to be a significant predictor of multiscreening with smartphone in the overall sample. The results showed that people who score higher on organizing activities to maximize future goals also score higher on multiscreening with smartphone. This is contrary to the expectation that long-term-oriented people would multiscreen less. One explanation of this finding could be that long-term-oriented individuals are more likely to break the existing norms of current media use for future efficiency. In this case, multiscreening with smartphone could be seen as a way to increase efficiency. Short-term-oriented individuals, on the contrary, are less likely to adopt the new media-use behavior.

Contrary to expectations, age was not a significant predictor of multiscreen use for all screen compositions. Previous studies have been consistent in finding age as a predictor of a form of media multitasking (e.g., Carrier et al., 2009; Voorveld et al., 2014; Voorveld & van der Goot, 2013). An explanation could be that the current study made use of a student sample, and variations in age were small. Having a student sample can be seen as a limitation of the study because the results could not be generalized to the whole population of the U.S. and the Netherlands and are limited to the two universities. Although the samples do not represent the general population of both countries, students are frequent multitaskers (Calderwood, Ackerman, & Conklin, 2014; Carrier et al., 2009). Therefore, they provide a good baseline understanding of multiscreening across countries and the predictors that drive this behavior. Students are also young adults, some of whom will soon join the workforce and carry their media-use habits with them, changing the etiquettes of working and leisure. Having said that, the results of the study must be carefully interpreted. Future research is necessary to replicate the findings in a general sample.

A second limitation might be the predictors included in the study. Although this study examined audience, media, and cultural factors as predictors of multiscreening, it did not grasp the whole scope of these predictors. According to the extended model of Jeong and Fishbein (2007), audience factors consist of both demographic and psychological factors, such as sensation seeking. Also, media factors consist of both individual-level media factors (e.g., screen ownership) as structural-level media factors (e.g., media market). In this study, we focused on demographic and the individual-level media factors. Not including psychological audience factors and structural-level media factors can be seen as a limitation. For example, it would have been interesting to know more about the living status of the participants, which could influence media ownership (Foehr, 2006). Also, country continued to be a significant predictor in every regression model, even after adding all other variables. This is an indication that other country-level factors contribute to multiscreening that have not been measured in this study. Despite these limitations, this study is the first to combine audience, media, and cultural factors. Future research is necessary to test the other factors as predictors of multiscreening, especially on the country level.

Finally, we have to be careful in drawing causal conclusions based on correlational survey data. For example, it might be possible that heavier multiscreeners own more screens or spend more time with media because they are multiscreening. It is also important to note that the three cultural factors were measured as self-reported individual-level variables. For instance, respondents who reported a greater degree of multiscreening could also report a greater degree of polychronicity. Future research should consider more precise and less subjective measures of culture and multiscreen use to establish a causal relationship with media and screen multitasking variables.

The results of this study have at least three important implications for theory. First, it extends the model of Jeong and Fishbein (2007) by including cultural factors as a possible predictor of media multitasking use. In their model, Jeong and Fishbein focused on audience and media-related factors only. The model was designed to examine predictors of media multitasking within one country. Our study showed that cultural dimensions could also be predictors of a form of media multitasking prevalence. Cultural factors are also important to take into account when examining predictors within one country because these cultural factors could also differ per individual (Yoo et al., 2011). Our study showed that within a country, differences on these cultural dimensions could influence multiscreening use.

Second, the current study added two new cultural predictors that have not been examined before in the context of multiscreening or media multitasking, namely, uncertainty avoidance and long-term orientation. Studies looking at cultural factors in the context of media multitasking have mostly focused on polychronicity (Kononova & Chiang, 2015; Voorveld et al., 2014). This study showed that uncertainty avoidance and long-term orientation are also related to specific types of multiscreening behavior. An interesting theoretical implication of exploring the three factors together is to determine if these factors affect media multitasking behaviors in a similar way. The three cultural characteristics have one similarity: all revolve around people's perception of time from more rigid and linear, to more flexible and spiral. It is intriguing that despite this similarity, the cultural variable predicted multiscreening behaviors differently. This should be further investigated. In addition, future research could look at other time-related predictors, such as time orientation (Settle, Alreck, & Glasheen, 1978; Zimbardo & Boyd, 1999).

Finally, this study found that predictors of multiscreen use could differ by country and per screen composition. This stresses the importance of differentiating between these two factors in future research. Not every multiscreen or media multitasking situation is the same. Different combinations of media can have different predictors and may also have different effects. Additionally, these predictors might differ by country. Countries differ in terms of their media systems, and this could also have an impact on how media are used and how often media are used. More cross-country research is necessary to further develop theory building on the relation between media systems and media use.

In addition to theoretical implications, this study also has important practical implications. Multiscreening and other media multitasking behaviors receive attention from advertisers, schools, and the government. These organizations worry about the detrimental effect that multiscreening has on information processing. Previous studies showed that multiscreening has a negative effect on cognitive outcomes, such as memory and comprehension (e.g., Segijn, Voorveld, & Smit, 2016; Van Cauwenberge, Schaap, & van Roy, 2014). Therefore, it is important to understand what drives this behavior to get a better understanding of this media-use habit, especially because some factors (i.e., media factors) can be more controlled by external parties than others (i.e., audience and cultural factors). The strategy to influence this behavior may depend on the factors that drive the behavior. Additionally, improving the knowledge about predictors of multiscreening is valuable information for media planners. This research provides insights into who is engaging in multiscreening and what drives their behavior. This information could improve the effectiveness of messages and reduce risk when trying to find the target audience. Furthermore, with the trend of globalization, it is important not only to examine the predictors within a country but also to expand research across borders. Understanding predictors of multiscreening behavior and how they differ across countries will help media practitioners improve audience segmentation in an international campaign.

In sum, this study is a first step in examining predictors of multiscreening use across countries. It was confirmed that multiscreening was most prevalent in the U.S. The main universal predictor of the behavior seems to be media-related factors. Specifically, the total number of screens owned was the biggest predictor of multiscreen use for all screen compositions and across countries. Audience factors and cultural factors are also predictors of the behavior, but only for some screen compositions and in some countries.

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