

Content Creation on the Internet

A Social Cognitive Perspective on the Participation Divide

Abstract

Socio-economic status (SES) is held to impact Internet users' willingness and ability to productively use online media. This effect can create a "participation divide" between distinct user groups. Recently, studies have enhanced our understanding of the participation divide by differentiating types of online content creation. They found that SES may only affect specific forms of online participation. We suggest that social cognitive theory (SCT) helps explain why and how socio-demographics influence different forms of online participation. Based on SCT, we analyze the mediating effect of two cognitive constructs, self-efficacy and privacy concerns, on different types of online content creation. We conduct a survey among German Internet users and apply structural equation modeling in order to compare three distinct theoretical models. We find that considering the mediating effects of cognitive constructs, based in SCT, improves our understanding of which socio-demographic variables affect which type of online content creation – and why.

1. Introduction

Online media provide their users with access to an unprecedented wealth of information. Optimistic observers therefore expressed hope that online media will contribute to a more informed – or even enlightened – public (Bimber, 2001; Boulianne, 2009). Online media also facilitate public self-expression (Ellison, Steinfield, & Lampe, 2007; Kane, Alavi, Labianca, & Borgatti, 2013). Social media, especially, make it easy for lay users to publish their musings and opinions and make them accessible to a global audience (Blank & Reisdorf, 2012; Correa, 2010; Hargittai & Walejko, 2008; Schradie, 2011). Based on personal profiles, users can quickly connect to like-minded citizens and become members of lively communities of interest (Gil de Zúñiga, Veenstra, Vraga, & Shah, 2010; Woodly, 2007; Zhang, Johnson, Seltzer, & Bichard, 2009). In short, online media have the potential to facilitate participation in a variety of civic domains.

Empirical analyses have found that Internet use is in fact associated with both online and offline political participation – a finding that also holds for social media use (Boulianne, 2009; Towner & Dulio, 2011; Vitak et al., 2011). The participatory effect of new media has also been observed beyond political participation, e.g., participation in a business, education or health context (Epstein, Rosenberg, Grant, & Hemenway, 2002; Livingstone & Bober, 2004; Sandaunet, 2008). Of course, studies on the participatory effect of new media have consistently shown that not all users benefit equally from the chances provided by new media. Socio-demographics, especially, differentiate web use, online skills, and online as well as offline participation (Hargittai, 2002, 2010; Hargittai & Hinnant, 2008; van Deursen & van Dijk, 2010; van Dijk, 2005; Zillien & Hargittai, 2009). Research was quick to explore the notion of a “digital divide” and is increasingly analyzing its effect on online participation, i.e., the “participation divide” (Blank, 2013a; Blank & Reisdorf, 2012; Correa, 2010; Hargittai & Walejko, 2008; Schradie, 2011).

Recently, Blank (2013a) called for a differentiation of the online participation concept. According to his study of Internet users in the UK, different kinds of content are created online – each with its distinct socio-demographic antecedents. According to Blank, factors such as age, gender or education do not necessarily affect online participation across all domains, but rather only select forms of participation, political participation most notably. In a response, Schradie (2013) pointed to the persistence of large social inequalities when it comes to online content creation. Both authors do not disagree on the existence of a participation divide, but rather on its form and scope – which ultimately also affects evaluations of social effects. The recent controversy documents a need to strengthen the theoretical foundation of empirical findings regarding the participation divide.

Social cognitive theory has been tremendously helpful in explaining different patterns of Internet use (Hsieh, Rai, & Keil, 2011; Wei, Teo, Chan, & Tan, 2011). Bandura (1977; 1986)

proposes that environmental influences impact both individual predispositions and behavior – which, in turn, interact. Socio-demographic variables often indicate distinct environmental influences on predispositions that, in turn, drive behavior (Frenkel, 1990; Wei et al., 2010). We therefore propose to further differentiate the current debate on online content creation and the participation divide by considering the mediating effect of cognitive predispositions. Based on a large-scale online survey conducted in Germany (N=1488), we will address the following research proposition:

Cognitive variables, like self-efficacy and privacy concerns, mediate the effect of socio-demographic variables on online content creation.

We base our analysis on structural equation modeling and a comparison of alternative models of the mediating effect of cognitive variables: a direct, a fully mediated, and a partially mediated model. Analyzing these mediating effects will help differentiate and explain the influence of socio-demographics on online content creation. Our study will pick up on the differentiation of online content creation proposed by Blank (2013a). Thereby, we will not only explore the online participation divide in Germany, we will also demonstrate that considering the mediating effect of cognitive variables enhances the explanatory power of current models of the online participation divide, including the complex effects of demographic variables on different types of online content creation.

2. Theoretical Background

2.1 From the Digital Divide to the Participation Divide

Digital divide research suggests that “offline” inequalities are reproduced online. More specifically, socio-demographic differences tend to be replicated online, with socio-demographic disadvantages limiting user access to and benefits from Internet use. Antecedents frequently explored in the literature include education, income, gender, and age.

Socio-economic status (*SES*), as measured by income or education, is a key construct in the digital divide literature. Those with high *SES* are held to more easily take advantage of the Internet, because they command the necessary resources (material, human and social capital) allowing better *access* to modern ICTs (DiMaggio, Hargittai, Celeste, & Shafer, 2003; van Dijk, 2006) – e.g. broadband Internet connection, smartphones or tablets. They also possess the necessary *skills* to use new media (Gui & Argentin, 2011; Hargittai, 2002, 2010; Hargittai & Shafer, 2006; van Deursen & van Dijk, 2010). Hargittai and Walejko (2008) found that higher social status is associated with more expressive Internet uses. Compared with low *SES* users, those with high *SES* are expected to use the Internet in more capital-enhancing ways (Hargittai & Hinnant, 2008; Zillien & Hargittai, 2009). Education and income have both been shown to positively impact online participation (Gibson, Lusoli, & Ward, 2005). Even among youth, male, higher status and better educated citizens are more engaged online than their female, lower status and less educated counterparts (Livingstone, Bober, & Helsper, 2005).

As for *gender*, although differences in access to the Internet have almost leveled out in many Western countries, inequalities remain (Helsper, 2010; Li & Kirkup, 2007; Ono & Zavodny, 2003). Online games or sexual content, for example, have been shown to be male-dominated uses, while online health information seems to be more popular among female users (Helsper, 2010: 356-357). Studies tend to find that men are more active and eager to participate online than women (Calenda & Meijer, 2009; Di Gennaro & Dutton, 2006).

Age is found to be a strong predictor of Internet use and skills, with younger users being more active and skillful (Bridges, Appel, & Grossklags, 2012; Dahlgren, 2011; Hargittai, 2002, 2010; Jugert, Eckstein, Noack, Kuhn, & Benbow, 2013). On the other hand, the effect of age on online engagement can be moderated by the users' interest – e.g., older users being more interested in political affairs (Gibson et al., 2005; Wang, 2007).

While early studies tended to focus on the extent or frequency of Internet use, more recent studies began to differentiate *forms or domains of Internet use*. Bakker and de Vreese (2011) found that using the Internet for information purposes, such as news consumption, is positively associated with both online and offline participation, whereas consuming media for entertainment purposes is negatively related to participation (cf., Pasek, More, & Romer, 2009; Shah, Kwak, & Holbert, 2001; Wang, 2007). Moy, Manosevitch, Stamm and Dunsmore (2005) differentiate seven types of Internet use: information, e-mail, household, political, consumer, social, and community uses. Of these, information, e-mail, political and community uses are positively associated with civic engagement. Social forms of using the web also seem to foster engagement and participation (Dutta-Bergman, 2006).

In summary, the digital divide literature provides substantial support for the notion that socio-demographics not only impacts *if*, but also *how* individuals use the Internet. These findings have implications for the participatory effect of new media, as different use patterns are more or less conducive to individuals' participation in a number of civic domains. A "divide" in Internet access and use patterns should therefore contribute to a corresponding "divide" in participatory potentials. A fitting approach to exploring the participation divide is to focus on users' willingness and ability to create content online (Correa, 2010; Hargittai & Walejko, 2008). By creating content, users engage in self-expression, they participate in a public discourse and exhibit the intention to affect their social environment (Gil de Zuñiga et al., 2010).

2.2 Content Creation on the Internet

A number of previous studies have addressed the issue of online participation by focusing on users' online content creation (Hargittai & Walejko, 2008; Jenkins, Clinton, Purushotma, Robinson, & Weigel, 2006; Correa, 2010). Schradie (2011) points out that content creation and participation are not identical: while content creation potentially addresses a wide,

dispersed audience and can be unidirectional, participation is commonly more focused on specific reference groups and more social and interactive in nature. Yet, Schradie concurs that there is significant overlap between participation and content creation, in some cases rendering both indistinguishable.

Current findings on the antecedents of online content creation, accordingly, are closely in line with those developed in digital divide studies: SES has been shown to significantly affect content creation, while gender affects the type of content created by users (Hargittai & Walejko, 2008). Schradie (2011) finds that the effect of SES is more pronounced on participatory than on consumptive Internet uses. Variables such as income and education, particularly, affect users' propensity to create and share content. Yet, this effect was not found for all forms of content creation. Correa (2010) finds that among college students, gender, age and race (but not SES) affect the level of online content creation. As for age, the consistent finding is that younger users are more prone to make use of the participatory forms of the web, such as blogs (Schradie, 2012).

As pointed out by Blank (2013a), previous studies – while significantly extending our understanding of the issues at hand – are associated with some limitations (see Table 1): Some studies did not rely on random samples, but focused on college students alone (Hargittai & Walejko, 2008; Correa, 2010). Schradie (2011) based her analysis on a representative sample of the US population, Blank (2013a) on one of the UK population. Most studies focus on data collected in the US (cf., Blank, 2013a). Methodically, previous studies relied on either linear or logistic regression, alone. Finally, not all studies differentiated the kind of content created by users online.

Table 1. Key Studies of Online Content Creation

<i>Study</i>	Hargittai & Walejko (2008)	Correa (2010)	Schradie (2011)	Blank (2013a)
<i>Main findings</i>	Age and online skills predict online <i>sharing</i> of creative content. <i>Production</i> of creative content also depends on SES.	Psychological factors (motivation, skills) and demographics predict content creation, SES does not.	SES affects user propensity to create and share content, effects differ by online activity.	Differentiates types of content; the effect of SES on content creation differs by type of content (mainly political content).
<i>Sample</i>	First year college students from an urban US public university (N=1060)	US College students (N=3139)	Pew sample representative of US population	OXIS sample representative of UK population
<i>Types of content</i>	Four types of creative content	Aggregates ten different types of content into one measure	Focus on activities rather than content type	Differentiates political, skilled and social/entertainment content
<i>Method</i>	Logistic regression, stepwise	Linear regression, stepwise	Logistic regression, stepwise	Logistic regression, stepwise

Most recently, Blank (2013a) addressed the latter concern by differentiating three forms of online content creation using exploratory factor analysis (EFA): skilled content, social and entertainment content and political content. Skilled content includes activities such as writing a blog, maintaining a website, and posting writing (or other creative content). Social and entertainment content captures the use of SNS, the posting of pictures, and the uploading of video or music files. Finally, political content entails emailing political content and commenting on political/social issues. Using logistic regressions, Blank (2013a) differentiates the antecedents of the three forms of content creation. He finds that skilled content is produced by young, technically savvy people who use multiple devices and are comfortable revealing personal information. Social status did not affect this form of content creation. Social and entertainment content is produced by young, technically skilled people of lower

incomes. It is more likely to be created by non-elite users. Finally, political content is produced by well-educated users who are either students or use the Internet at work. They constitute a highly educated elite.

Blank's study has some interesting implications, as it seems that the positive effect of SES on content creation (and thereby potentially online participation) is limited to the political domain. The creation of social and entertainment content, instead, appears to be more of a non-elite phenomenon, with higher SES being negatively associated with online participation. These findings and implications triggered a heated exchange on the antecedents of online participation, the prevalence of social inequalities on the Internet and methodological challenges when addressing these issues (cf., Blank, 2013b; Schradie, 2013). Schradie (2013) notes that stronger theoretical foundations are necessary to explain differing effects of socio-demographic variables on content creation.

We propose that our understanding of online content creation and participation divides can be enhanced, and the effect of socio-demographic variables better explained if we consider learnings from social cognitive theory. The next segment will provide a brief overview of social cognitive theory and its application to Internet use, in order to derive our research models.

2.3 A Social Cognitive Perspective

In a study of US citizens' access to information and the resulting effects on political participation, Bimber (2001) found that socio-economic variables do affect access to information, but cannot directly explain effects on participation. He suggests that "cognitive pathways" need to be considered to understand the participatory effect of new media. Social cognitive theory, particularly, has repeatedly been applied to the adoption of new communication technology and the ability of users to productively use new media. It provides

a suitable approach to getting a more differentiated understanding of the socio-demographic antecedents of online content creation.

Social cognitive theory posits that environmental factors, personal factors and behavior form a causal model of „triadic reciprocity“. Within this model (a) an individual's environment influences personal dispositions (such as cognitions and affect), which in turn shape its choice of environment; (b) personal dispositions influence behavior, which in turn influences these personal factors; (c) behavior affects the environment, which in turn impacts behavior (Bandura, 1977; 1986). This framework has been applied to information and communication technology (ICT) use, showing that social and environmental factors – such as training and ICT access – impact personal dispositions, which in turn affect use behavior (Ambrose & Chiravuri, 2010; Compeau & Higgins, 1995; Wei et al., 2011).

Key elements of SCT are the cognitive factors that are affected by environmental influences and that, in turn, significantly affect behavior. Foremost among these factors is self-efficacy, users' perceptions or judgments of their own ability to perform a specific behavior (Bandura, 1977; Compeau & Higgins, 1995). Self-efficacy has variously been shown to drive users' willingness or ability to use ICT (Compeau, Higgins, & Huff, 1999; Venkatesh & Bala, 2008; Venkatesh, Morris, Davis, & Davis, 2003). It has previously been considered in digital divide research, and has been shown to be helpful in explaining the effect of socio-demographic variables on use behavior (Hsieh et al., 2011; Wei et al., 2011). The literature provides for a number of conceptualizations of self-efficacy, such as computer self-efficacy or Internet self-efficacy – depending on the ICT considered for use (Compeau & Higgins, 1995; Compeau et al., 1999).

While self-efficacy contributes to a willingness to use ICTs as well as an open, positive or playful attitude towards ICT, the reverse is the case for user anxiety or concerns. The more concerns regarding an ICT, the less willing individuals are to use it (Compeau et al., 1999;

Venkatesh & Bala, 2008). One concern variously discussed in the IS literature and shown to inhibit Internet use is a user's concern for her privacy online (Smith, Diven, & Xu, 2011). Both self-efficacy and concerns have been shown to be affected by socio-demographic variables. In a number of studies, younger, male and higher SES users have reported higher levels of self-efficacy and lower levels of ICT anxiety or concerns than their older, female and lower SES counterparts (Gefen & Straub, 1997; Venkatesh & Morris, 2000; Wei et al., 2011). By considering cognitive processes, SCT provides a helpful explanation of why socio-demographic variables affect the use of new media: These variables can be associated with specific environmental influences and thereby affect the development of personal dispositions (i.e., self-efficacy or privacy concerns) and ultimately behavior. Whether or not a socio-demographic variable signifies distinct environmental influences is largely dependent on exogenous factors, such as economic (i.e., access), institutional (i.e., education), technological (i.e., affordances), or cultural (i.e., discrimination) conditions. For example, the impact of gender on Internet use should depend on the cultural context, as it may have bearing on women's exposure to ICT relative to that of men (Doney & Canon, 1997; Frenkel, 1990; Wei et al., 2011). Thereby, SCT provides a different perspective on Bourdieu's (1984) notion of a milieu-specific "habitus", as previous considered in participation divide literature (cf., Hsieh et al., 2011; Schradie, 2011).

Our study sets out to contribute to the current debate on antecedents of online content creation by analyzing the mediating role of cognitive factors. Schradie (2011) acknowledges that a playful attitude towards ICT is a key driver of creative use, while user concerns inhibit content creation. She calls for a consideration of the mediating effect of these cognitive factors in participation divide research (Schradie, 2013). Previous studies have found that use skills or perceived skills moderate some effects of socio-demographic variables on content creation (Blank, 2013a; Correa, 2010; Hargittai & Walejko, 2008). Correa (2010) finds that

skills have no significant effect on use behavior when perceived competence is taken into consideration. Self-efficacy goes beyond a mere estimation of use skills, as it conceptualizes a user's judgment of her ability to achieve certain goals given a specific skill set (Bandura, 1986; Compeau et al., 1999). By analyzing the mediating role of self-efficacy and privacy concerns, we hope to contribute to the understanding of why certain socio-demographic variables affect specific types of online content production, while others do not.

2.4 Research Models

Our study extends our understanding of socio-demographic antecedents of online content creation by considering the mediating role of self-efficacy and privacy concerns. While previous studies did indicate that psychological factors influence content creation, they were not able to fully explore their mediating effect since they relied solely on regression models (Blank 2013a; Correa, 2010; Hargittai & Walejko, 2008; Schradie, 2011). Therefore they could not test for direct and indirect effects in one step and compare the overall goodness of fit of alternative models. By applying structural equation modeling, we can both take account of latent constructs – such as different forms of content creation – and consider direct as well as indirect effects. Furthermore, we can estimate measurement errors.

We will show that the consideration of cognitive factors contributes to our understanding of online content creation by comparing and analyzing three models. These models are based on Blank's (2013a) typology of online content creation. In all three models, we consider age, gender and education as independent socio-demographic variables. We also consider two cognitive variables: self-efficacy and privacy concerns. Figures 1-3 show the competing research models of this article. The first model most closely corresponds to the (full) regression models used in previous studies. Here, the cognitive constructs are included as additional independent variables.

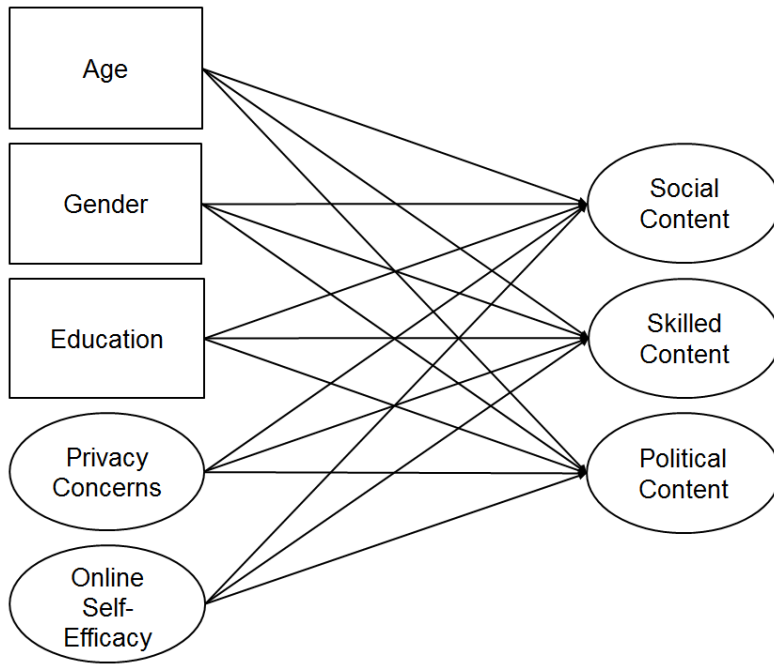


Figure 1. Only direct model

By contrast, the second model conceptualizes the cognitive constructs as mediators. It – somewhat boldly – assumes that the effects of the socio-demographic variables are fully mediated by the cognitive concepts.

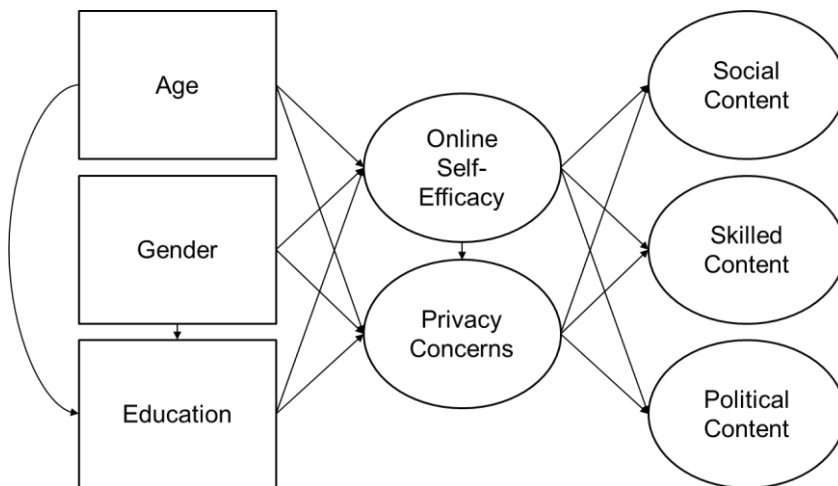


Figure 2. Fully mediated model

Finally, the third, partially mediated model allows for direct effects of the socio-demographic variables. Since it takes both the mediating effect of the cognitive concepts into consideration,

but also allows for further effects not captured by these mediators, we expect this model to display the highest goodness of fit – superior to the first model.

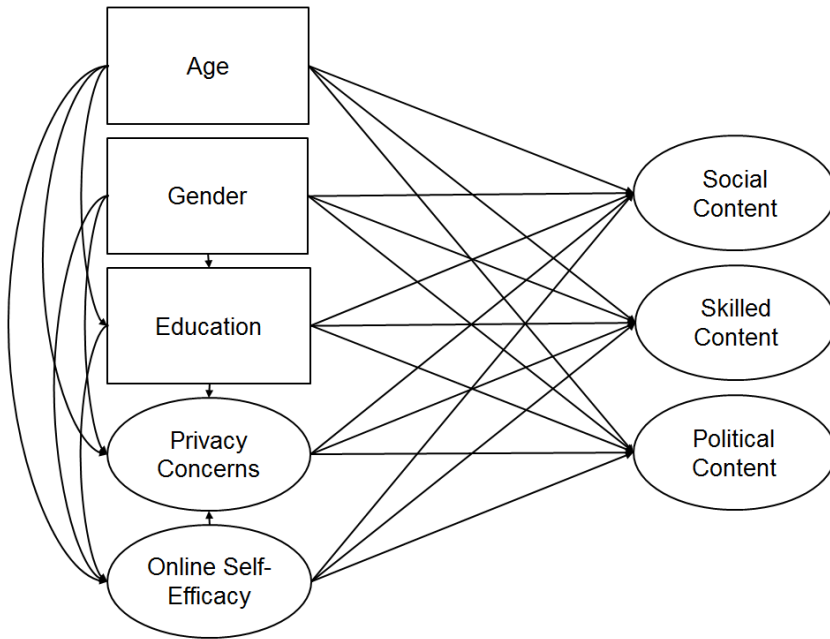


Figure 3. Partially mediated model

As to the mediating effects, we propose that age, gender and education affect self-efficacy and privacy concerns with younger, male and highly educated users reporting higher self-efficacy and lower privacy concerns (Gefen & Straub, 1997; Venkatesh & Morris, 2000; Wei et al., 2011). We further propose that self-efficacy positively affects the creation of all three forms of online content while privacy concern negatively affects content creation. Self-efficacy has previously been shown to reduce privacy concerns, so we will also take account of this effect (Compeau et al., 1999). Finally, we will control for an effect of age and gender on education. The former accounts for education expansion, i.e. the fact that today, young people tend to attend school longer and face a wider variety of educational options. The latter attempts to capture different educational paths between men and women.

3. Methodology

3.1 Data and Measures

The survey sample was recruited from a pool of German Internet users demographically representative of the German adult population, provided by a leading market research institute. During August 2013, 4'089 users were invited to participate in the survey by e-mail. Participants were offered a small monetary incentive. 1'488 users responded (response rate 36%). The overall sample composition is summarized in Table 2. A gender, age and regional distribution composition of the sample representative of the German general population was ensured by defining quotas on these attributes.

Table 2. Demographic Structure of the Sample

Variable	Category	N	Percent	Missings
Age	18-29 years	231	16.9	
	30-39 years	201	14.1	
	40-49 years	301	19.8	
	50-59 years	271	17.7	
	60 years and above	484	31.5	
	<i>Total</i>	1488	100	0
Gender	Female	746	51.1	
	Male	742	48.9	
	<i>Total</i>	1488	100	0
Education	Primary	195	13.2	
	Secondary	797	53.8	
	Tertiary	490	33.0	
	<i>Total</i>	1482	100	6

The questionnaire addressed the participants' media consumption, Internet use, online participation, and several questions on offline civic engagement and political participation. We measured participants' online self-efficacy based on three items, each addressing their judgments of their own ability to publish different forms of content online. This measure was based on previous measures and focused on online tools that allow for content creation (cf.,

Compeau et al., 1999; Venkatesh et al., 2003; Venkatesh & Bala, 2008). Privacy concerns were measured with three items from Malhotra, Kim and Agarwal's (2004) global information privacy concern measure.

The measures of the three types of online content creation were derived from Blank's (2013a) typology. Skilled content creation encompasses publishing texts and comments on the Internet and commenting on the writings of others. Social and entertainment content creation covers the use of social networking sites (SNS), the posting of photos or videos online. Political content creation covers comments on political issues, but also participating in political discussions online. Our measure of political content creation therefore is somewhat broader than that proposed by Blank (2013a). The wording of all items is reported in Appendix A.

3.2 Methods

We relied on structural equation modeling (SEM) to address the research questions. SEM combines confirmatory factor analysis (CFA) and regression models, and allows the testing of hypothesis systems. In contrast to normal regression analysis (linear – OLS, or multinomial logistic), SEM can deal with indirect effects and latent variables. Furthermore, it takes into account measurement errors in the specification of latent constructs and gives out global goodness fit measures, such as RMSEA, SRMR, CFI, TLI, to allow for model comparisons. As described, previous studies on online content creation relied either on (stepwise) logistic regression (Hargittai & Walejko, 2008; Schradie, 2011; Blank, 2013a) or linear regression (Correa, 2010), complicating the test for indirect effects/mediation.

We used MPlus (Version 7) Statistical Software to carry out the analyses, relying on robust Maximum Likelihood Estimation (MLR), so as to account for non-normality and other sources of distortion, such as heteroscedasticity and non-normal distribution of error terms (Byrne, 2012). The complete measurement model of all latent constructs is reported in

Appendix B. It satisfies the necessary conditions (Bollen, 1989; Netemeyer, Bearden, & Sharma, 2003), i. e. has convergent and discriminant validity (Fornell & Larcker, 1981; see Appendix C). The only exceptions are the AVE of privacy concerns, which falls slightly short of the threshold value, and the correlation between skilled and social & entertainment content. We opted for retaining the privacy concerns measure with three items because it is derived from a well-tested scale. Given the large (squared) correlation between skilled content on the one hand and social & entertainment content on the other hand, discriminant validity cannot be assumed for these two constructs. We chose to retain the (three) categories, though, because of conceptual reasons and to replicate Blank's (2013a) typology of online content.

4. Results and Discussion

Overall, participants report only little enthusiasm for creating content online (see Appendix D, Tables D1-D3). Only about 10 percent create skilled content often or very often. Around half of the online population never publishes texts on the Internet, comments or discusses in online communities. For social and entertainment content, these numbers are markedly higher. On average, users are active on SNS and online media platforms several times a month. Yet, over three thirds of the German online population never or only rarely posts pictures or videos. Finally, political content creation is even less common than the other types considered. Both the average values and the relative frequencies point to low participation rates.

Figure 4 shows the results of the first, direct model. This model most closely resembles the analysis of previous studies, and, indeed, we find results closely in line with those reported by Blank (2013a). We find that older users are less likely to publish skilled and social/entertainment content, while there is no significant effect for political content – presumably because the higher activity levels of younger users are offset by the higher political interest of older users. While Blank (2013a) did not find any effect of gender on

content production, we find that political content is less likely to be produced by female users. The only direct effect of education on content production is a negative effect on social/entertainment content production, replicating Blanks (2013a) finding in this regard. We find that self-efficacy drives all three types of content creation, while privacy concerns reduce the production of social/entertainment and, surprisingly, weakly increases that of political content, while not affecting skilled content creation.

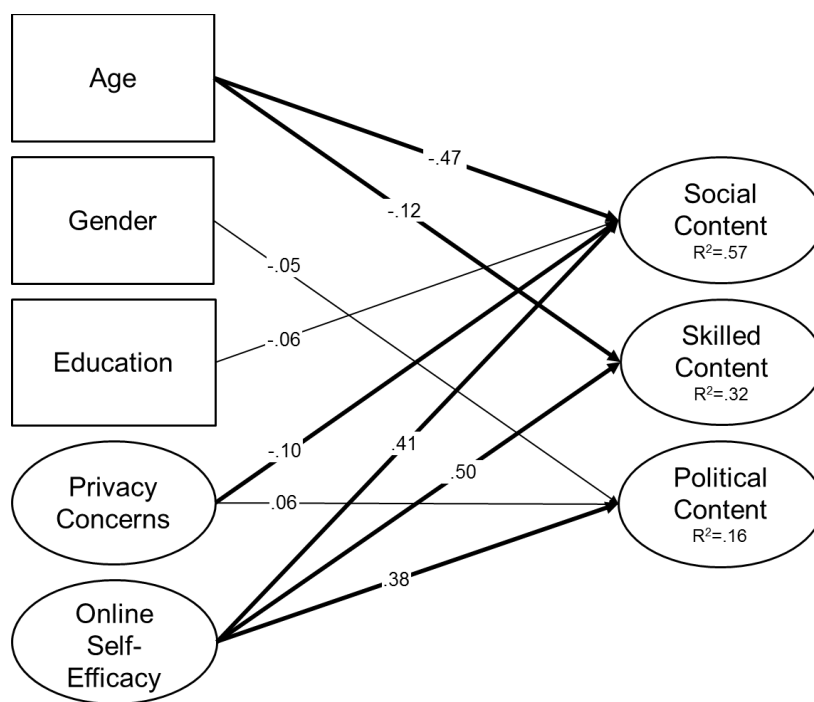


Figure 4. Only direct model, significant effects only (thin line $p < 0.05$, fat line $p < 0.001$)

The fully mediated model (Figure 5), unsurprisingly shows strong effects of self-efficacy on all three types of content production and a negative effect of privacy concerns on social/entertainment content production only. As to the effects of the socio-demographic variables on the cognitive factors, we find that self-efficacy is markedly higher for younger users, and also significantly higher for male and highly educated users. At the same time, older users report higher levels of privacy concerns. These findings are in line with previous studies of self-efficacy (Gefen & Straub, 1997; Venkatesh & Morris, 2000; Wei et al., 2011).

In fact, the limited effect of privacy concerns on actual use behavior has been observed in previous studies, too (Compeau et al., 1999). We also find that the level of education is lower for older and female users. Overall, our findings confirm the proposition derived from SCT that socio-demographic variables indicate distinct learning experiences that affect ICT attitudes and use behavior.

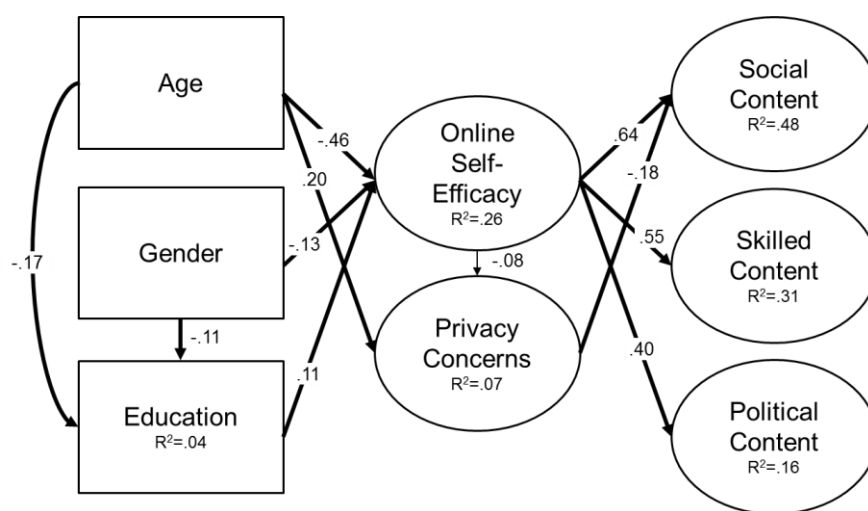


Figure 5. Fully mediated model, significant effects only (thin line $p < 0.05$, fat line $p < 0.001$)

Figure 6 shows the partially mediated model. This model presents the most complex and refined description of the direct and indirect effects of socio-demographic variables on online content production. When considering the mediating effect of the cognitive factors, we still find significant direct effects of age and education: younger users are more likely and highly educated users are less likely to create social/entertainment and skilled content. We do not find a direct effect of gender on content creation. Also, political content creation is not directly affected by any of the socio-demographic variables. Self-efficacy, again, strongly and significantly drives all three types of content creation, while privacy concerns negatively affect social/entertainment content creation.

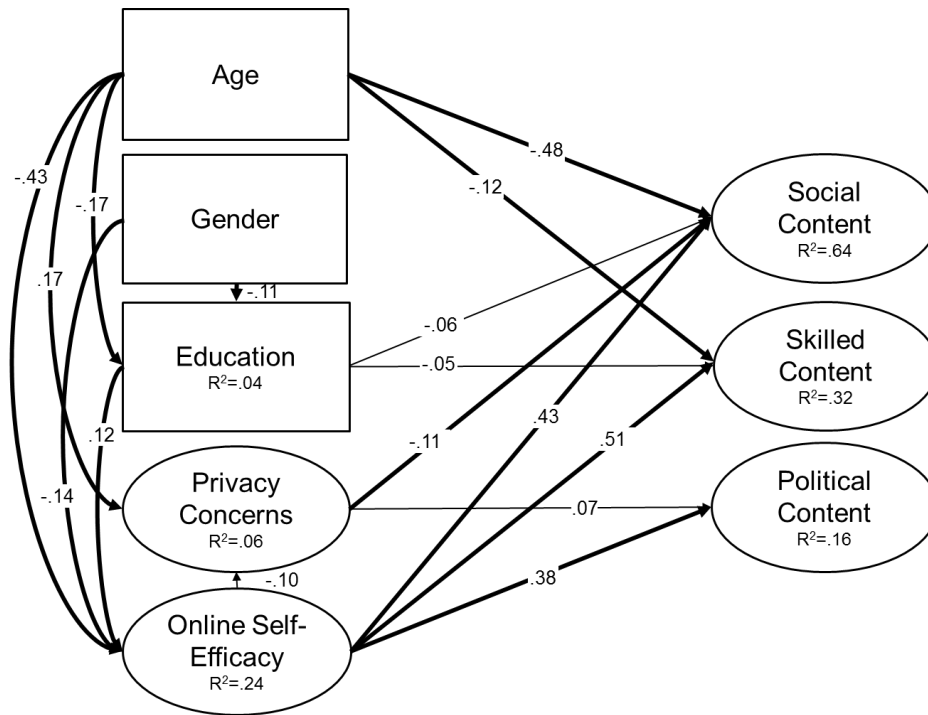


Figure 6. Partially mediated model, significant effects only (thin line $p < 0.05$, fat line $p < 0.001$)

Again, privacy concerns are positively associated with political content creation. At the same time, the only socio-demographic antecedent of privacy concerns is age, so we would again argue that age is associated with political interest which drives political content creation – an effect not fully captured by the model. Another possible explanation for the somewhat counterintuitive effect of privacy concerns might reside in the fact that privacy protection constitutes a politically contested topic, thereby, politically interested users may be more critical in regards to their online privacy protection. Privacy concerns also show a negative effect on social/entertainment content creation in the partially mediated model.

Again, we find that the effect of socio-demographic variables is clearly mediated by cognitive factors, as suggested by SCT. We find that younger users report significantly higher levels of online self-efficacy. Education also contributes to self-efficacy, with older and female users reporting lower educational levels. Female users report significantly lower levels of self-efficacy, which cannot be explained by differing educational levels alone.

Looking at the explained variances in all three models, we find some noteworthy tendencies. Model 3 exhibits the highest R^2 for social/entertainment and skilled content creation, with Model 1 showing better results than Model 2. R^2 for political content creation is quite low, overall, indicating that there are other important drivers for this form of participation not captured by the models. Also this value barely varies across models. R^2 of social/entertainment content creation varies most across models. These findings demonstrate that it is important to consider both direct and indirect effects of socio-demographic variables on content creation. We also find that the socio-demographic antecedents explain a substantial part in the variance of online self-efficacy. A finding that marks the prevalence of a digital divide, even in 2013 and in a developed country like Germany.

Table 3. Goodness of Fit Model comparison

	Model 1: Direct	Model 2: Indirect	Model 3: Direct and Indirect
<i>Chisquare</i>	737	924	633
<i>df</i>	130	135	126
<i>CFI</i>	0.95	0.94	0.96
<i>TLI</i>	0.94	0.92	0.95
<i>RMSEA</i>	0.06	0.06	0.05
<i>SRMR</i>	0.04	0.05	0.04
<i>AIC</i>	69925	70123	69818
<i>BIC</i>	70333	70503	70249

(N=1488)

Finally, Table 3 shows the goodness of fit values for the three models. Model 3 performs best and exceeds the threshold valued specified in the literature for SEM goodness of fit measures (Hu & Bentler, 1999). Model 1 performs better than Model 2 but has a substantially higher Chisquare value with a similar number of degrees of freedom. In fact, given that Model 2 is based on the assumption that the effects of socio-demographic variables on content creation are fully mediated by cognitive factors, it performs quite well – almost as well as Model 1.

This result shows the importance of taking indirect effects into account when exploring the participation divide. It also speaks in favor of extending the methodology applied to the issue beyond regression models alone.

By comparing three theoretical models of online content creation based on SEM, we find that considering the mediating effect of self-efficacy and privacy concerns – as suggested by social cognitive theory – significantly contributes to our understanding of the online participation divide. Thereby, we find our research proposition confirmed by the analysis. Further implications of our findings will be discussed in the following conclusion.

5. Conclusion

Our findings contribute to the current debate on the participation divide by highlighting the mediating role of self-efficacy for online content creation. We find that self-efficacy is significantly affected by socio-demographic variables, which indicates that these variables denote distinct learning experiences shaping user predispositions and behavior, as suggested by SCT. Not only do age, gender and education affect self-efficacy, we also find indirect effects with older and female users reporting lower educational level. The negative effect of age and (female) gender on self-efficacy, thereby, is compounded by educational disadvantages. In fact, the effect of gender on online content production is fully mediated by education and self-efficacy.

Considering the effect of socio-demographic variables on self-efficacy and privacy concerns, our study clearly confirms and helps explain previous findings on the participation divide (Correa, 2010; Hargittai & Walejko, 2008; Schradie, 2011). By basing our analysis on the differentiation of content production suggested by Blank (2013a), we find that these established findings do in fact apply even if types of content production are differentiated – counter the suggestion that socio-demographic variables might in fact only affect specific

types of content production. Self-efficacy is a key driver of content production, and it clearly differs by age, gender and educational attainment. Thus, a participation divide exists for all types of content creation.

At the same type, we were able to confirm a key finding of Blank (2013a): There is a significant negative effect of education on the production of social/entertainment and, in fact, skilled content, even after taking age and indirect education effects into consideration. As opposed to Blank and others, our survey did not measure income levels, but education is often considered a valid measure of SES. Thereby, SES is in fact negatively associated with some types of content creation. We interpret this finding as highly educated users being less interested in online interactions, especially for social or entertainment purposes. This effect holds even though highly educated users report higher self-efficacy, which drives content production on the Internet.

Looking at this finding from the perspective of participatory culture(s), as proposed by Jenkins et al. (2006), there seems to be reason for optimism: If low SES users indeed participate more by sharing social and entertainment content, they might acquire valuable skills that might help boost their confidence/self-efficacy and online skills. SCT posits that behavior also affects predispositions, not only the reverse. Jenkins et al. (2006, p. 3) suggest: “A growing body of scholarship suggests potential benefits of these forms of participatory culture, including opportunities for peer-learning, a changed attitude toward intellectual property, the diversification of cultural expression, the development of skills valued in the modern workplace, and a more empowered concept of citizenship.” Low barriers to social and entertainment forms of participation might, in time, therefore lower overall participation barriers for low SES users.

Finally, given the strong direct and indirect effects of age, we would argue that when it comes to online participation, there is still a distinct gap between Digital Natives and Digital

Immigrants (Palfrey & Gasser, 2008; Prensky, 2001). In fact, taking the specific socio-technical socialization of Digital Natives into consideration should provide a bigger contribution to our understanding of the participation divide than analyzing the effect of SES. We find that younger users are clearly more geared towards interactive, social and entertainment uses of the Internet, they thereby report significantly higher levels of online participation. This effect remains strong even after taking self-efficacy and educational attainment into consideration.

One area, in which the gap between Natives and Immigrants seems to be bridged to a degree, is that of political content creation. We don't find a direct effect of age on this form of participation. We even find an indirect effect which could be interpreted as older users overcoming their higher levels of privacy concerns in order to engage politically online. This, and the relatively low R^2 achieved for political content creation, indicates that there are other important antecedents of political participation not considered in our analysis. We would suggest that political interest and/or (dis)satisfaction are among these antecedents, possibly explaining the distinct findings regarding the effect of age on political participation. Interestingly, we did not find a direct effect of education on political content creation.

In summary, we were able to contribute to the ongoing debate on the online participation divide by surveying German Internet users – thereby extending the analysis beyond Anglo-Saxon countries. Also, we report a methodological contribution by going beyond regression models and using structural equation modeling to address direct and indirect effects of socio-demographic variables on online content production and to compare different theoretical models. Most importantly, though, we make a theoretical contribution by basing our study on social cognitive theory (Bandura, 1977; 1986).

SCT provides a helpful explanation of why socio-demographic variables should affect online participation: these variables, such as age, gender and education, are associated with distinct

learning experiences – environmental influences determined by exogenous factors, such as economic (i.e., access), institutional (i.e., training), technological (i.e., affordances), or cultural (i.e., discrimination) conditions. These experiences form predispositions as distinct as the specific influences, and ultimately behavior. By considering the cognitive concept of self-efficacy, we demonstrate exactly this formative effect of gender, age and education, which indirectly affects all types of online content production considered. We find an especially strong age effect, which – although only partially mediated by self-efficacy – can also be explained based on SCT.

We find that the picture of online participation remains complex: User groups do show distinct preferences for specific types of online content production. SES can therefore not simply be assumed to drive online participation. Even when considering age differences, our findings suggest that user interests are an important driver of participation, as in the case of political participation. Current models cannot yet explain why highly educated users are less interested in entertainment content or older users more interested in political content. Just looking at socio-economic status, while important for the understanding of the participation divide, will not contribute to a comprehensive understanding of how and why users chose to participate online.

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Appendix A Questionnaire

Construct	Item	Wording (Scale)
Skilled Content Creation (SCC)	SCC1	<i>I comment content that other people have published.</i>
	SCC2	<i>I publish my own texts and comments on the Internet.</i>
	SCC3	<i>I discuss actively in online communities.</i>
Social and Entertainment Content Creation (ECC)	ECC1	<i>Social network sites (e.g. Facebook, XING).</i>
	ECC2	<i>Media platforms (e.g. Youtube, Flickr).</i>
	ECC3	<i>I share photos and videos I created on the web.</i>
Political Content Creation (PCC)	PCC1	<i>I like and share political content on the Internet.</i>
	PCC2	<i>I publish commentaries about political topics on the Internet.</i>
	PCC3	<i>I try to persuade others online to become politically active.</i>
	PCC4	<i>I actively participate in a political online group or online community</i>
Privacy Concerns (PC)	PC1	<i>All things considered, the Internet would cause serious privacy problems.</i>
	PC2	<i>Compared to others, I am more sensitive about the way online companies handle my personal information.</i>
	PC3	<i>To me, it is the most important thing to keep my privacy intact from online companies.</i>
Online Self-efficacy (OSE)		<i>How well do you think you are able to...</i>
	OSE1	<i>...publish information on a blog or on Twitter?</i>
	OSE2	<i>...publish a video on the Internet (e.g. on Youtube)?</i>
	OSE3	<i>...create or edit an article on Wikipedia?</i>

Appendix B Measurement Model of the Latent Constructs

Construct	Item	Standardized loading	t-values	R ²	α	C.R.	AVE
Skilled Content Creation (SCC)	SCC1	.89	94.40***	.80	.89	.89	.74
	SCC2	.88	81.07***	.78			
	SCC3	.80	54.11***	.64			
Entertainment Content Creation (ECC)	ECC1	.70	41.86***	.48	.71	.79	.55
	ECC2	.68	38.29***	.46			
	ECC3	.84	36.55***	.52			
Political Content Creation	PCC1	.77	47.19***	.60	.91	.91	.72
	PCC2	.93	93.54***	.87			
	PCC3	.87	64.09***	.75			
	PCC4	.82	46.54***	.67			
Privacy Concerns (PC)	PCC1	.52	19.15***	.27	.72	.78	0.47
	PCC2	.75	24.90***	.57			
	PCC3	.76	27.06***	.58			
Online Self-efficacy (OSE)	OSE1	.86	62.60***	.74	.88	.88	.71
	OSE2	.89	79.06***	.79			
	OSE3	.77	49.14***	.60			
Criterion		≥ 0.5	min*	≥ 0.4	≥ 0.7	≥ 0.6	≥ 0.5

Appendix C Fornell Larcker Criteria of the Latent Constructs (Discriminant Validity)

	Nr. of items	AVE	SCC	ECC	PCC	PC
SCC	3	.74				
ECC	3	.55	.83			
PCC	4	.72	.47	.38		
PC	3	.47	.02	.07	.00	
OSE	3	.71	.30	.42	.14	.03

Squared correlations between constructs

Appendix D Construct Descriptives

Table D1: Skilled content creation. Answers in percent (Absolute numbers in brackets)

	<i>SCC1</i> (Comment content)	<i>SCC2</i> (Publish texts)	<i>SCC3</i> (Discuss in online communities)
Never (1)	45.3 (674)	52.2 (776)	53.5 (796)
Rarely (2)	24.7 (367)	23.4 (348)	22.8 (340)
Sometimes (3)	18.9 (281)	14.6 (217)	14.2 (212)
Often (4)	8.5 (127)	6.9 (102)	6.7 (99)
Very Often (5)	1.9 (29)	1.9 (28)	2.2 (33)
Missing	0.7 (10)	1.1 (17)	0.5 (8)
Total	<i>100 (1488)</i>	<i>100 (1488)</i>	<i>100 (1488)</i>
Average	1.96	1.82	1.81
Standard Deviation	1.08	1.04	1.06

Table D2: Entertainment content creation. Answers in percent (Absolute numbers in brackets)

	<i>ECC1</i> (SNS)	<i>ECC2</i> (Media platforms)		<i>ECC3</i> (Photos & videos)
Never (1)	34.4 (512)	25.0 (372)	Never (1)	54.8 (816)
Less (2)	11.8 (175)	25.3 (376)	Rarely (2)	21.5 (320)
Several times a month (3)	7.9 (117)	20.6 (306)	Sometimes (3)	15.5 (230)
Several times a week (4)	10.8 (160)	17.3 (257)	Often (4)	5.4 (81)
Once a day (5)	14.3 (213)	6.2 (92)	Very often (5)	1.7 (25)
Several times a day (6)	19.8 (294)	4.2 (63)		
Missing	1.1 (17)	10.3 (103)		1.1 (16)
Total	<i>100 (1488)</i>	<i>100 (1488)</i>		<i>100 (1488)</i>
Average	3.18	2.67		1.76
Standard Deviation	1.99	1.41		1.01

Table D3: Political content creation. Answers in percent (Absolute numbers in brackets)

	<i>PCC1</i> (Likes & Shares)	<i>PCC2</i> (Comments)	<i>PCC3</i> (Persuading)	<i>PCC4</i> (Groups & communities)
Never (1)	58.8 (875)	67.4 (990)	73.7 (1097)	74.7 (1112)
Rarely (2)	17.3 (257)	17.8 (261)	12.8 (191)	11.2 (166)
Sometimes (3)	15.1 (225)	9.8 (144)	7.6 (113)	7.6 (113)
Often (4)	5.0 (74)	2.9 (42)	2.9 (43)	3.1 (46)
Very often (5)	2.4 (36)	2.2 (32)	1.3 (20)	1.4 (21)
Missing	1.4 (21)	1.3 (19)	1.6 (24)	2.0 (30)
Total	100 (1488)	100 (1488)	100 (1488)	100 (1488)
Average	1.73	1.55	1.43	1.42
Standard Deviation	1.05	.94	.86	.87