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# The Cultivation Effect of Social Network Site Use on Consumers' Brand Attitudes, Ethnic Diversity Perceptions and Attitudes

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## English Abstract

This dissertation investigates the cultivation effect of Facebook use on ethnic diversity perceptions and attitudes as well as on attitudes towards brand names and brands. Based on cultivation theory, social network sites research related to Facebook, and the scholarly work on ethnic diversity and brand attitudes, a research model predicting perceptions (i.e. first-order cultivation effects) and attitudes (i.e., second-order cultivation effects) by Facebook use is developed. More specifically, Facebook use is hypothesized to increase the perceived prevalence of ethnic diversity and attitudes towards ethnic minorities and to decrease ethnocentrism. Besides, it is assumed that Facebook use decreases attitudes towards local brand names and brands and increases attitudes towards global brand names and brands, respectively. The content-related ethnic diversity on Facebook is assessed and the hypotheses are tested via the classical bipartite cultivation research approach consisting of a content analysis and the empirical investigation of the effect of Facebook use on the dependent variables.

The findings of the content analysis of 50 Facebook profiles (Study 1) reveal that ethnic diversity is more prevalent on Facebook than in the real world. Based on a sample of 476 Facebook users, the subsequent cross-sectional survey (Study 2) provides empirical support for the first-order cultivation effect of Facebook use on the perceived prevalence of ethnic diversity, that is, the perceived societal ethnic diversity as well as the perceived number of ethnic minority friends and colleagues. The following experimental investigation (Study 3) with 75 participants tests second-order cultivation effects of Facebook use and finds a negative cultivation effect on the attitude towards local brand names. Furthermore, it corroborates the first-order cultivation effects proved by Study 2. The follow-up experiment (Study 4) with 61 subjects demonstrates a marginally significant, negative second-order cultivation effect on the attitude towards global brands and further confirms the first-order cultivation effects on the perceived number of ethnic minority friends and colleagues. The results are discussed, theoretical contributions to extant literature are illustrated, socio-ethical and marketing implications are derived, and limitations and respective avenues for future research are presented.

**Keywords:** cultivation, social network sites (SNS), Facebook, ethnic diversity, ethnic minorities, ethnocentrism, brand attitudes

## German Abstract

Die vorliegende Dissertation untersucht den Kultivierungseffekt von Facebook-Nutzung auf Wahrnehmungen von und Einstellungen zu ethnischer Diversität als auch Einstellungen zu Markennamen und Marken. Basierend auf Kultivierungstheorie und der Forschung zu Facebook, ethnischer Diversität und Markeneinstellungen wird ein Forschungsmodell, welches den Einfluss von Facebook-Nutzung auf Wahrnehmungen (d.h. Kultivierungseffekte erster Ordnung) und Einstellungen (d.h. Kultivierungseffekte zweiter Ordnung) zum Gegenstand hat, entwickelt. Es wird angenommen, dass die wahrgenommene Häufigkeit von ethnischer Diversität und Einstellungen zu ethnischen Minderheiten mit steigender Facebook-Nutzung zunimmt, während Ethnozentrismus abnimmt. Darüber hinaus wird angenommen, dass zunehmende Facebook-Nutzung die Einstellungen zu lokalen Markennamen und Marken verschlechtert, wohingegen Einstellungen zu globalen Markennamen und Marken verbessert werden. Die Häufigkeit von ethnischer Diversität auf Facebook und die Hypothesen werden anhand des klassischen zweiteiligen Kultivierungsforschungsansatzes (d.h. Inhaltsanalyse und Analyse des Einflusses von Facebook-Nutzung auf die abhängigen Variablen) überprüft.

Die Inhaltsanalyse von 50 Facebook-Profilen (Studie 1) offenbart, dass ethnische Diversität auf Facebook häufiger vorkommt als in der Wirklichkeit. Die folgende Querschnittsbefragung (Studie 2) von 476 Facebook-Nutzern/innen bestätigt die Kultivierungseffekte erster Ordnung von Facebook-Nutzung auf die wahrgenommene Häufigkeit von ethnischer Diversität, d.h. die wahrgenommene gesellschaftliche ethnische Diversität und die wahrgenommene Anzahl von Freunden/innen und Arbeitskollegen/innen/Kommilitonen/innen, die einer ethnischen Minderheit entstammen. Die folgende experimentelle Untersuchung (Studie 3) mit 75 Teilnehmer/innen testet die Kultivierungseffekte zweiter Ordnung und belegt einen negativen Kultivierungseffekt auf die Einstellung zu lokalen Markennamen. Außerdem bestätigt das Experiment die in Studie 2 nachgewiesenen Kultivierungseffekte erster Ordnung. Das Folgeexperiment (Study 4) mit 61 Teilnehmer/innen beweist einen marginal signifikanten, negativen Kultivierungseffekt zweiter Ordnung auf die Einstellung zu globalen Marken und bekräftigt die Kultivierungseffekte erster Ordnung auf die wahrgenommene Anzahl ethnischer Minderheiten entstammender Freunde/innen und Arbeitskollegen/innen/Kommilitonen/innen. Die Ergebnisse werden diskutiert, der theoretische Beitrag zu bestehender Forschung wird dargestellt, sozio-ethische Implikationen und Marketingimplikationen werden abgeleitet und die Limitationen und entsprechende Möglichkeiten zukünftiger Forschung werden präsentiert.

**Schlagwörter:** Kultivierung, soziale Netzwerke, Facebook, ethnische Diversität, ethnische Minderheiten, Ethnozentrismus, Markeneinstellungen

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## List of Abbreviations

ANOVA	analysis of variance
CMV	common method variance
ELM	elaboration likelihood model
FoF	friends of friends
H	hypothesis
HSM	heuristic-systematic model
KS	Kolmogorov-Smirnov
MAR	missing at random
MCAR	missing completely at random
MEE	mere exposure effect
MNAR	missing not at random
OLS	ordinary least squares
SNS	social network sites
sWOM	word-of-mouth on social network sites
TV	television
U.S.	United States
VIF	variance inflation factor
WEIRD	western, educated, industrialized, rich, and democratic
WOM	word-of-mouth

*(All specific abbreviations that solely occur in tables and figures are explained in the respective table and figure notes.)*

**List of Symbols**

%	percent
$\Delta$	change
\$	Dollar
$\alpha$	Cronbach's Alpha
$\beta$	beta coefficient
$\chi^2$	Chi-square-value (Chi-square, Breusch-Pagan, Kruskal-Wallis tests)
$d$	$d$ -value (Kolmogorov-Smirnov test, Durbin-Watson test)
$F$	$F$ -value ( $F$ -test, Ramsey test)
$M$	mean
$min$	minutes
$Min$	minimum value
$Max$	maximum value
$n$	subsample size
$N$	sample size
$p$	significance level
$r$	correlation coefficient
$R^2$	coefficient of determination (goodness of fit measure)
$SD$	standard deviation
$t$	$t$ -value ( $t$ -test, Link test)
$W$	$W$ -value (Shapiro-Wilk test)
$Z$	$Z$ -value (Mann-Whitney U test, Wilcoxon signed rank test)

*(All specific symbols that occur in equations are explained below the respective equations.)*

# 1 Introduction

## 1.1 Motivation, Research Question, and Main Objectives

The advent and tremendous rise of social media and social network sites (henceforth SNS) as a part of them has been one of the crucial technological and social trends of the twenty-first century (Caers et al., 2013). Social media and SNS have considerably altered the way individuals communicate and interact, particularly, in terms of the reach, scale, and speed of communication and interactions (Ngai et al., 2015; Ugander et al., 2011). Facebook has evolved into the most prominent and prevalent SNS. “The sheer online ubiquity of Facebook is astounding” (Wilson et al., 2012, p. 203). With about 1.064 billion daily and 1.65 billion monthly active Facebook users (as of end March 31, 2016; Facebook, 2016b), Facebook use has become one of many people’s daily activities. As end of December 2015, Facebook had 1.59 billion monthly active users (Facebook, 2016a), which corresponded to 21.64% of the world’s population as of 2015 (i.e., 7.349 billion; United Nations, 2015). Facebook use facilitates global-scale communication with users from different nations and ethnicities (Ugander et al., 2011) and exposure to their background and personal information (Belk, 2013; Nadkarni/Hofman, 2012). The communication content and the world portrayed on Facebook differ from the real world and the users’ social environment due its high degree of internationality (of users) and resulting intercultural and interethnic networks. Generally, exposure to communication content and to the media disseminating it can lead to cultivation effects (Gerbner et al., 2002). Exposure to ethnically diverse communication content (i.e., highly diverse user groups of different nationalities and ethnicities and their personal profiles and information) as on Facebook can cultivate ethnic diversity perceptions and attitudes. In times of considerable migration flows and the refugee crisis Europe is facing (Dinesen/Sønderskov, 2015; Hatton, 2016), for example, the first-time asylum applications in the European Union member states increased by 123% from 2014 to 2015 (Eurostat, 2016), these attitudes and perceptions can foster acculturation and cultural openness, and reduce ethnic discrimination and prejudices.

Apart from users’ personal profiles and respective content, brands and advertising are a major constituent of Facebook. For instance, the advertising revenues of Facebook in the first quarter of 2016 amounted to 5.201 billion U.S. \$ and represented 96.64 % of the total revenues of Facebook in this time period (Facebook, 2016b). Thus, advertising and brands are

highly prevalent on Facebook (Beukeboom et al., 2015), and Facebook users are frequently exposed to brand-related content and generate brand-related content themselves (i.e., user-generated content), which, in turn, other users encounter. The frequent exposure to brand-related content on Facebook can likewise induce cultivation effects on attitudes towards brand names and brands.

The empirical studies of this dissertation investigate the ethnically diverse content on Facebook and the cultivation effects of Facebook use on ethnic diversity perceptions and attitudes as well as brand name/brand attitudes. To the best of our knowledge, neither cultivation nor SNS research have investigated the cultivation effect of Facebook use on perceptions and attitudes yet. Thus, the present research fills this void and an important research gap related to cultivation and SNS research.

Cultivation studies provide robust evidence that the amount of television (TV) viewing leads to perceptions that resemble the world as depicted on television rather than reality (Shanahan/Morgan, 1999). So far, cultivation research primarily focused on the impact of television viewing. Cultivation studies on the effect of other media types, particularly in the digital or online context, are rather sparse and only gradually increase, for instance, in the video game environment (e.g., Chong et al., 2012; Williams, 2006). Concerning the influence of Facebook use, research findings have been equivocal and have proved not only positive influences on social phenomena including social capital (e.g., Ellison et al., 2007) and on self-esteem (e.g., Wilcox/Stephen, 2013), but also negative effects on subjective well-being (e.g., Kross et al., 2013) and self-esteem (e.g., Kalpidou et al., 2011).

Television is a mass medium and different from Facebook and other SNS. Content portrayed on television is often characterized by high perceived social distance to individuals' personal lives (i.e., the "distance from "here and now" [locally and timely] of the individual's immediate sphere of activity" (Adoni/Mane, 1984, p. 326)), because the prominent themes are not experienced personally (e.g., crimes, affluence) (Bilandzic, 2006). Contrarily, Facebook is an individual medium based on user-generated content. Users, their lives and backgrounds, networks, and relationships are integral parts of SNS and Facebook (Ellison et al., 2007). Communication content on Facebook is personally relevant due to the network of Facebook friends (usually real-life, offline friends) users are communicating with, but also because of the personal profile information every user discloses (Ellison, Vitak, et al., 2014; Trepte/Reinecke, 2013). This personal content is supplemented by mass medial content (e.g.,

videos, links to external media etc.) and brand-related content. Thus, Facebook might cultivate perceptions and attitudes related to both the close and more distant social environment of users, while the former is less likely to be cultivated by traditional mass media and TV in particular.

This dissertation provides four contributions to the literature. First, the thesis extends the scope of cultivation research by analyzing a new media vehicle as source of cultivation effects. Facebook as an individual medium differs from the mass medium TV. The communication content on Facebook is highly personalized and relates more to the social close environment of users, while the mass media content of television is more related to the distant social environment of viewers. That leads to the cultivation of a different set of perceptions and attitudes by Facebook use in comparison to TV. Second, the empirical investigations of this dissertation contribute to research related to SNS and Facebook, as the ethnic diverse content on Facebook is analyzed, and the cultivation effect of frequent exposure to this content on ethnic diversity perceptions and attitudes is assessed. Thus, the studies complement previous studies that underline the societal consequences of Facebook use by fostering the understanding of the determinants of ethnic diversity perceptions and attitudes, that is, the contact with and exposure to ethnic diversity and minorities on Facebook. Third, the thesis adds knowledge to the scholarly work on ethnic diversity, ethnic minorities, and outgroups by examining the influence of media use on the perceptions and attitudes related to these constructs. Finally, the research studies of this dissertation contribute to the understanding of brand name and brand attitude formation in a virtual SNS environment.

## **1.2 Course of Investigation**

Table 1 illustrates the course of investigation and how the remainder of this thesis is organized. After portraying the conceptual framework including the scholarly work on cultivation (2.1), Facebook, as the most prevalent SNS, (2.2), ethnic diversity and ethnic minorities (2.3), and brand/consumer attitudes (2.4), the research model and the hypotheses are developed (section 3). The latter are distinguished between first-order (3.1) and second-order cultivation effects (3.2). In the first part of the empirical investigations, a content analysis assessing the prevalence of ethnic diversity on Facebook is presented (4.1, Study 1). Then, first-order cultivation effects are tested by a cross-sectional survey (4.2, Study 2),

whose results are displayed and discussed. Afterwards, the findings of two experimental investigations aiming to corroborate the survey results and to investigate the second-order cultivation effects are provided (4.3 and 4.4, Study 3 and Study 4, respectively). The final chapter concludes with the theoretical contributions (5.1) and implications of the empirical findings (5.2), as well as limitations of the four studies and directions for future research (5.3).

Table 1. Course of Investigation

<b>Chapter 1</b>	<b>Motivation, Research Question, and Main Objectives Course of Investigation</b>			
<b>Chapter 2</b>	<b>Conceptual Framework</b>			
	<b>2.1</b> Cultivation Research	<b>2.2</b> SNS (Facebook) Research	<b>2.3</b> Ethnic Diversity Research	<b>2.4</b> Brand/Consumer Attitudes
	<b>2.5 Summary</b>			
<b>Chapter 3</b>	<b>Hypotheses and Research Model</b>			
	<b>3.1</b> First-Order Cultivation Effects		<b>3.2</b> Second-Order Cultivation Effects	
	<b>3.3 Summary of Hypotheses and Research Model</b>			
<b>Chapter 4</b>	<b>Empirical Investigations</b>			
	<b>4.2: Cross-Sectional Survey</b>		<b>4.1: Content Analysis</b>	
			<b>4.3: Experimental Investigation</b> <b>4.4: Follow-up Experimental Investigation</b>	
<b>Chapter 5</b>	<b>Conclusion</b>			
	<b>5.1</b> Theoretical Contribution	<b>5.2</b> Practical/Marketing Implications		<b>5.3</b> Limitations Future Research



## **2 Conceptual Framework**

In the following chapter, the conceptual framework and theoretical foundations of the empirical investigations are presented. The first section (2.1) reviewing cultivation theory and research is divided into the origin, advancement, and current status of cultivation research (2.1.1) as well as the underlying mechanisms (2.1.2) and critique of cultivation research (2.1.3). The second part (2.2) focuses on Facebook as the most prominent and widespread social network site. In particular, the nature and content of Facebook (2.2.1) and the outcomes (2.2.2) of its use are considered. In the third section, research on ethnic diversity, ethnic minorities, and outgroups (2.3) is examined. The fourth section provides an overview of brand and consumer attitudes (2.4), while the fifth subchapter summarizes the conceptual framework and theoretical foundations (2.5).

### **2.1 Cultivation Theory and Research**

First, this subchapter reviews the origin of cultivation research, that is, the cultural indicators research (Gerbner, 1969) and the related work of Gerbner and colleagues, its development in the nearly past five decades, and its current status and state of the art (2.1.1). Second, the inherent and underlying mechanisms of cultivation, that is, first-order (2.1.2.1) and second-order cultivation effects (2.1.2.2) (Hawkins/Pingree, 1982) are discussed, because they are both theoretically and practically (i.e., for empirical investigations) relevant. Third, focal points of criticism concerning the causality of cultivation effects and cultivation research in general (2.1.3) are examined. To avoid misunderstandings, please note that the terms TV viewing and TV exposure are employed interchangeably in the course of this dissertation.

#### **2.1.1 Origin, Advancement, and Current Status of Cultivation Research**

In their review of mass communication theories and research (from 1956-2000), Bryant and Miron (2004) stated that cultivation theory belonged to the triumvirate of mass communication theories, besides agenda setting (McCombs/Shaw, 1972) and uses and gratification theory (Katz, 1959). As of 2010, the cultivation literature comprised over 500 published studies, and it unabatedly continues to attract researchers (Morgan/Shanahan, 2010). Its success and spread also results from its simplicity and parsimony.

Broadly speaking, cultivation focuses the relationships between exposure to certain content and different dependent variables (Morgan et al., 2015). More specifically, cultivation are “the independent contributions television viewing makes to viewer conceptions of social reality” (Gerbner et al., 2002, p. 47). This definition was among others formulated by George Gerbner, who first introduced the idea of cultivation (Gerbner, 1967, 1969).

Already in 1966, Gerbner prompted communication scientists to understand message systems (message defined as formally coded symbolic or representational events evoking shared cultural significance (Gerbner, 1967)), their influences at the micro and macro level, and the way information is processed and integrated. He considered message systems as means of social interaction to be at the heart of communication and equated their massive production and distribution to mass communication (Gerbner, 1966, 1967). The transformation of this mass production and distribution (through social and/or technological change) altered message content and the public symbolic environment. Therefore, Gerbner (1969) advocated “the development of "cultural indicators" taking the pulse of the nature and tempo of that transformation” (p. 138). The following section sheds briefly light on the cultural indicators project and research.

### ***2.1.1.1 Cultural Indicators Research***

The cultural indicators project started in 1967-1968 and included three areas of analysis. First, institutional process analysis was the “study of the organizational forms, functions, and decision-making that compose and structure these [message] systems” (Gerbner, 1970, p. 71). Second, message systems analysis involved the systematic examination of the structure and composition of mass-mediated messages and content (e.g., TV drama). Third, cultivation analysis was the “study of the relationships between institutional processes, message systems, and the public assumptions, images, and policies that they cultivate” (Gerbner, 1970, p. 71). Concisely said, the cultural indicators project was a tripartite research paradigm studying the influence factors of the production of mass media content (i.e., institutional process analysis), the content of mass media messages (i.e., message systems analysis), and the relation between exposure to this content and the audiences’ conception of social reality (i.e., cultivation analysis) (Shanahan/Morgan, 1999). The National Commission on the Causes and Prevention of Violence initially initiated the project and funded a content analysis of violence in the U.S. prime-time programming (1967–68 TV season) conducted by Gerbner at the Annenberg

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School of Communications, University of Pennsylvania (Gerbner et al., 2002). The innovativeness of the cultural indicators approach was the reciprocity and the mutual implications of the analytical findings of the three analytical constituents. According to Gerbner, the long-term reciprocal relationships between institutions producing media messages, the message content, and mental structures embedded in culture define communication effects rather than short-term attitude and behavior change (Shanahan/Morgan, 1999).

For Gerbner (1969, 1970), the message systems analysis constituted the starting point for and focal element of the cultural indicators research and should be done in a comprehensive, systematic, and general way rather than in a specific, selective, or ad hoc fashion. Therefore, Gerbner (1969) formulated four dimensions and corresponding questions that are displayed in Table 2. Each dimension corresponded to certain questions and analytical measures. The first three analytical measures, that is, attention, emphasis, and tendency, described the composition of the message system and the occurrence and distribution of the inherent elements, while the term structure characterized the relationships between the elements. The first dimension (existence) and its measurement indicating the prevalence and distribution of certain topics and themes of the message systems was and is particularly relevant for content analyses and also for the present dissertation (for details, see section 4.1).

The violence study of the 1967-1968 TV season mentioned above revealed violence portrayals in eight out of ten plays as well as seven and 22 violent episodes in one hour of TV drama and one cartoon hour, respectively. The leading characters were further highly involved in violence, that is, 50% of them committed and 60% suffered violence. The violence depictions differed across age, social class, race/ethnicity, time, and place. (Gerbner, 1970, p. 74ff.)

Content analyses of TV programming were annually conducted (the initial findings were summarized as so-called “Violence Profiles”), and the cultural indicators project proceeded under the sponsorship of a multitude of institutions and organizations. Within the scope of the project, over 3,000 programs and 35,000 characters of prime-time and weekend daytime TV have been captured and analyzed from 1969 until 1995 (Romer et al., 2014).

The cultivation analysis phase started in the 1970s and was initially funded by the National Institute of Mental Health (Gerber/Gross, 1976). The subsequent paragraph reviews cultivation analysis, its methods, and initial findings.

Table 2. Overview of Message Systems Analysis (Gerbner, 1970, p. 73)

<b>Dimensions</b>	<b>Questions</b>	<b>Measures/Terms of Analysis</b>
<b>Existence</b>	What is? · What is available for public attention? · How much and how frequently?	Attention · Prevalence, rate, complexity, variations
<b>Priorities</b>	What is important? · In what context or order of importance?	Emphasis · Ordering, ranking, scaling for prominence, centrality, intensity
<b>Values</b>	What is right/wrong, good/bad etc.? · In what light, from what point of view, with what associated judgments?	Tendency · Measures of critical and differential tendency, qualities, traits
<b>Relationships</b>	What is related to what and how? · In what overall proximal, logical, or causal structure?	Structure · Correlations, clustering, structure of action

*Note. Adapted from Gerbner (1969, p. 145) and Gerbner (1970, p. 73).*

### **2.1.1.2 Cultivation Research**

Until the study of Gerbner and Gross (1976), the cultural indicators research merely analyzed the TV content in terms of prevalence of violence, but cultivation analysis had no concrete methodological shape (Morgan/Shanahan, 2010). Gerbner and Gross (1976) generally justified the need for sophisticated research on the influence of TV viewing by television's focal role in American society as a source of enculturation, its immense reach and scope, its influence on all age cohorts, and its high accessibility without literacy and mobility restrictions. The authors advocated a two-step approach comprising message systems analysis and cultivation analysis that "turn[s] the findings of message system analysis about the fantasy land of television into questions about social reality" (p. 182). That partly revised the methodology of the initial cultural indicators project described above. In general, cultivation analysis should provide insights about what TV viewers absorb from the TV world, and how TV viewing shaped viewers' assumptions of facts, norms, and values of society. Therefore, surveys were conducted, and TV viewers were asked for different judgments on phenomena frequently portrayed on TV (e.g., violence). (Gerbner/Gross, 1976)

In this context, Gerbner and Gross (1976) introduced the terms television answer and cultivation differential. The first term meant an answer to questions of social reality coinciding with the world depicted on TV and differing from an answer being closer to reality. Responses to the questions about social reality were related to television exposure (and demographic and other controls). The corresponding comparison of heavy and light viewers quantified the cultivation differential, that is, the “margin of heavy viewers over light viewers giving the “television answers” within and across groups” (i.e., percentage difference) (Gerbner/Gross, 1976, p. 182).

The content analyses of TV drama programming between 1967 and 1975 proved frequent violence and victimization portrayals in TV dramas. Violence was measured by the percentage of programs with any violence at all (i.e., prevalence), frequency and rate of violent episodes per program and per TV hour (i.e., rate), and the percentage of leading characters being violent and/or victims or killers and/or killed, respectively (i.e., role). A violence index was computed by combining the three measures as follows:

$$VI = \%P + 2\left(\frac{R}{P} + \frac{R}{H}\right) + (\%V + \%K), \quad (1)$$

where  $VI$  is the violence index,  $\%P$  is the percentage of programs with violence,  $\frac{R}{P}$  is the rate of violent episodes per program,  $\frac{R}{H}$  is the rate of violent episodes per TV hour,  $\%V$  is the percentage of characters being violent/victims, and  $\%K$  is the percentage of characters being killers/killed. (Gerbner/Gross, 1976, p. 195ff.)

Based on the message-systems-analytical (i.e., content-analytical) results, a TV answer and an alternative answer for questions asking for proportion estimates of persons working in law enforcement, for the degree of trust in other people, and the chance of being involved in violence were formulated. The TV answer was related to higher estimates and more pessimistic views, which resembled the biased portrayals on TV. The cultivation differential was simply the difference of percentages of heavy (i.e., average of four or more daily hours of TV viewing) and light (i.e., average of two or less daily hours of TV viewing) viewers giving the TV answer. Therefore, TV viewers were surveyed. The results of the cultivation analysis showed higher percentages of heavy TV viewers giving the TV answer for all questions (also controlling for demographics and alternative media use) and hence the existence of a cultivation differential. Consequently, heavy TV viewing cultivated perceptions of social reality. (Gerbner/Gross, 1976)

This seminal cultivation study was followed by numerous further studies by Gerbner and his research team at the Annenberg School of Communications. These studies combined content analyses (e.g., the well-known, yearly “Violence Profiles” with the violence index explained above) and cultivation analyses. Table 3 depicts central topics of selected influential studies of Gerbner and colleagues.

In the “TV Violence Profile No. 8”, Gerbner and colleagues (1977, p. 176) impressively highlighted the prevalence and discrepancy of violence portrayals in TV in comparison to the real world. While official statistics documented 0.41 violent crimes per 100 people, 64.4% of TV drama characters were involved in crime. Substantial differences were also found for males working in law enforcement/crime detection (1% in the real world vs. 12% of male TV characters), the percentage of violent crimes to all crimes (10% in the real world vs. 77% of TV characters who committed crimes also committed violent crimes), and the percentage of homicides committed by strangers (16% in the real world vs. 58% in TV world). Besides the content-analytical findings, the study revealed that heavy TV viewers were more inclined to give TV answers (i.e., overestimation of violence and biased perceptions).

Table 3. Overview of Topics of Selected Studies by Gerbner and Colleagues

<b>Study</b>	<b>Topic</b>
<b>Gerbner et al. (1977)<sup>a</sup></b>	Perceptions of violence and fear
<b>Gerbner et al. (1978)<sup>a</sup></b>	Perceptions of violence, fear, and society
<b>Gerbner et al. (1979)<sup>b</sup></b>	Perceptions of violence and fear
<b>Gerbner, Gross, Morgan, et al. (1980)<sup>b</sup></b>	Perceptions of violence and fear
<b>Gerbner, Gross, Signorielli, et al. (1980)<sup>b</sup></b>	Perceptions of age and the elderly
<b>Gerbner et al. (1982)<sup>a,b</sup></b>	Political and societal orientations/attitudes
<b>Gerbner et al. (1984)<sup>b</sup></b>	Political orientations

*Note. Samples consisted of adults and children (usually school students).*

<sup>a</sup>*Trichotomy of TV viewing (light, medium, heavy).*

<sup>b</sup>*Dichotomy of TV viewing (light vs. heavy).*

Generally, the findings of Gerbner and colleagues corroborated the high prevalence of violence and other social phenomena of TV programs and the cultivation effects of TV viewing on the different dependent variables, that is, perceptions mirroring the biased and exaggerated portrayals on TV. The study “The “Mainstreaming” of America: Violence Profile

No. 11” by Gerbner, Gross, Morgan, and colleagues (1980) constituted a milestone for cultivation research, as it introduced the empirically grounded and proven constructs of mainstreaming and resonance, which are described in detail in the following section.

### ***2.1.1.3 Mainstreaming and Resonance***

Gerbner, Gross, Morgan, and colleagues (1980) defined mainstream as “[shared] commonality among heavy viewers in those demographic groups whose light viewers hold divergent views” (p. 15). In other words, the concept of mainstreaming implied that TV viewing strengthened similarities of otherwise divergent groups of individuals, and that perceptual, attitudinal, and behavioral differences attributable to social, demographic, or political background blurred and were overridden by heavy TV viewing (Morgan et al., 2015). Hence, heavy TV viewing induced a kind of homogenization and convergence of viewers’ perceptions and attitudes and a reduction of differences, which might exist due to personal background characteristics.

On the other hand, the concept of resonance meant the amplification of the cultivation effects, when TV messages/content resonated with real-life experiences. The congruency of TV messages and everyday reality resulted in a double dose of these messages that, in turn, strengthened cultivation effects. (Gerbner, Gross, Morgan, et al., 1980)

Gerbner, Gross, Morgan, and colleagues (1980) first presented empirical evidence for both phenomena. Their analyses showed that the heavy TV viewers of different income groups converged on their perception of prevalence/fear of crime, while there were large difference among the light viewers of different income levels. That is graphically illustrated in Figure 1. Low-income respondents had the highest scores on the perceived prevalence of crime, and TV viewing caused only minor differences for this group already cultivated (i.e., small cultivation differential (of -2%)). Conversely, the cultivation differential (of 16%) for the high-income participants was large. While light TV viewers for this income class diverged from the mainstream (i.e., the TV cultivated answer), heavy viewers converged to it. The same pattern was observable for racial background. Whites and non-Whites converged on the perceived prevalence/fear of crime as heavy viewers, whereas there were larger differences among the light viewers in respect to racial background. The concurrent views of otherwise divergent groups (in relation to income and race, respectively) could be attributed to the homogeneity of

experiences through TV content exposure, which, in turn, caused convergence of perceptions (Shanahan/Morgan, 1999).

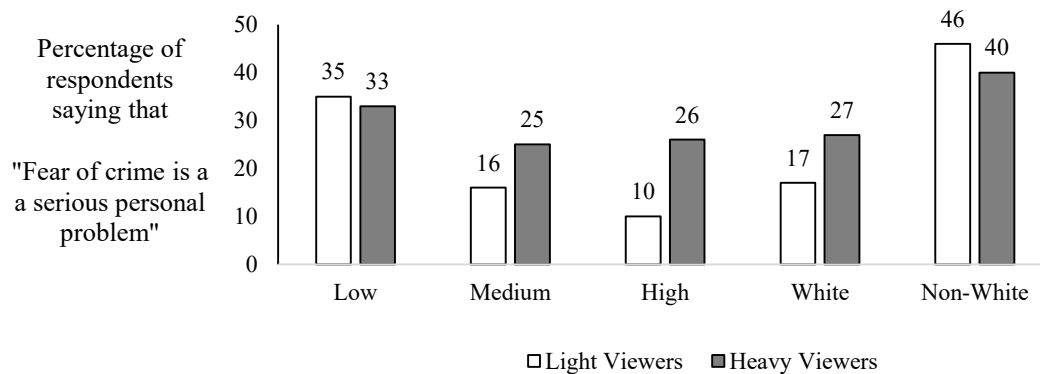


Figure 1. Empirical Proof of Mainstreaming (Gerbner, Gross, Morgan, et al., 1980, p. 16)

*Note. Low/medium/heavy referred to income level. White/no-White referred to race.*

The pattern of resonance was found for the heavy viewers among the female participants and respondents living in cities. They had the highest scores on the perceived prevalence of crime. The prevalence of crime might be more salient to these groups (e.g., higher crime rates in cities). Therefore, real-life experiences resonated with TV content and strengthened its impact, that is, boosted cultivation effects. Gerbner Gross, Morgan, and colleagues (1980) concluded that the cultivation effect of TV viewing might be largest, when an issue was personally relevant and salient for an individual and his/her life. (Gerbner, Gross, Morgan, et al. 1980)

In a subsequent study, the authors also revealed mainstreaming effects in respect to political orientations and attitudes (Gerbner et al., 1982).

As already indicated (see also Table 3), the early cultivation research mainly focused on perceptions of violence and crime and was dominated by Gerbner and his research team. However, cultivation research has rapidly attracted other scholars, and a plethora of studies has been published. Gerbner and colleagues (1986) early on noted the expansion of topics concerning more and more aspects of life and society. The following subchapter presents the first generalization of the accumulated empirical evidence of cultivation research.



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#### 2.1.1.4 *Generalization of Cultivation Effects*

Shanahan and Morgan (1999) offered a comprehensive overview and statistical aggregation of the empirical scholarly work on cultivation since the seminal paper of Gerbner and Gross (1976). They gathered 87 studies with 97 samples (some studies included more than one sample) with empirical cultivation results from 1976 to 1997 and meta-analyzed them.

For better understandability, the method meta-analysis is briefly explained. Aguinis, Dalton, and colleagues (2011) characterized meta-analyses as “quantitative literature reviews” (p. 6). The objectives are to estimate the generalized strength and direction of an effect or relationship (i.e., meta-analytical effect size) and the factors explaining variances in the distribution of effect-size estimates across studies, that is, moderator variables (Aguinis, Pierce, et al., 2011). Thus, effect sizes are focal inputs of meta-analyses. They quantify the strength of relationships or dependencies of two variables (e.g., correlations). The combination of effect sizes from multiple into meta-analytical effect sizes provides a “generalizable measure of the merit of scientific explanations and the value of scientific knowledge” (Eisend, 2015, p. 24).

The studies included in the meta-analysis of Shanahan and Morgan (1999) dealt with the cultivation effect of TV viewing on a multitude of dependent variables, with political/ideological issues, violence/crime, fear, mean world perceptions, and sex roles being the most prominent and frequently studied ones. The average cultivation study reported nearly 60 findings (i.e., effect sizes like correlations etc.), and all studies together accumulated to 5,799 findings. The central results of the meta-analysis are illustrated in Table 4. The average cultivation differential was 8% ( $SD = 7.35\%$ ) (for a definition, see section 2.1.1.2). Furthermore, the meta-analysis ascertained an unweighted mean effect size (i.e., meta-analytical effect size) of .10 and a sample-weighted mean effect size of .085. Nearly half of the observed variance (48%) was due to sampling error. These mean effect sizes were the averaged (and sample-weighted) mean correlations between TV viewing and the dependent variables for each sample and hence measured the generalized effect of TV viewing on the dependent variables of the studies (samples) included (Morgan/Shanahan, 1997). Shanahan and Morgan (1999) characterized this overall effect as small, but also noted that large effect sizes were not expectable. That is due to a rather large amount of unexplained variance (also not explained by demographic variables) for certain dependent variables of cultivation research. The authors further stated that an effect of .10 could have a noticeable impact over

time considering the cumulative, timely consistent, and repetitive effects of TV viewing (Shanahan/Morgan, 1999). Eventually, the meta-analytical effect size confirmed a generalized, consistent, and theoretically predicted cultivation effect of TV viewing. However in a critical review of cultivation theory, Potter (2014, p. 13) compared the empirical support of cultivation research with meta-analyses of other media effects (e.g., agenda-setting or third-person effects) and concluded that the strength of cultivation findings was relatively weak. In respect to the magnitude of effect sizes, Cortina and Landis (2009) urged to interpret effect sizes in context (for a general review of myths about meta-analyses, see Aguinis, Pierce, et al., 2011). According to Cortina and Landis (2009) also rather small effect sizes could represent impressive evidence for certain phenomena. That might also pertain to cultivation effects. By the way, they challenged the discrepancy of superlative language expressing large effect sizes (e.g., strong support) and modest or pejorative language denoting small effect sizes (e.g., weak/little support).

Table 4. Meta-Analytical Cultivation Effect Sizes (Shanahan/Morgan, 1999, p. 125)

		Average Effect Size <sup>a</sup>	Variance from Sampling Error <sup>b</sup>	Number of Samples <sup>c</sup>
<b>Overall</b>		.085	48	58
<b>Subgroup/Moderator Analyses</b>				
<b>Dependent Variables<sup>d</sup></b>	Violence	.100	45	26
	Sex Roles	.090	78	10
	Political/Ideological	.078	30	27
<b>Gender of Subjects</b>	Females	.081	77	29
	Males	.079	43	29
<b>Research Groups</b>	Gerbner and associates	.078	51	32
	Others	.104	51	26
<b>Sensitization to TV<sup>e</sup></b>	Yes	.116	100	8
	No	.079	46	34
<b>Sample Size</b>	Small ( $N < 600$ )	.130	58	25
	Large ( $N > 600$ )	.079	52	33

Note.  $N$  = sample size.

<sup>a</sup>Average of sample-weighted mean correlations.

<sup>b</sup>Percentage of variance explained by sampling error (in relation to overall observed variance).

<sup>c</sup>Independent samples (if a study included multiple samples, they were separately taken into account).

<sup>d</sup>Formation of subgroups of samples in relation to categories of dependent variables, that is, violence, sex roles (e.g., sex-role stereotypes), and political/ideological issues (e.g., political self-designation, voting).

<sup>e</sup>Study participants were informed that the study dealt with TV.

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Shanahan and Morgan (1999) also studied the potential existence of several meta-analytical moderators (as also recommended by Aguinis, Pierce, et al., 2011) to take into account conditions under which relationships might change in strength and/or direction. For the moderator analyses, they analyzed different subsets of data (subgroups) for theoretically meaningful moderator variables explaining differences across samples. For that purpose, the amount of variance accounted for by sampling error was particularly important (see Table 4). If this variance due to sampling error was particularly high in each subgroup ( $> 75\%$ , indicating homogeneity of variance), and the effect sizes additionally differed in the subgroups based on the assumed moderator variables (e.g., male vs. female for gender as moderator variable), a true moderator variable might be detected (Morgan/Shanahan, 1997, p. 29). Although some effect size differences existed between the subgroups (the authors did not provide significance tests), for instance, between small and large samples, in none of the cases, the variance was homogeneous (i.e.,  $> 75\%$ ) for all subgroups of a given subgroup comparison (see Table 4). Consequently, Shanahan and Morgan (1999) concluded that no true moderator emerged from their meta-analytical findings.

Besides, they descriptively highlighted the tendency that studies akin to the original cultivation research design, that is, conducted by Gerbner and colleagues, without sensitizing respondents to the research focus, and/or with large sample sizes, had somewhat smaller effect sizes and provided more conservative findings. (For more statistical details, see Morgan/Shanahan (1997), the initial meta-analysis of both authors later extended by a few studies.)

Almost exactly one decade later, the same two authors stated that cultivation research was “vibrant, thriving, and branching off into areas Gerbner could not have imagined” (Morgan/Shanahan, 2010, p. 337). Cultivation literature has substantially and steadily grown and faced several new research foci. The subsequent section presents the most recent development and topics.

### ***2.1.1.5 Recent Developments and Topics***

As previously underlined, Gerbner took a rather long-term and holistic perspective and considered the entire message system as decisive for communication and cultivation effects (see 2.1.1.1). Shanahan and Morgan (1999, p. 28) allegorized that perspective by their “The

Bucket, not the Drops” metaphor. That is, the impact of overall TV exposure and viewing disregarding different genres and program types was emphasized and focused. The meta-analysis of Shanahan and Morgan (1999) already alluded to an increasing diversity of dependent variables studied since the emergence of cultivation research. However, the examination of the independent variable also diversified. On the one hand, researchers intensified the analysis of cultivation effects through exposure to different genres and program types, for examples, news and talk shows. On the other hand, scholars delved into other media and communication vehicles, for instance, video games.

Table 5 summarizes empirical cultivation studies from 1998-2015 to build on and supplement the study anthology of Shanahan and Morgan (1999). The corresponding literature search was a two-step approach. In the first step, searches were conducted in the Web of Science and EBSCO databases, but also in leading journals in the field of communication (e.g., *Journal of Communication*, *Communication Research*, *Human Communication Research*). Therefore, different search terms in relation to cultivation were used, for instance, “cultivation” and “cultivating”. In the second step, seminal articles and reviews of the extant cultivation literature were scanned for references as well as articles citing them. For the sake of comprehensibility, five points have to be noted. First, only studies in referred journals with empirical results and a certain reference to cultivation (i.e., a cultivation approach, a kind of cultivation effect test, or a theoretical link) are listed. Second, some of these studies have experimental research designs, which is different to the meta-analysis of Shanahan and Morgan (1999). The authors’ rationale for excluding experimental studies was the alleged focus on short-term phenomena. Section 2.1.2 (section 2.1.2.2) about the underlying mechanisms of cultivation effects provides a more detailed reasoning for the particular and increasing relevance of experimental studies in cultivation research. Third, both the independent and dependent variables are subsumed under superordinate categories for systematization reasons. Concerning the independent variables, different operationalizations of TV exposure, for example, weighted averages of weekly TV viewing or daily hours of TV viewing, are summed up under the independent variable category TV exposure. Likewise, the operationalizations of exposure to other media are subsumed. The dependent variables are equally summed up to build superordinate categories. For instance, social perceptions mainly include likelihood judgments and percentage estimates, and the category “Beliefs/Attitudes” contains all variables termed beliefs or attitudes or asking for (dis-) agreements to certain statements (e.g., Likert-type scales). Forth, the overview mainly focuses on the direct

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influence of media (TV etc.) exposure on different dependent variables, while ignoring mediating effects for instance. Fifth, the five topics (e.g., “Society, Societal Issues & Crime” or “Health & Personal Issues”) are aggregated thematic categories built based on the studies’ main research foci and/or the majority of dependent variables included.

The literature search led to the selection of 76 studies (some comprising multiple studies or more than one sample), and the corresponding review offered some interesting findings.

First, there is a growing body of research concerning genre-specific cultivation. The genres ranged from news (e.g., Goidel et al., 2006; Romer et al., 2003), medical dramas (e.g., Hetsroni, 2014), and romantic comedies (e.g., Hefner/Wilson, 2013) to cosmetic surgery makeover programs (e.g., Nabi, 2009), talk shows (e.g., Glynn et al., 2007; Rössler/Brosius, 2001), and primetime comedies and dramas (e.g., Ward, 2004; Ward et al., 2006).

Second, cultivation-typical cross-sectional survey studies were supplemented by experimental (e.g., Shrum et al., 1998; Williams, 2006) and longitudinal (e.g., Lee/Niederdeppe, 2011; Oprea et al., 2014) studies. Particularly, experimental investigations should be employed to test for second-order cultivation effects, which are explained in section 2.1.2.2.

Third, researchers started to study cultivation effects through other media vehicles. The study of Williams (2006) on the longer-term effect of video games exposure was one of these pioneering studies. Although Shanahan and Morgan (1999) stressed that in relation to the cultivation of belief systems “the content of messages is more germane than the technology with which they are delivered” (p. 201), new online media, especially, SNS, do not only differ technologically and structurally, but also content-wise (for details, see section 2.2.1). Their omnipresence and reach offer promising research opportunities.

Fourth, the range of dependent variables or topics further broadened. Besides the most prominent topics, that is, violence, fear, and/or crime (e.g., Shrum/Bischak, 2001), cultivation research focused on other societal, health, and personal issues, as well as economic and environmental topics. Dependent variables corresponded to societal issues comprised, among others, perceptions of and beliefs about science and technology (e.g., Nisbet et al., 2002), perceptions of and attitude towards homosexual relationships (e.g., Rössler/Brosius, 2001), attitude towards homosexuality (e.g., Calzo/Ward, 2009), and perceptions of relationships and certain inappropriate behavior (e.g., Woo/Dominick, 2001, 2003). Health and personal issues included self-esteem (e.g., Martins/Harrison, 2012), body dissatisfaction (e.g., Eisend/Möller,

2007), expectations about marriage (e.g., Segrin/Nabi, 2002), romantic beliefs (e.g., Hefner/Wilson, 2013), beliefs about parenthood (e.g., Martins/Jensen, 2014), perceptions of motherhood (e.g., Ex et al., 2002), beliefs about cancer prevention (e.g., Niederdeppe et al., 2010), and perceptions of smoking (e.g., Shanahan et al. 2004). Studies concerning economic topics were mainly dealing with materialism (e.g., Shrum et al., 2005), but also with economic expectations (e.g., Hetsroni et al., 2014) and meriocratic beliefs (e.g., Stavrositu, 2014). Publications related to environmental issues studied concerns for environmental risks (e.g., Dahlstrom/Scheufele, 2010), environmental attitudes (e.g., Good 2007, 2009), and pro-environmental behavior (e.g., Holbert et al., 2003) as dependent variables. In general, (social) perceptions as dependent variables dominated cultivation studies, followed by beliefs/attitudes and behavior (or behavioral intentions).

Fifth, the internationalization of cultivation research that Gerbner and colleagues (2002) and Morgan and colleagues (2015) had already underscored has continued. Studies outside the United States have been conducted in Israel (particularly, the studies by Hetsroni and colleagues, e.g., Hetsroni et al., 2014), Germany (e.g., Eisend/Möller, 2007), Belgium (particularly, by Van den Bulck and colleagues, e.g., Custers/Van den Bulck, 2013), South Korea (e.g., Kwak et al., 2002), Singapore (e.g., Chong et al., 2012), and the Netherlands (Oprea et al., 2014).

As exemplified in Table 5, the majority of cultivation studies substantiated a cultivation effect of (genre-specific) TV exposure on the different dependent variables. That at least descriptively reinforces the findings of Shanahan and Morgan (1999). Some studies also revealed mainstreaming (e.g., Calzo/Ward, 2009; Good, 2009) and resonance effects (e.g., Kwak et al., 2002; Shrum/Bischak, 2001). Other studies tested for and found different moderating variables of the relation between TV exposure and the dependent variables, for instance, processing strategy (e.g., Shrum, 2001), narrative transportation (e.g., Shrum et al., 2011), need for cognition (e.g., Shrum et al., 2005), and attention (e.g., Shrum et al., 2005). Particularly, the processing strategy that is directly related to the underlying mechanisms of cultivation can tremendously influence the presence and strength of cultivation effects (Shrum, 2001, 2007b).

Hitherto, the emergence, advancement, and empirical evidence of cultivation research have been illustrated. In the following subchapter, the underlying mechanisms that are particularly relevant for empirically investigating and proving cultivation effects are explained.

Table 5. Overview of Extant Empirical Research on Cultivation Effects

Study	Design	Sample	N	IVs	DVs	Key Findings
<b>Society, Societal Issues &amp; Crime</b>						
Breuer et al. (2015)	L	NC	824	c	Beliefs/Attitudes	No effect of video game exposure
Busselle (2001)	E	C	197	a	Social perceptions %	TV exposure → (+) social perceptions
Busselle (2003)	CS	C/NC (pairs)	178 pairs	b	Social perceptions %	Genre-specific TV exposure → (+) social perceptions
Busselle/Shrum (2003)	CS	C	96	b	Ease of exemplar retrieval	Genre-specific TV exposure → (+) ease of exemplar retrieval
Calzo/Ward (2009)	CS	C	1,761	a, b	Beliefs/Attitudes	Past genre-specific TV exposure → (+) beliefs/attitudes
Chia/Gunther (2006)	CS	C	312	a	Beliefs/Attitudes	No effect of TV exposure
Chiricos et al. (2000)	CS	NC	2,250	a, b	Social perceptions	Genre-specific TV exposure → (+) social perceptions
Chong et al. (2012)	E	C	135	c	Social perceptions % Beliefs/Attitudes	Video game exposure → (+) social perceptions Video game exposure → (-) beliefs/attitudes
Chory-Assad/Tamborini (2003)	CS	C	290	b	Beliefs/Attitudes	Genre-specific TV exposure → (+/-) beliefs/attitudes
Cohen/Weimann (2000)	CS	C <sup>a</sup>	4,840	a, b	Social perceptions % Beliefs/Attitudes	Mixed findings for different IVs and DVs
Custers/Van Den Bulck (2013)	CS	NC	546	b	Beliefs/Attitudes	Genre-specific TV exposure → (+/-) beliefs/attitudes
Davis/Mares (1998)	CS	C <sup>a</sup>	282	a, b	Social Perceptions % Beliefs/Attitudes	Genre-specific TV exposure → (+) social perceptions
Dixon (2007)	E	C	240	b	Social perceptions	Genre-specific TV exposure → (+) social perceptions
Dixon (2008b)	CS	NC	506	b	Social Perceptions Beliefs/Attitudes	Genre-specific TV exposure → (+) social perceptions Genre-specific TV exposure → (+) beliefs/attitudes
Eschholz et al. (2003)	CS	NC	1,490	a, b	Social perceptions	Genre-specific TV exposure → (+) social perceptions
Ferris et al. (2007)	CS	C	197	b	Beliefs/Attitudes Behavior (intentions)	Genre-specific TV exposure → (+) beliefs/attitudes Genre-specific TV exposure → (+) behavior (intentions)
Glynn et al. (2007)	CS	NC	596	b	Beliefs/Attitudes	Genre-specific TV exposure → (+) beliefs/attitudes
Goidel et al. (2006)	CS	NC	498	b	Social perceptions %	Genre-specific TV exposure → (+/-) social perceptions
Grabe/Drew (2007)	CS	NC	505	a, b	Social perceptions Beliefs/Attitudes	Mixed findings for different IVs and DVs
Gross/Aday (2003)	CS	NC	772	b	Social perceptions	No effect of genre-specific TV exposure
Hetsroni (2008)	CS	C	517	a	Social perceptions %	TV exposure → (+) social perceptions
Hetsroni et al. (2007)	CS	C	655	a	Social perceptions %	No effect of TV exposure
Hetsroni/Lowenstein (2012)	CS	NC	778	a	Social perceptions %	TV exposure → (+/-) social perceptions
Hetsroni/Tukachinsky (2006)	CS	C	591	a, b	Social perceptions	TV exposure → (+) social perceptions Genre-specific TV exposure → (+) social perceptions

Holbert et al. (2004)	CS <sup>b</sup>	NCP	3,388/3,122	b	Beliefs/Attitudes Behavior (intentions)	Genre-specific TV exposure → (+/-) beliefs/attitudes Genre-specific TV exposure → (+) behavior (intentions)	
Kahlor/Eastin (2011)	CS	NCP	1,064	a, b	Social perceptions % Beliefs/Attitudes	TV viewing → (+) social perceptions, beliefs/attitudes Mixed findings for genre-specific TV exposure	
Kwak et al. (2002)	CS <sup>c</sup>	C	298/1,136	b, d	Social perceptions Beliefs/Attitudes	Genre-specific TV exposure → (+) social perceptions TV ad exposure → (+) beliefs/attitudes	
Mastro et al. (2007)	CS	C	275	a	Social perceptions	No direct effect of TV exposure	
Nabi/Riddle (2008)	CS	C	427	a	Social perceptions % Beliefs/Attitudes Behavior (intentions)	TV exposure → (+/+) social perceptions TV exposure → (+) beliefs/attitudes	
Nabi/Sullivan (2001)	CS	C	257	a	Social perceptions % Beliefs/Attitudes Behavior (intentions)	TV exposure → (+) social perceptions TV exposure → (+) behavior (intentions)	
Nisbet et al. (2002)	CS	NC	1,882	a, b	Beliefs/Attitudes	TV exposure → (+) beliefs/attitudes Genre-specific TV exposure → (-) beliefs/attitudes	
Riddle (2010)	E	C	213	b	Social perceptions %	No direct effect of genre-specific TV exposure	
Riddle et al. (2011)	CS	C	207	a	Social perceptions %	TV exposure → (+) social perceptions	
Romer et al. (2003)	CS	NC	<i>Study 1</i>	1,204	b	Social perceptions	Genre-specific TV exposure → (+) social perceptions
			<i>Study 3</i>	2,369	b	Social perceptions	Genre-specific TV exposure → (+) social perceptions
Rössler/Brosius (2001)	E	C <sup>a</sup>		156	b	Social perceptions	Genre-specific TV exposure → (+) social perceptions
						Beliefs/Attitudes	Genre-specific TV exposure → (+) beliefs/attitudes
Shrum (1999a)	CS	C	51	b	Beliefs/Attitudes	Genre-specific TV exposure → (+) beliefs/attitudes	
Shrum (2001)	E	C	122	a	Social perceptions %	TV exposure → (+/+) social perceptions	
Shrum (2007a)	E <sup>d</sup>	NC	180/111	a	Social perceptions %	TV exposure → (+) social perceptions	
Shrum/Bischak (2001)	CS	NC	157	a	Social perceptions %	TV exposure → (+) social perceptions	
Shrum et al. (1998)	E	C	<i>Study 1</i>	71	a	Social perceptions %	TV exposure → (+) social perceptions
			<i>Study 2</i>	162	a	Social perceptions %	TV exposure → (+) social perceptions
Van den Bulck (2004)	CS	NC	574	a, b	Social perceptions	Genre-specific TV exposure → (+) social perceptions	
Van Mierlo/ Van den Bulck (2004)	CS	C <sup>a</sup>	322	a, c	Social perceptions Beliefs/Attitudes	TV exposure → (+) social perceptions TV exposure → (+) beliefs/attitudes Video game exposure → (+) social perceptions	
Ward et al. (2006)	CS	C	656	b	Beliefs/Attitudes	No effect of genre-specific TV exposure	
Weitzer/Kubrin (2004)	CS	NC	480	b	Social perceptions	No effect of genre-specific TV exposure	
Williams (2006)	E/L	NC	213	c	Social perceptions %	Video game exposure → (+) social perceptions	
Woo/Dominick (2001)	CS	C		320	a, b	Social perceptions %	Genre-specific TV exposure → (+) social perceptions
						Beliefs/Attitudes	Genre-specific TV exposure → (+) beliefs/attitudes
Woo/Dominick (2003)	CS	C	143	a, b	Social perceptions % Beliefs/Attitudes	Genre-specific TV exposure → (+) social perceptions Genre-specific TV exposure → (+/-) beliefs/attitudes	



Study	Design	Sample	N	IVs	DVs	Key Findings	
<b>Health &amp; Personal Issues</b>							
Collins et al. (2004)	L	C <sup>a</sup>	1,762	a, b	Behavior	Genre-specific TV exposure → (+) behavior	
Diefenbach/West (2007)	CS	NC	419	a, b	Beliefs/Attitudes	TV exposure → (-/+) beliefs/attitudes Genre-specific TV exposure → (-) beliefs/attitudes	
Eisend/Möller (2007) <sup>c</sup>	CS	C	241	a	Social perceptions Self-perceptions Beliefs/Attitudes Body dissatisfaction Consumer behavior	TV exposure → (+) social perceptions TV exposure → (+) self-perceptions TV exposure → (+) beliefs/attitudes TV exposure → (+) body dissatisfaction No direct effect of TV exposure on consumer behavior	
Ex et al. (2002)	CS	C <sup>f</sup> /C <sup>a,f</sup>	166	a, b	Social perceptions Self-perceptions	Genre-specific TV exposure → (+) social perceptions Genre-specific TV exposure → (+) self-perceptions	
Hefner/Wilson (2013)	CS	C	<i>Study 2</i>	335	b	Beliefs/Attitudes	Genre-specific TV exposure → (+) beliefs/attitudes
Hetsroni (2014)	CS	NC		281	a, b	Social perceptions %	TV exposure → (+) social perceptions
Kimmerle/Cress (2013)	CS	NC	<i>Study 1</i>	77	a	Beliefs/Attitudes	TV exposure → (-) beliefs/attitudes
			<i>Study 2</i>	39	b	Beliefs/Attitudes Emotional reactions	Documentary exposure → (+/+) beliefs/attitudes Documentary exposure → (-) emotional reactions
Kubic/Chory (2007)	CS	C		155	b	Self-esteem Body dissatisfaction Perfectionism	Genre-specific TV exposure → (-) self-esteem Genre-specific TV exposure → (+) body dissatisfaction Genre-specific TV exposure → (+) perfectionism
Lee/Niederdeppe (2011)	L	NCP		425-447	a, b	Beliefs/Attitudes	TV exposure → (+) beliefs/attitudes Genre-specific TV exposure → (+) beliefs/attitudes
Martins/Harrison (2012)	L	C <sup>a</sup>		396	a	Self-esteem	TV exposure → (-) self-esteem
Martins/Jensen (2014)	CS	C <sup>a</sup>		172	a, b	Beliefs/Attitudes	Genre-specific TV exposure → (+) beliefs/attitudes
Nabi (2009)	CS	C	<i>Study 1</i>	170	a, b	Beliefs/Attitudes	TV viewing → (+) body consciousness
						Body satisfaction Body consciousness Behavior (intentions)	Genre-specific TV exposure → (+) beliefs/attitudes Genre-specific TV exposure → (+/+) behavior (intentions)
			<sup>f</sup> <i>Study 2</i>	271	a, b	See <i>Study 1</i> Social perceptions %	TV viewing → (-) body satisfaction Genre-specific TV viewing → (-/+) body satisf./conscious. Genre-specific TV exposure → (+/+) behavior (intentions)
Niederdeppe et al. (2010)	CS	NC		1,783	b	Beliefs/Attitudes	Genre-specific TV exposure → (+) beliefs/attitudes
Segrin/Nabi (2002)	CS	C		285	a, b	Beliefs/Attitudes	TV exposure → (-) beliefs/attitudes
						Behavioral intentions	Genre-specific TV exposure → (+) beliefs/attitudes Genre-specific TV exposure → (+) behavioral intentions
Shanahan et al. (2004)	CS	NC		794	a	Social perceptions %	TV exposure → (+) social perceptions
Ward (2004)	CS	C <sup>a</sup>		156	b	Self-esteem	Genre-specific TV exposure → (-) self-esteem

Study	Design	Sample	N	IVs	DVs	Key Findings	
<b>Economics</b>							
Busselle/Crandall (2002)	CS	C	139	b	Social perceptions	Genre-specific TV exposure → (+/+/) social perceptions	
Hetsroni et al. (2014)	CS	NC	356	a, b	Economic expect. at personal/nat. level Optimistic bias	TV/genre-specific TV exposure → (+/-) economic expectations at personal/national level TV/genre-specific TV exposure → (+) optimistic bias	
Oprea et al. (2014)	L	C <sup>a</sup>	466	d	Materialism Behavioral intentions	Ad exposure → (+) materialism Ad exposure → (+) behavioral intentions	
Shrum et al. (2005)	CS	NC	<i>Study 1</i>	314	a	Materialism	TV exposure → (+) materialism
Shrum et al. (2011)	E	C	<i>Study 1</i>	142	a	Materialism	No direct effect of TV exposure on materialism
	CS	NC	<i>Study 2</i>	314	a	Materialism Life satisfaction	TV exposure → (+) materialism TV exposure → (-) life satisfaction
Speck/Roy (2008)	CS	C	1211	a	Materialism	TV exposure → (+) materialism	
					Life satisfaction	TV exposure → (-) life satisfaction	
Stavrositu (2014)	CS	NC	276	a, b	Beliefs/Attitudes	Genre-specific TV exposure → (+) beliefs/attitudes	
					Life satisfaction	Genre-specific TV exposure → (+) life satisfaction	
<b>Environment</b>							
Dahlstrom/Scheufele (2010)	CS	NCP	2,962	A	Beliefs/Attitudes	TV exposure → (+) beliefs/attitudes	
Good (2007)	CS <sup>d</sup>	NC	295/485	A	Beliefs/Attitudes	TV exposure → (-) beliefs/attitudes	
					Materialism	TV exposure → (+) materialism	
Good (2009)	CS	NC	421	a, b	Beliefs/Attitudes	TV exposure → (-) beliefs/attitudes	
						Genre-specific TV exposure → (+) beliefs/attitudes	
Holbert et al. (2003)	CS <sup>b</sup>	NCP	3,388/3,122	B	Behavior	Genre-specific TV exposure → (+) behavior	
<b>Others</b>							
Bilandzic/Busselle (2008)	CS/E	C	162	B	Transportation <sup>g</sup>	Genre-specific TV exposure → (+) transportation	
					Genre-consistent: -perceptions %	Genre-specific TV exposure → (+/+) perceptions	
					-attitudes	Genre-specific TV exposure → (+) attitudes	
Poels et al. (2015)	CS	NC	511	C	Perceptions	Online game exposure → (+) perceptions	
					Associations	Online game exposure → (+) associations	

Note. N = sample size, IV = independent variable, DV = dependent variable, CS = cross-sectional, E = experimental, L = longitudinal, C = convenience sample (i.e., students), NC = non-convenience sample, NCP = non-convenience, panel sample, a = TV exposure, b = genre-specific TV exposure, c = video game exposure (playing), d = ad exposure. % = a part of or all of the respective dependent variables were percentages estimates.

→ (+) = is positively related to, → (-) = is negatively related to, → (+/-) = is both positively and negatively related to.

All relationships at significance level  $p < .05$ , except, where (+) or (-) indicates  $p < .10$ . Behavior (intentions) refers to both behavior and behavioral intentions.

<sup>a</sup>School student sample, <sup>b</sup>Two years, <sup>c</sup>Two countries, <sup>d</sup>Two samples, <sup>e</sup>Key findings based on both multiple regression and path analyses, <sup>f</sup>Female subjects.

<sup>g</sup>Defined as "the extent that individuals are absorbed into a story or transported into a narrative world" (Green/Brock, 2000, p. 701)

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### 2.1.2 Underlying Mechanisms

The review of the extant cultivation literature already pointed out the variety and expanded range of dependent variable influenced by TV (or other media) exposure. In a review of 48 studies, Hawkins and Pingree (1982) first distinguished two categories of judgments (i.e., dependent variables) used to test for cultivation effects: demographic and value-system judgments. While demographic judgments relate to first-order cultivation judgments, value-system judgments refer more to values endorsed on TV, that is, second-order cultivation judgments. Later, Gerbner and colleagues (1986, p. 28) seized this distinction and stressed that the facts learned from TV (i.e., first-order cultivation) can build the foundation for a broader world view including values, ideologies, perspectives, assumptions, and images. They called this transformation of and extrapolation from message systems data second-order cultivation analysis. First- and second-order cultivation judgments and effects differ in nature and formation. The following two sections give an overview of both kinds of cultivation effects and judgments and their underlying mechanism. Please note that first- and second-order judgments and first- and second-order cultivation judgments are used interchangeably.

#### 2.1.2.1 *First-Order Cultivation*

According to Hawkins and Pingree (1982), demographic measures are closely related to the demographics of television content or facts that might be learned from TV, that is, prevalence, frequency, or probability/likelihood of certain phenomena. These facts typically have traceable real-world counterparts and are grounded in fact, for instance, prevalence of violence (Morgan et al., 2015; Shrum et al., 2004). For these first-order judgments, individuals usually provide quantitative estimates of prevalence or occurrence of certain phenomena (Potter, 1991a). The estimation measures of prevalence of violence/crime (e.g., percentage estimate of chance of violence involvement) and certain occupations (e.g., proportion of males working in law enforcement/crime detection) in the study of Gerbner and colleagues (1977) are typical examples of first-order cultivation judgments. Other examples were estimations of marital discord, for instance, the percentage of individuals getting divorced (e.g., Shrum, 2007a), or certain possessions/affluence, for instance, the percentage of individuals owning a luxury car or having a swimming pool (e.g., O'Guinn/Shrum, 1997; Shrum, 2007a). Generally, percentage estimates in the form of set-size judgments, that is, the percentage of instances in which a particular category (e.g., lawyers) occurs within a larger,

superordinate category (e.g., Germans), are common first-order judgments (Shrum, 1995), which can also be seen in Table 5 (indicated by the percentage signs).

First-order and second-order cultivation judgments differ not only in nature and operationalization, but also in the underlying psychological processes. While first-order judgments are memory-based, second-order judgments are made in an online fashion (see section 2.1.2.2).

Hastie and Park (1986) were among the first scholars who distinguished between these two psychological processes. The authors' main differentiation criterion was the source of input to the judgment operator (i.e., the individual or subject). For memory-based judgments, subjects rely on availability and retrieval of information from memory. The input for the judgment comes from judgment operators' long-term memory into working memory. (Hastie/Park, 1986, p. 261)

The most prominent example of this kind of judgment procedure is the availability heuristic by Tversky and Kahneman (1973) (heuristic defined as task simplification procedure or rule of thumb (Shrum/O'Guinn, 1993)). In essence, it suggests that frequencies or probabilities of patterns and events are overestimated due to enhanced accessibility and easier retrieval of relevant information from memory. Set-size and probability/likelihood judgments are particularly susceptible to these kinds of heuristics (Kahneman et al., 1982). The terms availability and accessibility are often mixed and used interchangeably, although they constitute distinct constructs (Rothman/Hardin, 1997). While availability refers to whether information is stored in long-term memory (i.e., exists and is available in memory), accessibility relates to the ease and speed with which information stored in long-term memory is retrieved from it (Shrum, 1996). From this perspective, the term availability heuristic is somehow misleading, as it concerns accessibility of information as basis for judgments (see also 2.4).

Shrum and colleagues intensively elaborated on heuristic processing to explain cultivation effects. In a study on the cultivation of "Consumer Beliefs" (although they used typical first-order measures (i.e., percentage estimates)), Shrum and colleagues (1991) already alluded to the availability heuristic as a possible theoretical frame explaining cultivation effects. Shrum and O'Guinn (1993) stated this view more precisely and took "the cultivation question into the realm of psychological process" (p. 466). They argued and empirically demonstrated that the cultivation effect was related to the accessibility of information on memory. In line with

the availability heuristic, enhanced accessibility related to subjects' overestimation of frequencies (e.g., percentage of Americans having an alcohol dependency problem), probabilities (e.g., of being involved in a violent crime), and faster responses (i.e., response latencies). The overrepresentation of certain constructs in television increased the accessibility of these constructs in memory. The ease with which individuals were able to recall these exemplars (from memory) affected their judgments, and they attributed the ease of recall of exemplars to estimate the frequency of occurrence. (Shrum/O'Guinn, 1993)

Shrum (1995, 1996, 1998, 1999a) reaffirmed the focal role of heuristic processing and particularly the availability heuristic to explain the cultivation effect of heavy TV viewing on first-order judgments through construct and exemplar accessibility. Later, Shrum and colleagues refined and extended the heuristic processing view by juxtaposing other processing strategies and developing a process model of cultivation (Shrum, 2001, 2004, 2007b; Shrum et al., 2004). Particularly, they contrasted heuristic and systematic processing and suggested that systematic processing reduced or even eliminated the cultivation effects. Under systematic processing (typically in high involvement situations and/or when subjects' motivation is high), individuals carefully consider a higher amount and the source of information when constructing their judgments. Discounting of TV information and using information from other sources than TV for judgments is also more likely (Shrum, 2001). Shrum (2001) experimentally proved that the cultivation effect of TV viewing on first-order cultivation judgments (i.e., percentage estimates of crime, certain occupations, affluence, and marital discord) became nonsignificant under systematic processing conditions. In a similar vein, Shrum and colleagues (1998) investigated a reduction of the magnitude of first-order cultivation effects (i.e., prevalence of crime and certain occupations), when subjects were primed beforehand (i.e., discounting of TV information and reduction of its biasing influence). Besides, Shrum (2007a) revealed significantly higher estimates for first-order judgments (measures comparable to Shrum, 2001) and stronger cultivation effects of TV viewing under conditions of more intensive heuristic processing (induced by time pressure).

In sum, first-order cultivation judgments are memory-based, constructed when the judgments is elicited, and dependent on accessibility and ease of retrieval (Busselle/Shrum, 2003). Contrarily, second-order judgments are stimuli-based and made when information is encountered (Shrum et al., 2011). The subsequent paragraph sheds light on the formation and types of second-order cultivation judgments.

### ***2.1.2.2 Second-Order Cultivation***

According to Potter (1991b) and Gerbner and colleagues (1986) (as already indicated above), second-order cultivation judgments relate to generalized beliefs inferred from first-order information. Similarly, Rössler and Brosius (2001) described second-order judgments as general attitudes and opinions in line with first-order perceptions of social reality. Typical second-order cultivation judgments are impression formation and stereotyping as well as attitude, value, and belief judgments (Shrum, 2004; Shrum et al., 2011). The anomie Likert-scale items (e.g., “In spite of what some people say, the lot of the average man is getting worse, not better.”) of Gerbner and colleagues (1978, p. 202) were among the primary second-order judgments considered in cultivation research. The study overview depicted in Table 5 also emphasizes the increasing importance of second-order cultivation judgments, although first-order judgments still seem to dominate empirical cultivation research. Likewise, Gerber and colleagues (2002, p. 52) underlined the importance of the “symbolic transformation of message system data into hypotheses about more general issues and assumptions” (i.e., second-order cultivation judgments) for cultivation research.

Second-order cultivation judgments (also termed online judgments) are formed online when evidence information is encountered, that is, information from external stimuli is directly processed with few intervening inferences. The judgment basis is incoming information as opposed to retrieved information for first-order judgments (Hastie/Park, 1986). Online judgments are made spontaneously, require less effort, and are more reliable (Shrum et al., 2011). In respect to TV exposure, attitudes and other second-order cultivation judgments are formed during viewing, for instance, the attitude about a product while viewing the corresponding TV advertisement. The television program and related messages are considered as persuasive communication, and repeated exposure to it leads to attitude formation or change (Shrum, 2004; Shrum et al. 2004). While television viewing influences attitudes and values judgments directly (second-order), since information is processed during viewing, its effect on frequency and probability judgments (first-order) is indirect due to the increase of accessibility in memory (Shrum et al., 2011).

As shown in the preceding paragraph (2.1.2.1), certain factors influence first-order cultivation effects, for instance, amplifying it due to time pressure (Shrum, 2007a) or reducing it due to more systematic processing (Shrum, 2001) or priming (Shrum et al., 1998). Thus, variables related to motivation and ability to process during viewing rather inhibit first-order

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judgments. That is why heuristic processing particularly occurs at low levels of motivation and ability to process information. Contrarily, these variables are supposed to increase the magnitude of second-order cultivation judgments. Consistent with the elaboration likelihood model (ELM) of Petty and Cacioppo (1986a, b) (see also 2.4), high levels of motivation and ability to process information strengthen persuasive processes for attitude formation and change. Shrum and colleagues (2005) traced that enhancing effect for need for cognition and attention during viewing. Consequently, certain variables inversely influence first- and second-order cultivation judgments.

So far, second-order judgments were solely considered as stimuli-based, online judgments. For the sake of completeness, two points should be noted. On the one hand, Shrum and colleagues (2004, p. 186) indicated that second-order judgments could also be constructed in a memory-based fashion. That pertains to attitudes and beliefs readily accessible and prior constructed. On the other hand, Hastie and Park (1986, p. 263) stressed that true memory-based judgments might be rare due to the ubiquity of (spontaneous) online judgments and that subjects tended to rely on prior judgments rather than evidence stored in memory. Thus, the distinction between both types of judgments is partly elusive and depends on the specific judgments.

Considering the definitions of second-order judgments mentioned above, a relation between first- and second-order judgments seems to be likely and plausible. For instance, Hawkins and colleagues (1987) tested whether first-order judgments served as an intermediate variable between TV viewing and second-order judgments. In contrast to this hypothesized correlation between first- and second-order judgments, they rather found the reverse pattern. That is, TV viewing was related to second-order judgments, when first-order judgments were more biased towards real-world and not TV-world estimates. Contrarily, Potter (1991a, b) revealed significant relationships between first- and second-order judgments (e.g., working women, affluence, divorce/affairs). Later, other studies corroborated these relationships between both types of cultivation judgments (e.g., Nabi/Sullivan, 2001).

With regard to the distinct processes underlying both types of judgments, the research designs to study and verify these judgments should also differ. On the one hand, correlational designs (i.e., surveys) are suitable to test for first-order judgments such as perceptions and percentage estimates, because they are memory-based and constructed (from memory) at the time the judgments are elicited (i.e., when the participant is asked). On the other hand, experimental

designs are best appropriate to prove both first- and second-order cultivation effects. As second-order cultivation judgments are formed in an online fashion, the use of media information in constructing judgments should occur during TV viewing (or other media use) and thus being in contact with the stimulus, rather than at the time participants are asked for a judgment (Shrum et al., 2011). Remarkably in the first empirical cultivation study, Gerbner and Gross (1976) judged experimental or quasi-experimental designs as inappropriate to prove cultivation effects, since “effects cannot be measured with regard to any single element or program seen in isolation” (p. 181). Table 5 further unveils discrepancies between research design and cultivation judgments, that is, researchers often used cross-sectional designs (surveys) to test for second-order cultivation judgments. This fact features one point of criticism of cultivation research. The following section outlines the central problematic issues and critique related to cultivation research.

### **2.1.3 Critique of Cultivation Research**

Critical appraisals of cultivation research have been published soon after the first empirical evidence of cultivation effects. For instance, Hughes (1980) reanalyzed data of Gerbner and colleagues (1978), doubted the original findings, and critically raised the issue that “cultivation theory may be a gross oversimplification of how television affects behavior through culture” (p. 300). In the same year, Hirsch (1980) reexamined different data of Gerbner and colleagues and found a rather curvilinear relationship between TV exposure and certain cultivation judgments. That is, nonviewers and extreme viewers had comparatively high and close scores. Doob and MacDonald (1979) further attempted to replicate previous findings of Gerbner and colleagues and thereby casted doubt on them. Their analysis showed that the initial relationship between TV viewing and perceived prevalence of violence/crime became insignificant by integrating and controlling for a previously uncontrolled factor, that is, the real-world incidence of crime. One of the most prominent critics has been W. James Potter. In 1993 (conceptual perspective) and 1994 (methodological perspective), respectively, he formulated comprehensive critical reviews of cultivation research and theory, which he updated and revised in 2014 (Potter, 1993, 1994, 2014).

Potter’s (1993) early conceptual critique challenged the assumptions of uniform TV messages (i.e., global exposure measures rather than genre-specific exposure), nonselective TV viewing, the dominant role of TV in heavy viewers’ lives, and the conceptualization of TV



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exposure (i.e., he rather expected TV exposure to be conceptualized as lifelong pattern of exposure). Potter also pointed to the potential existence of nonlinear relationships between TV exposure and judgments (comparable to Hirsch, 1980). Besides, he scrutinized the conceptualization of the cultivation effect as weak and persistent general effect and offered five possible reconceptualizations. These were a) strong but buried effects (due to methodological issues or suppressor variables), b) strong, differentiated effects (e.g., across subjects), c) profound differences (across all individuals), d) reinforcement (by TV), and e) sudden insights (TV exposure as kind of preparatory condition). One crucial point of criticism Potter and numerous cultivation researchers later raised was the causality of effects. According to Potter (1993, p. 585), causality of cultivation would require to fulfill the following conditions: time order, that is, the cause (i.e., TV exposure) preceded the effect (i.e., perceptions or cultivation judgments in general), covariation of cause and effect, alternative causes were ruled out (or third factors were controlled for), and cultivation judgments in the direction of the TV world. Potter (1993) argued that cultivation researchers could not prove that TV exposure preceded cultivation judgments and thus the definite direction of effect. The relationship between TV exposure and judgments could also be reciprocal or reverse. (Potter, 1993)

Particularly, reverse causality, that is, the exposure to TV (or other media) is affected by social perceptions, beliefs, attitudes, and/or behavior, has featured a focal issue of cultivation studies. That means that individuals with certain beliefs or attitudes choose and watch TV programs confirming these beliefs and attitudes (Shrum et al., 1998). The causality issue is also connected to a methodological caveat cultivation studies have been often criticized for, that is, the correlational nature of cross-sectional designs (Shrum, 1999b). Correlational studies lack the proof of causality and can be subject to alternative explanations (i.e., third variables) (Shrum, 1999b; Shrum et al., 1998). The spuriousness of correlations can be reduced by the integration of control variables, which are usually demographics (see also 4.2.4.3). Accordingly, the majority of studies listed in Table 5 included various control variables. Nevertheless, only experimental research designs can validly prove causality. As already indicated, experimental designs enjoy increasing popularity among cultivation researchers (see Table 5), not least for investigating second-order cultivation effects. By longitudinal research designs (e.g., Lee/Niederdeppe, 2011), scholars are also able to test for reverse causality and additionally for long-term effects of TV (or other media) exposure, whereas Potter recommended the latter already in 1993.

Besides causality, cultivation research has been criticized for providing empirical evidence of effects without explaining the underlying cultivation processes and dynamics (Potter, 1993; Shrum, 1999b). Shrum and colleagues (1998, p. 448) termed that the “black-box nature” of cultivation research. As shown in section 2.1.2, Shrum and colleagues extensively elaborated on cultivation processes and dynamics and developed corresponding models and explanations.

To conclude, scholars tried to address some of the main points of criticism cultivation research has been facing from early on. Potter (2014) acknowledged alterations crossing the original boundaries of cultivation theory as established by Gerbner, for instance, the focus on genre-specific exposure (see also Table 5 or Morgan/Shanahan, 2010) and more exploratory designs. Simultaneously, Potter critically assessed the heuristic value (i.e., attraction of research to test the theory’s assumptions, expressed by size, completeness, and relevance), empirical value (see also section 2.1.1.4), and precision (i.e., of theory’s assumptions to understand theory and guide empirical theory tests) of cultivation as a mass media theory. He concluded that the boundaries between cultivation theory as a macro-level theory studying long-term media effects and other media-effects theories crossing the initial theoretical boundaries partly vanished away. In a way, that undermined the uniqueness and value of cultivation theory. (Potter, 2014)

As shown in section 2.1.1.5 and Table 5, researchers started to focus new media vehicles to study cultivation effects. Particularly, SNS became dominant and ubiquitous media in individuals’ lives. They also have some of the qualities (e.g., immense reach and scope) Gerbner and Gross (1976) attributed to TV and made the authors urging comprehensive research on TV influences (see section 2.1.1.2). The subsequent subchapter reviews the scholarly literature on SNS with a focus on Facebook as the most prominent and prevalent SNS.

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## 2.2 Social-Network-Sites Research – The Case of Facebook

The scholarship on SNS and social media literally exploded in the last decade (Coursaris/Van Osch, 2014; Wilson et al., 2012). In their general reviews and prior literature searches, Coursaris and Van Osch (2014) detected 610 social-media related journal papers and conference proceedings between 2004 and 2011, while Wilson and colleagues (2012) identified 412 articles and conference papers on Facebook between 2005 and 2011. In more journal-oriented reviews, Rains and Brunner (2015) found 327 articles in respect to SNS (179 on Facebook) in six interdisciplinary journals (e.g., *Journal of Computer-Mediated Communication*) between 1997 and 2013, and Zhang and Leung (2015) gathered 84 articles related to SNS (37 concerning Facebook) in six communication journals (e.g., *Journal of Communication*) for the period from 2006 to 2011. These figures already indicate the mere quantitative importance of the research on Facebook and SNS in general. The following two paragraphs describe the nature and content of Facebook (2.2.1) and the diverse outcomes of its use (2.2.2).

### 2.2.1 Nature and Content of Facebook

In their seminal article (more than 1000 citations as of May 2016 according to Web of Science), boyd and Ellison (2007) defined social *network* sites as “web-based services that allow individuals to (1) construct a public or semi-public profile within a bounded system, (2) articulate a list of other users with whom they share a connection, and (3) view and traverse their list of connections and those made by others within the system” (p. 211). Additionally, the authors hinted at site-specific variations of these connections (i.e., nature and terminology) and the distinction of social *network* site (which is the term utilized in this dissertation) and social *networking* site. The latter implied relationship initiation (meet new people), whereas the former emphasized communication with people already being part of the (extended) social network. (boyd/Ellison, 2007)

Later, Ellison, Vitak, and colleagues defined (2014) SNS as “web-based communication platforms that support socially relevant interactions among contacts (i.e., “Friends”) on the site” (p. 855), which emphasized the social nature of SNS in a more pronounced manner.

SNS are part of the broader category social media (Hollenbeck/Kaikati, 2012; for a general overview of theories and models used in social media research, see Ngai et al., 2015, p. 35). Social media can be defined as “a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0 [i.e., the advancement of the World Wide Web intensifying participation and collaboration of users], and that allow the creation and exchange of User Generated Content” (Kaplan/Haenlein, 2010, p. 61; for an research overview on brand-related user-generated content, see 2.2.1.3).

McFarland and Ployhart (2015) presented a continuum with social media at the one extreme and non-digital face-to-face interaction at the other extreme. Digital communication such as e-mail lied in between both. The focal difference is that social media minimizes or even eliminates the barriers of time and space, that is, they facilitate instant, interactive, and asynchronous communication with geographically distant other individuals.

The term social *network* site was first used by Donath and boyd in 2004, although they referred to social *networking* sites, that is, environments to form new ties and to display these ties (i.e., the network of connections), in the course of their study.

In the same year, Facebook was created by Mark Zuckerberg as a Harvard-only SNS, since users were required to have a harvard.edu email address (at least at the beginning). In 2005, Facebook further expanded by including high-school students, while in 2006, Facebook was opened to certain corporate networks and eventually to everyone. Although Facebook has become and is the most pervasive SNS, SixDegrees, launched in 1997 and closed three years later, was the first SNS (at least in accordance to the definition mentioned above). (boyd/Ellison, 2007)

Since that time, a myriad of different SNS (e.g., MySpace, CyWorld (South Korea), Renren (China), LinkedIn (professional network)) and congeneric SNS/services (e.g., Twitter (i.e., micro blogging site), Instagram (i.e., photo/video sharing site), YouTube (i.e., video sharing site)) has evolved (Rains/Brunner, 2015; Zhang/Leung, 2015; for a general categorization of social media, see Kaplan/Haenlein, 2010). Due to the research focus of this dissertation, the emphasis of the subsequent brief overview is on Facebook, while other SNS are not described in detail.

Among others, Caers and colleagues (2013) and Wilson and colleagues (2012) offered good overviews of Facebook as SNS and its most essential structural characteristics.

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The core features of Facebook are the individual profile and the “home” pages. Therefore, the individual user can create an account on the website Facebook.com after providing some personal information (name, e-mail, date of birth, gender). The profile page, also called the wall, comprises individual information of the user, that is, a profile and a cover photo, personal information (depending how much the user wants to disclose), as well as an overview of uploaded photographs (albums). It further contains a Facebook friend’s list (see also (2) of the definition of boyd/Ellison, 2007 and the definition of Ellison, Vitak, et al., 2014), and an overview of the user’s “likes”. On the one hand, Facebook friends can be characterized as “relationship visible to others on the site and which enables two users to more easily communicate with and share content with one another” (Ellison et al., 2011, p. 889). On the other hand, likes can be described as means for Facebook users to “express positive association with online and offline objects, such as products, activities, sports, musicians, books, restaurants, or websites” (Youyou et al., 2015, p. 1036). Besides, the profile page displays status updates (e.g., text postings) and other communication content (e.g., photographs, links, videos etc.). Certainly, status updates can also include other communication content besides text and statements. Other users can then again respond to the status updates (i.e., postings). On the “home” page, called news feed, status updates and other posted content of the user’s friends, which can also be responded to, appear in chronological order. (Caers et al., 2013; Wilson et al., 2012)

Bernstein and colleagues (2013) consider the news feed as the main basis for the diffusion and consumption of content. Lipsman and colleagues (2012) corroborated this view in respect to brand-related content. A complex algorithm based on various optimization criteria, on the interests of the user, how much they interact with certain users, and the estimated likelihood that the user will interact with the content determines which status updates and other content appear on the news feed (Bakshy et al., 2015; Kramer et al., 2014; Lazer, 2015). The core constituent of Facebook then consists of the individual interrelated profile pages (meanwhile, brand pages (see 2.2.1.3), Facebook groups, and others have supplemented them). Users can create friendship/network ties (appearing on the friends’ list if that information is disclosed) to other users creating a tremendously large, global-scale social graph (Ugander et al., 2011; Wilson et al., 2012). Communication within the network is promoted by posts via the individual news feed (i.e., status updates) or on other users’ profile pages (i.e., wall posts) and by personal/private messaging. Both forms of communication vary in the degree of visibility, that is, personal messaging is closed, (usually) one-to-one interaction, while status updates

and wall posts are visible to other users (Bazarova/Choi, 2014). Sun and colleagues (2009) referred to private messaging as active information sharing method, while the authors considered the news feed as the passive counterpart. To some extent, this categorization contradicted the view of Bernstein and colleagues (2013) mentioned above, since information and communication content (also personal content like expression of emotions) are increasingly and actively shared via the news feed by status updates (Kramer et al., 2014).

Since communication patterns and diffusion of communication content largely depend on individual friendship and Facebook's general network structures (Bakshy, Eckles, et al., 2012; Bakshy, Rosenn, et al. 2012), the following paragraph (2.2.1.1) illustrates the social network characteristics of Facebook and implications for communication content diffusion. Afterwards, the focus is on the content side of Facebook (sections 2.2.1.2 and 2.2.1.3).

### ***2.2.1.1 The Social Networks within Facebook***

As the definition of SNS cited above already indicated, a focal characteristic of SNS is the representation of relationships between user and peers. Borgatti and Halgin (2011) generally defined networks as “a set of actors or nodes along with a set of ties of a specified type (such as friendship) that link them” (p. 1169). They further demonstrated that publications related to social networks has been exponentially increasing since the 1970s and the seminal paper theorizing the strength of weak ties by Granovetter (1973). In particular, there has been a remarkable publication boost at the beginning of the new millennium, that is, when numerous SNS were set up (for a review of social network theory, see also Borgatti et al., 2009). Sometimes, the terms networks and groups are confused. However, a central distinctive criterion between both is the existence of boundaries. Whereas groups are bounded, though sometimes in a fuzzy or uncertain manner, networks are not characterized by natural boundaries. Besides, the ties within networks can be categorized into state-type ties with open-ended persistence (e.g., kinship ties, friendship ties, but also affective ties such as likes or dislikes) and event-type ties that have a discrete and transitory character and can be counted over time (e.g., interactions like e-mail exchanges or transactions such a sales). (Borgatti/Halgin, 2011)

Applying this categorization, Facebook seems to unify both kinds of ties, whereas the initial purpose and the core element were/are state-type ties. The latter is in line with boyd and

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Ellison (2007) arguing that most SNS foster pre-existing social relationships. It further corresponds to both the theoretical reasoning of Ellison and colleagues (2007) that online networks reflect and supplement offline networks and the authors' specific empirical findings revealing a positive relationship between Facebook use and maintenance of social capital. Nahapiet and Goshal (1998) defined social capital as "the sum of the actual and potential resources embedded within, available through, and derived from the network of relationships possessed by an individual or social unit" (p. 243). Generally, SNS and social capital seem to be intertwined. Thus, the relationship between both has increasingly become subject to scholarly research, which is, among others, focused in section 2.2.2.

Concerning the network structure of Facebook, Ugander and colleagues (2011) conducted a large-scale analysis of the Facebook social graph in 2011. Their analyses took into account around 721 million active Facebook users (i.e., users having logged into their accounts in the last 28 days and having at least one Facebook friend), which were roughly ten percent of the entire world's population at this point of time. The Facebook users in their study had around 190 friends on average. Overall, there were 69.8 billion friendship links (also called edges). Only a small number of users had many hundreds or even thousands of friends. The median number of friends amounted to 99. Two other figures of the authors' analyses are of substantial importance for the understanding of the communication content diffusion potential of Facebook: the number of friends of friends (FoFs) and the path length or distances within the network(s).

First, Figure 2 displays the average number of unique and non-unique FoFs as a function of Facebook friends (the specific network-analytical term "degree" here defines the number of Facebook friends an individual user has). While the number of non-unique FoFs related to the count of the total friends of the individual user's Facebook friends, the number of unique FoFs accounted for and excluded FoFs occurring more than once in this extended friendship network (also termed length-two paths). The number of non-unique FoFs grew moderately more than linear, whereas the growth rate of the number of unique FoFs was nearly linear with a slope of 355 unique FoFs per additional Facebook friend. For instance, a Facebook user with 100 Facebook friends had 27,500 unique FoFs and 40,300 non-unique FoFs. The latter figure considerably exceeded the value of 9,900 non-unique FoFs (100 times 99), assuming that an individual users' Facebook friends had approximately as many friends as the user his- or herself. (Ugander et al., 2011, p. 7f.)

Second, Ugander and colleagues (2011, p. 5) also studied the average path length of Facebook’s network and found that the average distance between a pair of users was 4.7 edges (i.e., the number of intermediaries on a path between any two users plus one (the step towards the respective end node)). That confirmed the seminal small-world effect and the six-degrees-of-separation findings (Milgram, 1967; Travers/Milgram, 1969) and highlighted the enormous potential reach of individuals on Facebook. Hence, Ugander and colleagues (2011) concluded that “shared content only needs to advance a few steps across Facebook’s social network to reach a substantial fraction of the world’s population” (p. 13). For the sake of understandability, the small-world effect and six degrees of separation are briefly explained. In a nutshell, Milgram (1967) and later Travers and Milgram (1969) demonstrated that geographically and socially distant individuals within a population or society were linked by acquaintance chains. It required less than six intermediaries on average to link two geographically remote individuals leading to the conclusion of an average of six degrees of separation, which is a quite small average path length, and a world being smaller than expected (i.e., small world effect).

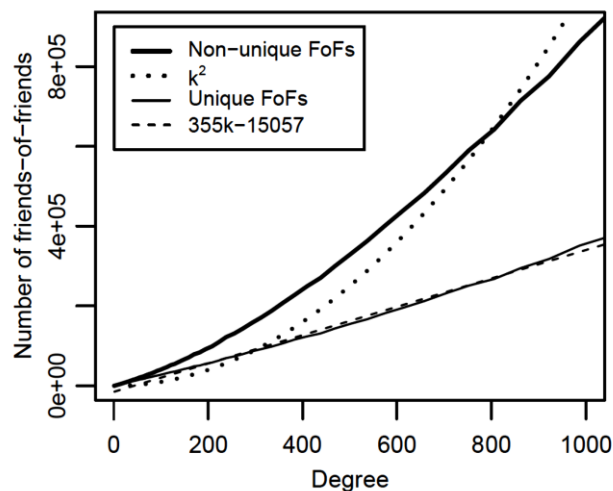


Figure 2. FoFs as Function of Facebook Friends (Ugander et al., 2011, p. 7)

*Note.* Degree ( $k$ ) related to the number of Facebook friends. FoFs = friends of friends.

Backstrom and colleagues (2012) replicated and extended the study of Ugander and colleagues (2011) (they analyzed the same data set). Their analyses revealed an average distance of 4.74 between any pairs of Facebook users and that 92% of all pairs of Facebook users were within five degrees of separation. The distance value of 4.74 corresponded to 3.74 intermediaries (they equated “degrees of separation” to “distance minus one”), implying four



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degrees of separation on average and thus a small-world social graph with short paths characterizing Facebook.

Although the underlying data base of the two studies cited above was generated in 2011 and the number of Facebook users has substantially increased since then, the findings strikingly underlined the tremendous potential reach of content published and diffused within the Facebook social graph.

Content sharing and self-disclosure/self-presentation are typical for SNS and Facebook (Belk, 2013; Nadkarni/Hofman, 2012; see also section 2.2.1.2). The reach and the audience of this content is not exactly predictable, apart from the fact that both are on a large scale as shown above. In this context, Bernstein and colleagues (2013) investigated how Facebook users perceived the audience size of their individual posts. Therefore, they logged audience sizes for all posts (status updates and link shares) of 220,000 Facebook users over one month. Additionally, they conducted two surveys, that is, a general audience survey ( $N = 542$ ) and a specific audience survey ( $N = 589$ ), asking for estimations of audience sizes (i.e., of the user's Facebook friends) of shared content in general and of a specific post, respectively. Participants in both the general and specific audience sample significantly underestimated the audience size of their shared content compared to the true size, while this effect was significantly stronger for the specific audience sample. The median estimate was only 27% of the real audience size. One possible explanation was the users' reliance on heuristics such as post likes or comments for specific posts when making their audience size estimations. That is, posts with few likes or comments were assumed to have not been seen by other users. However, Facebook has more viewers than contributors. In the same vein, subjects might base their judgments on the availability heuristic, that is, people they notice on Facebook (through posts, comments etc.), while ignoring those just reading posts but not responding to them. (Bernstein et al., 2013)

Considering these findings and the Facebook social graph findings pointed out above, a single post and sharing communication content in general might easily reach a large as well as a distant audience.

After reviewing the social network structure and aggregated audience side, the focus is on the information diffusion process in the next step. Bakshy, Rosenn, and colleagues (2012) conducted a large-scale experiment with approximately 230 million Facebook users to study the users' likelihood to share a link that was posted by their Facebook friends and appeared on

their news feed. Therefore, they experimentally manipulated whether posts of subjects' Facebook friends containing external links were displayed on subjects' news feeds (i.e., *news feed* condition) or not (i.e., *no news feed* condition). The results demonstrated that subjects in the *news feed* condition were 7.37 times more likely to share the link compared to the *no news feed* condition. Furthermore, participants in the *news feed* condition most likely shared the link immediately after exposure. Additionally, the individual's probability of sharing the link increased with the number of Facebook friends having already shared the link. (Bakshy, Rosenn, et al., 2012)

The authors also analyzed the influence of tie strength. The concept of tie strength originated from the work of Granovetter (1973) already cited above. In short, the strength of a tie is the "combination of the amount of time, the emotional intensity, the intimacy (mutual confiding), and the reciprocal services which characterize the tie" (Granovetter, 1973, p. 1361). Accordingly, researchers mainly differentiate between weak and strong ties. Granovetter (1973) argued that tie strength positively related to overlap of friendship circles, that is, the stronger the tie between two individuals, the more likely their social environment (i.e., persons with ties towards these individuals) would overlap. Besides, he reasoned that weak ties could disseminate information to a larger audience and over greater social distance (longer paths) than strong ties. (Granovetter, 1973)

Bakshy, Rosenn, and colleagues (2012) directly measured tie strength by four different indicators of interaction between individuals on Facebook (e.g., personal messages, mutual comments on posts). They found that subjects in both experimental conditions were more likely to share the link when the sharing friend was a strong tie (for simplification, only one friend previously sharing a link was considered). This effect was stronger in the *no news feed* condition. Besides, the authors validated the assumption of Granovetter (1973) that weak ties are more likely to diffuse novel information, since they have less mutual contacts (less overlap) and thus more individually distinctive and diverse information. In the experiment, weak ties were collectively more influential for information propagation (due to their abundance) exposing their friends to information they would not have been encountered to otherwise. Consequently, the authors concluded that strong ties were individually more influential, but that abundant weak ties and simple contagion (i.e., social/peer influence) drove information diffusion on Facebook. (Bakshy, Rosenn, et al., 2012)

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In the respect to information dissemination and spread of behavior, the question arises which users are susceptible to influences and which ones influence other users. Aral and Walker (2012) investigated this question by employing a randomized experiment with a sample of 7,730 users and their 1.3 million distinctive Facebook friends. Their focus was on product adoption decisions, more precisely, a commercial Facebook application to share information (ratings) about movie-related topics. If a user made use of the application, a randomly chosen amount of the user's Facebook friends were informed about the rating (i.e., influence-mediating message) and sent a link to the application. The users' influence and susceptibility were estimated by time to peer adoption (of the application) as a function whether the message was received and how many times. The analyses indicated that susceptibility decreased with age, that is, users older than 31 years were least susceptible. At the same time, this age cohort was most influential. Compared to users younger than 18, this group has a 51% higher likelihood of influencing their peers to adopt the application. Generally, the users mostly influences peers of the same age. Furthermore, women were 12% less susceptible than men were, but men were 49% more influential than women. The authors summarized that almost no user was both highly influential and susceptible, and that highly influential users were not susceptible and vice versa. Moreover, influential users clustered in the network, which was not the case for highly susceptible users. Hence, influential users and their influential peers might be significantly contributing to spread behavior on Facebook. (Aral/Walker, 2012)

The study of Aral and Walker (2012) provided evidence for social contagion processes. Broadly speaking, social contagion relates to social or peer influences, and this phenomenon has been studied in various disciplines and contexts (Aral/Walker, 2012). For instance new product/innovation diffusion can be fueled by social contagion, that is, that "actors' adoption behavior is a function of their exposure to other actors' knowledge, attitude, or behavior concerning the innovation" (Van den Bulte/Lilien, 2001, p. 1410).

Several studies aside from the one of Aral and Walker (2012) researched contagion effects on Facebook. Table 6 presents an exemplary overview of these studies.

The study findings confirmed the presence of social contagion effects on Facebook in different contexts. The majority of studies used massive-scale experiments of Facebook users, which facilitated the establishment of causal relationships. From an ethical point of view, such way of conducting (SNS) research have to be assessed critically (Agarwal/Dhar, 2014;

Fiske/Hauser, 2014), particularly the study of Kramer and colleagues (2014) manipulating users' posted content and their mood states.

Table 6. Overview of Extant Empirical Research on Social Contagion Effects on Facebook

Study	Key Findings	<i>N</i>
Aral/Walker (2011a, b)	Form of viral feature (active-personalized vs. passive-broadcast) design differently increased peer influence and social contagion	9,687 1.4 mill. peers
Aral/Walker (2014) <sup>a</sup>	(Strengthening) moderating effect of structural embeddedness (number of mutual friends of adopter and peer) and tie strength (e.g., same town or college) on peer influence	7,730 1.3 mill. peers
Bakshy, Eckles, et al. (2012)	<i>Study 1</i> Number of peers (likes) shown in sponsored ad increased response rates <i>Study 2</i> (Strengthening) moderating effect of tie strength (i.e., communication frequency) on relation between ad exposure (total number of likes shown vs. like of one peer) and response rate	23,350,087 5,735,040
Bond et al. (2012)	Social messages (if peers shown vs. no peers shown) increased responses	61,279,316
Kramer et al. (2014) <sup>b</sup>	Reduction of positive posts in users' news feed decreased (increased) fraction of positive (negative) words in users' status updates Opposite effects for reduction of negative posts	689,003
Kwon et al. (2014)	User adoption behavior (Facebook group joining) increased peer Facebook group joining	3,971
Taylor et al. (2013)	Active sharing of content increased adoption rates of peers	~ 1,200,000
Ugander et al. (2012)	Users' peer network neighborhood diversity increased Facebook use/engagement	~ 10,000,000
Vishwanath (2015a)	Number of peers and photo of a fake profile increased the likelihood to respond to friend request (of fake profile users)	144

*Note.* All studies had experimental designs, except Ugander et al. (2012).

Peers = Facebook friends. *N* = sample size.

<sup>a</sup>Same study design and sample as Aral/Walker (2012).

<sup>b</sup>Emotional contagion (i.e., user's expressed emotions influence Facebook friends' emotions) as research focus.

In respect to peer and social influence, it is also of interest which degree of consensus between peers on Facebook exist. Goel and colleagues (2010) analyzed the real and perceived agreement on political attitudes between (pairs of) Facebook friends. Although there was a general high level of attitude agreement, the authors reported a discrepancy between perceived and real agreement, that is, individuals overestimated the agreement between them and their peers. Besides, the difference between perceived and real agreement on political attitudes was nearly twice as large for weak ties (i.e., friends had not discussed politics and had no mutual friends) compared to strong ties (i.e., discussed politics and 20 mutual friends).

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Thus, Goel and colleagues (2010) stated that “much of the diversity of opinions that exists in social networks is not apparent to their members” (p. 6). The findings implied that social/peer influence on political attitudes might be not as strong as often asserted. That is, individuals on Facebook might project their own attitudes and opinions on those of their peers, as the high levels of perceived attitude agreement in the study signified. If opinions, attitudes, behavior, and others seem to match between the potential influencer and the one going to be influenced, social influence might be weaker than expected. (Goel et al., 2010)

These findings pointed out another facet of social influence besides the results illustrated in Table 6. Exposure to diverse content of Facebook was also discussed in the study of Bakshy and colleagues (2015). They utilized a large-scale sample of 10.1 million U.S. Facebook users who self-reported their ideological affiliations (categorized along a continuum from liberal to conservative) and analyzed 7 million links shared by U.S. Facebook users within six months. The content related to the shared links was classified as either “hard”, that is, news, politics, world affairs, and others, or “soft”, that is, sports, entertainment and others. Of all links, 13% were hard content (226,310 distinct links shared at least by 20 users), which served as basis for the analyses. The hard content links were matched to ideological orientations by averaging the ideological orientations of the users who shared the link. That led to a categorization along a continuum from primarily liberal to primarily conservative. Liberal users encountered more content of opposing ideological affiliations (also called cross-cutting content) from random other users than conservative users (45% vs. 40% cross-cutting content of all hard content). Besides exposure from random users, there were three stages determining individual user’s exposure to (ideologically diverse/cross-cutting) content. Figure 3 exhibits the ideological content exposure process on Facebook, which might be also generalizable to other content. First, it depended on users’ friends and their friends’ shared content. Conservative users were facing more cross-cutting content from their Facebook friends than liberal users (35% vs. 24%). Second, exposure to cross-cutting content was dependent on the news feed ranking algorithm already mentioned. The ranking algorithm only slightly reduced the exposure to cross-cutting content, that is, 5% reduction for conservatives and 8% for liberals compared to what their friends shared. The third process stage, that is, individual choice, more strongly limited exposure to ideologically diverse content than the algorithm (i.e., 17% reduction for conservatives and 6% for liberals compared to the proportions of ideologically diverse content shown in the news feed). In sum, the central factor limiting the exposure to ideologically diverse content was the individual users’ friendship network. Besides, individual

choice was more decisive for reduced exposure to ideologically content than the news feed ranking algorithm. Thus, the individual user can crucially determine the degree of exposure to divergent opinions and attitudes. (Bakshy et al., 2015)

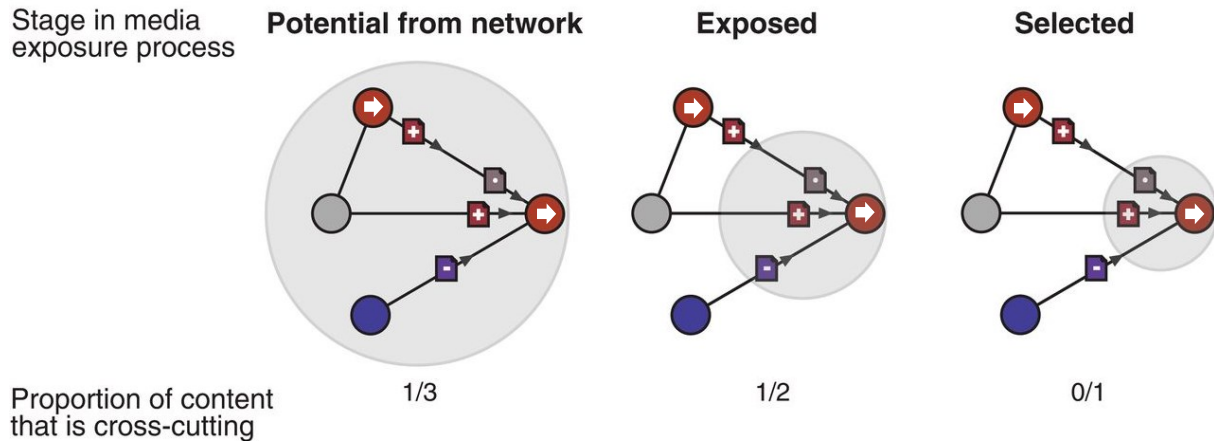


Figure 3. Content Exposure Process on Facebook (Bakshy et al., 2015, p. 1131)

*Note. Stages from left to right: content exposure through friendship network, through news feed and corresponding algorithmic ranking, and through individual choice. Gray circles represented the content present at each stage. Dark circles represented liberal users. Dark circles with an arrow represented conservative users.*

The preceding section gave an overview of the structural characteristics (i.e., size, reach, audience) of Facebook, content diffusion and exposure processes, and peer/social influence on Facebook. As outlined above, the enormously large scale of Facebook and its highly interconnected social networks facilitate rapid and far-reaching diffusion of multifaceted and diverse content. The following two sections delineate which content users encounter on Facebook.

### 2.2.1.2 Identities and Self-Presentation on Facebook

As already emphasized, the core elements of Facebook are the interconnected personal profile pages and the content and personal information shared by users. Wilson and colleagues (2012) argued that “Facebook is only as good as the content that users share” (p. 212). In their review of 42 empirical studies, Nadkarni and Hofman (2012) distilled the need to belong and the need for self-presentation as the main drivers and motivations for using Facebook. The latter is related to partly extensive self-disclosure (i.e., “verbal and non-verbal communication

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revealing information about an individual” (Trepte/Reinicke, 2013, p. 1102; for a general overview, see also Greene et al., 2006) and sharing of personal information on Facebook. Some users even engage in online personal branding, that is, users promote their individual strengths and uniqueness online to other users (Labrecque et al., 2011), or “me-marketing”, that is, users carefully present themselves in a way they want to be perceived by others (Caers et al., 2013, p. 988). In the update of his seminal article about the extended self (Belk, 1988), Belk (2013) further stressed that Facebook was a focal part of self-presentation.

Trepte and Reinecke (2013) detected a longitudinal reciprocal relationship between SNS use (Facebook and a German SNS) and self-disclosure. That is, the willingness for online self-disclosure was positively related to SNS use (i.e., selection effect), which in turn positively influenced the willingness for self-disclosure (i.e., socialization effect). That reciprocal effect was even stronger for users gaining social capital from SNS use. (Trepte/Reinecke, 2013)

Forest and Wood (2012) argued that Facebook might be an appealing and valuable venue for self-disclosure for users with low self-esteem. In a survey, Facebook users with low self-esteem confirmed that Facebook offered promising opportunities to connect with other people and to disclose feelings and thoughts (*Study 1*). However, content-analyses of users’ recent Facebook posts (i.e., status updates) revealed that users with low self-esteem made more posts expressing negative (e.g., sadness, anxiety) and less posts expressing positive emotions (e.g., happiness, gratitude) than users with high self-esteem (*Study 2*). Positively connoted posts of low self-esteem users received more likes and comments (i.e., as forms of social rewards) (*Study 3*). In sum, users with less self-esteem did not capitalize on the socially beneficial opportunities of Facebook due to their status updates that were higher in negativity and received less social rewards (likes, comments). (Forest/Wood, 2012)

Toma and Hancock (2013) showed that self-affirmation (defined as “an act that manifests one’s adequacy and thus affirms one’s sense of global self-integrity” (Cohen/Sherman, 2014, p. 337)) underlay Facebook use and users’ profile browsing. Thereby, users were able to reduce ego threats, satisfy ego needs such as being socially attractive and embedded in a network of (close) personal relationships, and preserve self-worth. Generally, the nature and content of Facebook profiles contributes to self-affirmation, as the personal profiles present defining aspects of the users’ selves. These comprise social connections with friends, attitudes and preferences (expressed by likes), social roles (e.g., family ties), and affiliations to certain networks (e.g., school, hometown). (Toma/Hancock, 2013)

Back and colleagues (2010) assessed the accuracy of users' self-portrayals on SNS, that is, whether users accurately displayed their real personality or whether they presented and communicated idealized selves. The comparison of external observer personality ratings of 236 users (Facebook and two German-based SNS) via their profiles and the self-ratings of personality by the profile owners themselves demonstrated that the users accurately portrayed themselves and did not use their profiles for self-idealization and for creating an idealized virtual identity (Back et al., 2010). In this context, Seidman (2014) studied the effect of true self (i.e., "that version of self that a person believes he or she actually is, but is unable to or prevented from...presenting to others in most situations" (McKenna et al., 2002, p. 12)) expression on Facebook activities. In two studies (survey and content analyses of Facebook profiles), Seidman (2014) provided evidence that individuals expressing their true selves online were more likely to use Facebook to communicate with others (e.g., posts on other users' walls), to disclose general and emotional content, and to seek attention and gain acceptance from others. Besides, Reinecke and Trepte (2014) ascertained a longitudinal reciprocal effect between authenticity (i.e., "the unobstructed operation of one's true, or core, self in one's daily enterprise" (Kernis, 2003, p. 1)) in a SNS context (i.e., authentic self-presentation on Facebook and another German SNS) and affect. That is, online authenticity increased (decreased) positive (negative) affect, which, in turn, had a positive (negative) effect on authenticity. Besides, Reinecke and Trepte (2014) showed that authenticity on SNS positively influenced life satisfaction. To conclude, the authors showed that authentic self-presentations on SNS lead to higher psychological well-being (Reinecke/Trepte, 2014).

Contrary to Back and colleagues (2010), Zhao and colleagues (2008) traced a discrepancy between users' identity and self-presentation on Facebook and identities established in face-to-face interactions and the real (offline) world. A fine-grained discussion of the constructs of self-concept and identity as a part of it is out of scope of this dissertation (for reviews, see Callero, 2003; Howard, 2000; but also Figure 2 in Reed II et al., 2012, p. 312). Hence, identity is concisely described as a fluid, multidimensional, and personal social construct(ion) based on social and personal identities. While social identities are characteristics, traits, and goals linked to social roles or groups (i.e., contextualized) and can include ethnicity, race, sexuality, gender, class, and age; personal identities constitute characteristics, traits, and goals not connected to membership in a social group/relationship (i.e., decontextualized) (Howard, 2000; Oyserman, 2009). The self-concept, in turn, characterizes "who one was, is, and may become articulated via an array of personal and social identities" (Oyserman, 2009, p. 251).



Zhao and colleagues (2008) content-analyzed 63 Facebook profiles and demonstrated that users rather presented their “hoped-for possible selves” (i.e., “socially desirable identities an individual would like to establish” (Zhao et al., 2008, p. 1819)). Therefore, the authors developed and employed a continuum of modes of self-presentation ranging from implicit to explicit identity claims, which is presented in Figure 4. The content-analytical results proved a “show” rather than “tell” tendency of Facebook users, that is, users preferred to utilize implicit identity claims (e.g., photographs) rather than provide explicit narrative self-descriptions disclosed in the “About me” section (as indicated by the percentage figures) (Zhao et al., 2008, p. 1824ff.).

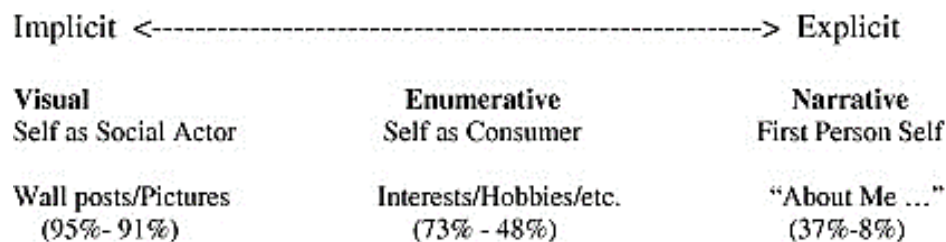


Figure 4. Identity Construction on Facebook (Zhao et al., 2008, p. 1824)

*Note.* Identity claims ranging from implicit to explicit. Visual, Enumerative, and Narrative referred to the kind of identity claims/self-presentation. Percentage figures indicated the percentage of users displaying the above mentioned content (identity claims) on their profile pages. Wall posts referred to wall posts of Facebook friends.

The same three authors extended their initial study on identity construction on Facebook and more specifically analysed Facebook users’ ethno-racial identity presentation (Grasmuck et al., 2009). While racial identity can be conceptualized as “collective identity of any group of people socialized to think of themselves as a racial group”, ethnic identity can be defined as “the subjective sense of ethnic group membership that involves self-labeling, sense of belonging, preference for the group, positive evaluation of the ethnic group, ethnic knowledge, and involvement in ethnic group activities” (Cokley, 2007, p. 225) (for reviews, see also Phinney, 1990; Sanders, 2002; and the special section of the *Journal of Counseling Psychology* (2007), 54(3)). However, both terms are often used inconsistently and interchangeably, which impedes the differentiation of both constructs (Cokley, 2007). Trimble (2007) even noted that “inconsistencies and incongruities [of constructs and measurement of ethnic and racial identity] suggest that the field of ethnic and racial identity is in a condition of disorder and confusion” (p. 256). A more detailed discussion of ethnicity and ethnic diversity is to be found in section 2.3.

To judge ethno-racial identity displays on Facebook, Grasmuck and colleagues (2009) content-analysed the profiles of 63 Facebook users of diverse ethnicities (i.e., White, African American, Latino, Indian, Vietnamese). For the content analysis, the authors used the same sample and identity construction continuum as Zhao and colleagues (2008) (see Figure 4), but presented a more nuanced picture in terms of ethno-racial differences. The enumerative self-description in the center of the continuum relates to cultural and consumption preferences and interests including activities, music, films, book, TV shows, and others. These identity claims reflect the cultural self (Zhao et al., 2008). Most of the Facebook users in the sample had highly elaborated lists of these preferences and interests, though these enumerations and displays of the cultural self differed across ethno-racial groups. While African Americans and Latinos disclosed the most information, White subjects were rather reluctant to display these information. As found by Zhao and colleagues (2008), the subjects invested least intensively in explicit self-descriptions (“About me” section), that is, 42 of 63 users (23 of them with just one or two short sentences). Nearly all African Americans (100%) and Latinos (85.7%) offered self-descriptions in the “About Me” section, while less than the half of White profile owners (46.7%) opted to display such information. A further qualitative analysis of quotes of the different ethno-racial groups revealed variations in the degree and kind of identity claims. African Americans and Latinos made most use of group-oriented and ethnically and racially conscious identity claims. (Grasmuck et al., 2009)

Although the data for the study of Grasmuck and colleagues (2009) were gathered on an ethnically diverse university campus in March 2007 (just three years after Facebook was created and one year after it was accessible to the public), the study showed that “ethno-racial identities are salient and highly elaborated” on Facebook, ethno-racial groups highly invested in identity presentation, and that “Facebook is one of those online venues that help many minority students express and project a positive ethno-racial identity that enhances their self-conception” (Grasmuck et al., 2009, 179f.).

Thus, Facebook users with large and ethnically/racially diverse friendship networks on Facebook might be frequently exposed to corresponding ethnically and racially diverse content and identity claims (Schwab/Greitemeyer, 2015). Already in 2003, before the most prominent SNS have largely expanded, Callero (2003) stated that “global media culture...expose actors to a wider set of meanings for the construction of identity” (p. 123).

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The continuum developed and applied by Zhao and colleagues (2008) categorized photographs as one of the most implicit (and frequently used) forms of identity (construction) claims on Facebook. Eftekhar and colleagues (2014) content-analyzed 115 Facebook profile pages in respect to the quantity of uploaded photos and photo albums, the number of videos, as well as the amount of cover of profile and cover photos. By additionally measuring personality characteristics of the profile owners, the authors proved that users' personality traits predicted photo-related activities on Facebook (at least in quantitative terms). Similarly, Wu and colleagues (2015) demonstrated that personality traits predicted the choice of Facebook users' profile pictures ( $N = 1744$ ), and that these pictures worked as means of identity construction. Furthermore, Tifferet and Vilnai-Yavetz (2014) figured out that Facebook profile pictures (of 198 female and 302 male users) differed in dependence of gender, that is, accentuation of status and risk-taking by men versus focus on familial relations and emotional expressions by female profile owners. Malik and colleagues (2016) further found that photo sharing motives on Facebook differed according to gender, that is, male users shared more photos habitually and disclosed more information than women. Generally, photo-related activities are prominent on Facebook and used for identity constructions, since personality and/or gender differences can be inferred from quantitative and qualitative characteristics of users' photographs.

As pointed out above, the enumerative sphere of the continuum is more explicit than photographs and symbolizes the cultural self of the user. That is predominantly expressed by Facebook "likes" (for a definition, see the first part of section of 2.2.1), for instance, the positive association (or like) with certain brands/products, persons, music, and others. A remarkable study by Kosinski and colleagues (2013) manifested that users' personal attributes and traits can be predicted by their Facebook likes (as a very generic form of digital record or footprint). The authors analyzed the Facebook profile information of 58,466 users, their likes (170 on average), and survey data. Prediction of users' gender and ethnic origin (i.e., African American vs. Caucasian) had the highest accuracy, that is, they were correctly predicted by users' likes in 93% and 95% of cases, respectively. Besides, sexual orientation (heterosexual vs. homosexual), political orientation (i.e., Democrat vs. Republican), and religion (i.e., Christians vs. Muslims) were accurately classified in 88%/75% (for males/females), 85%, and 82% of the cases, respectively. The correlation between users' actual and predicted (by regression analyses based on likes) age amounted to  $r = .75$ . For the personality trait openness, the prediction by likes was approximately as informative as a personality test

scores. (Kosinski et al. 2013, p. 5803f.; the authors also regressed several other traits on users' likes; for more details, see the study)

The findings of Kosinski and colleagues (2013) offered valuable opportunities and insides for marketers and corporations to customize products/services and target advertising according to user characteristics. For instance, Heimbach and colleagues (2015) experimentally proved the value and usefulness of Facebook profile data (particularly, likes) to make user-specific product recommendations. Van Dam and van de Velden (2015) further showed that Facebook users could be clustered by means of their Facebook profile data, which, in turn, can support customized marketing efforts.

Generally, availability of massive-scale data in combination with tremendous computing capacity facilitate computer-based judgments of user demographics and personality. Youyou and colleagues (2015) focused the latter by extending the study of Kosinski and colleagues (2013). Youyou and colleagues (2015) asked 70,520 Facebook users for personality self-ratings and obtained the likes from the Facebook profiles of these users. The sample was then randomly divided into ten subsamples. Nine of these subsamples (i.e., 90% users of the whole sample) were drawn to build regression models predicting personality traits/scores by users' likes (as predictors with regression coefficients for each like). The corresponding model was applied to the remaining subsample (10%) to predict personality scores. That procedure was repeated ten times to create computer-based personality judgments for all users. To compare, the personality traits of 17,622 of these users were judged by one of their Facebook friends and 14,410 users were judged by two Facebook friends (to check for interjudge agreement). The analytical results showed that the accuracy of computer-based judgments (i.e., agreement between computer-based judgments and self-reports of personality) increased with likes (available on the users' profile pages). For the average number of likes per individual user of 227, the correlation between the computer-based judgment and the users' self-ratings amounted to  $r = .56$ . That was significantly higher than the average human judgment ( $r = .49$ ,  $p < .001$ ) and only marginally lower than the judgment of the spouse ( $r = .58$ ,  $p = .09$ ), the most accurate human judgment. For users with more than 500 likes, the correlation between computer-based judgments and users' self-ratings even was  $r = .66$ . Computer-based judgments were particularly accurate for the users' personality trait openness, as many preferences and interests frequently presented online reflect this personality trait. Besides, interjudge agreement of the computer-based judgments (i.e., correlation between two separate regression models by randomly splitting the likes into two halves) concerning personality

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traits was also significantly higher than human interjudge agreement ( $r = .62$  vs.  $r = .38$ ,  $p < .001$ ). (Youyou et al., 2015, p. 1037f.)

The studies of Kosinski and colleagues (2013) and Youyou and colleagues (2015) underscored the identity and personality characteristics mirrored by Facebook profile pages and self-disclosed content. In this context, Schwartz and colleagues (2013) detected high informative value of (the language) Facebook status updates (74,941 Facebook users, 15.4 million status updates, 309 million words) in respect to the gender, age, and personality of the users. Status updates have not been explicitly integrated in the identity construction continuum by Zhao and colleagues (2008), but they would correspond to more explicit forms of identity claims.

Comparable to Schwartz and colleagues (2013), DeAndrea and colleagues (2010) also analyzed linguistic characteristics of self-expressions on Facebook. They concentrated on the most explicit identity claims, the “About me” section of users’ profile pages (according to the continuum of Zhao et al., 2008). The content analysis of the “About me” sections of 120 Facebook profiles (equal gender and ethnic background distributions) revealed that African Americans generally used more self-descriptions and reported significantly more psychological attributes, ego-centered expressions (i.e., first person singular pronouns), as well as group and relational affiliations relative to Caucasians and Asian Americans. The latter two groups did not significantly differ from each other. Thus, the authors verified ethnic-identity specific differences of the most explicit form of self-expressions. (DeAndrea et al., 2010)

Another aspect supplementing the idea of identity construction on Facebook is claiming one’s physical locations. Schwartz and Halegoua (2015) conceptualized the spatial self expressed on SNS, that is, “individuals document, archive and display their experience and/or mobility within space and place in order to represent or perform aspects of their identity to others” (p. 1644). On Facebook, users have the opportunity to “check-in” to cities, places, and other physical venues. This function is comparable to status updates and allows users to share and present certain locations with certain connotations and experiences in order to convey aspects of their identity (Schwartz/Halegoua, 2015).

Since ethnic and racial identities are narrowly associated with culture (Trimble, 2007), there might be also differences concerning identity construction and self-disclosure of information related to the users’ cultural background. In their review, Nadkarni and Hofman (2012)

reasoned that users from individualistic and collectivistic cultures differed in respect to Facebook use and information disclosure. That is, users from individualistic cultures might be characterized by a higher need for self-presentation and thus share more personal information. Contrarily, users from collectivistic cultures might display a higher need to belong and hence interact more frequently with other users on Facebook (Nadkarni/Hofman, 2012). Zhang and Leung (2015) also advocated to research cross-cultural differences of SNS use and its outcomes. In this respect, Jackson and Wang (2013) generally showed that SNS users from a collectivistic culture (i.e., China) differed from those from an individualistic culture (i.e., U.S.) in terms of SNS use intensity as well as personal importance and motives of SNS use. Peters and colleagues (2015) studied differences between Facebook users from Namibia and the U.S. and found that offline cultural practices were both transferred and partly adapted to the Facebook online environment.

The preceding paragraph emphasized the focal role of Facebook as medium for self-presentation and identity construction (for a broader overview, also of other SNS, concerning identity construction, see also “A Networked Self” by Papacharissi, 2011). The information and content disclosed is usually highly personal and directly related to users’ lives (e.g., demographics, background, traits etc.) and to that of their Facebook friends. Compared to TV, the traditional mass medium, Facebook is a more individual medium (though on a massive scale) based on individual and personal user-generated content (although brand profile pages supplement the network, see 2.2.1.3). Thus, a substantial part of the content on Facebook is characterized by low perceived social distance to individuals’ personal lives (for a definition, see 1.1). Communication content on Facebook (received via messages or the news feed) is personally relevant due to the network of Facebook friends (usually offline friends) users are connected and interacting with (Krasnova et al., 2010), but also due to the personal profile information every user discloses (Ellison, Vitak, et al., 2014; Trepte/Reinecke, 2013). The next section focuses other constituents/actors and corresponding content on Facebook which might be more socially distant towards the individual users, that is, brands. (In this section, the terms consumer and customer are used interchangeably, although they are conceptually different. If differentiation is necessary, it will be indicated.)

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### 2.2.1.3 *Brands on Facebook*

In their seminal article, Hennig-Thurau and colleagues (2010) allegorized customer relationship management in the era of new media (e.g., SNS) as playing pinball, with brands and brand-related messages being the marketing ball. The authors characterized new media as digital, visible, ubiquitous, available in real-time, and dynamic, which is comparable to the characteristics McFarland and Ployhart (2015) attributed to social media. New media can alter the initially intended direction of messages/offerings in a chaotic and interactive way. On the one hand, extensive information on brands and products is available on new media, which can amplify or hinder marketing messages and shape brand images. On the other hand, the traditional customer became customer, producer, and retailer (particularly, of brand-related information and content) at the same time in the new media environment. (Hennig-Thurau et al., 2010)

In the same vein, Hennig-Thurau and colleagues (2013) used the metaphorical juxtaposition of bowling and a pinball game to compare traditional marketing and marketing on social media like Facebook. While the former is a rather straight-line diffusion process of marketing messages to the customer through mass media, the latter is an interactive process with highly interconnected customers actively participating in the diffusion of brand-related content. Considering the substantial changes social media had for information diffusion processes and customer relationship management, the authors concluded that “the marketing world needs to move from bowling to pinball” (Hennig-Thurau et al., 2013, p. 240).

Similarly, Kohli and colleagues (2015) affirmed that social media (and particularly SNS) challenged the traditional understanding of marketing communication and branding. The authors declared a paradigm shift from the traditional one-way communication process from marketer to consumer towards a two-way process with additional interactivity between consumers. Figure 5 contrasts both models. Taking into account the strengthened role of users in sharing, shaping, and disseminating brand-related content, the authors argued that social media could be boon and bane for brands and that the future success of branding depended on the adaptation to the challenges of the new social media environment. (Kohli et al., 2015)

Labrecque and colleagues (2013) also elaborated on the increasing power consumers have on the Internet and in SNS environments. They defined power as “the asymmetric ability to control people or valued resources in online social relations” (Labrecque et al., 2013, p. 258). An essential part of this definition was control over people, which related to influence on

others. In this respect, the extant empirical evidence on the reach within the social networks of Facebook and of social contagion effects and peer influence (see section 2.2.1.1, particularly, Table 6) alluded to the power certain users or groups of users might have on Facebook. Content shared by users can have tremendous reach and influence, which also pertains to brand-related content. For instance, the study of Bakshy, Eckles, and colleagues (2012) showed that users' peers (i.e., whether they endorsed (liked) an advertisement on Facebook) influenced users' responses to advertisements on Facebook.



Figure 5. Traditional and Social Media Communication (Kohli et al., 2015, p. 37)

*Note. Arrows signify the flow of (marketing) communication content.*

In a similar, but more refined context, Naylor and colleagues (2012, *Study 1a*) studied the influence of users (not peers) supporting (i.e., liking) brands on Facebook in general on other users' brand liking and experimentally manipulated whether target users saw online supporters of a brand with comparable or different demographics to themselves or without any indication of demographic characteristics. They found that users significantly more disliked brands supported by a homogenous, dissimilar group (i.e., users of same gender but different age) compared to when brand supporters' demographics were obscured and ambiguous. Contrarily, Naylor and colleagues (2012) did not find significant differences concerning brand liking between brands supported by demographically similar users (i.e., same age and gender), heterogeneous, dissimilar users (i.e., different age and gender), and demographically ambiguous users. Hence, transparent identification of online supporters might be disadvantageous if they are a homogeneous group being dissimilar to the target consumer. (Naylor et al., 2012)

Labrecque and colleagues (2013) distinguished four forms of consumer power. These comprised demand- (i.e., aggregated consumption and purchase power), information- (i.e., production and consumption of information/content), networks- (i.e., dissemination, modification, and multiplication of (communication) content), and crowd-based (i.e., pooling



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and mobilization of resources to benefit individuals and groups) power (Labrecque et al., 2013). The specific structure and characteristics of the social networks within Facebook (see 2.2.1.1) can particularly enhance information- and networks-based consumer power. Concerning information-based power and the production of information, Gensler and colleagues (2013) stressed that consumers considerably contributed to the production of brand-related content by hinting at the “shift from the firm to consumers as pivotal authors of brand stories in the branding process” (p. 253). Brand stories (i.e., narratives) can create a link between the brand and consumers’ self-concept as well as foster awareness, comprehension, empathy, recognition, and recall of a brand (Escalas, 2004; Singh/Sonnenburg, 2012). Brand-related content generated by users imposes new challenges on companies, that is, adaptation to and leveraging the new process of creation and dissemination of brand-related content (Gensler et al., 2013).

Content generated by users on SNS and other social media is also called user-generated content, which refers to online word-of-mouth (Goh et al., 2013; Tirunillai/Tellis, 2012). Word-of-mouth (WOM) can be broadly defined as “information about a target object (e.g., company, brand) transferred from one individual to another either in person or via some communication medium” (Brown et al., 2005, p. 125). Lovett and colleagues (2013) generally compared offline and online WOM. The authors found that social (i.e., social signaling such as expressing uniqueness, self-enhancement, or desire to converse) emotional (i.e., emotion sharing), and functional (i.e., information supply and demand) drivers were differently important for offline and online WOM, respectively. While the order of importance of these three drivers was emotional, functional, and social for offline WOM, it was social, functional, and emotional for online WOM (Lovett et al., 2013). Hence, the social driver was the main force for online WOM, which might be particularly reasonable in the SNS context (see 2.2.1.2). Eisingerich and colleagues (2015) further set apart offline from online WOM. They specified the latter by referring to word-of-mouth on social sites (e.g., Facebook) (sWOM). Table 7 lists the main differences between both communication modes. Furthermore, the authors empirically showed that individuals were less willing to spread positive WOM on SNS than offline, which was explained by the higher perceived risk of disseminating content in SNS settings.

Table 7. Comparison of WOM and sWOM (Eisingerich et al., 2015, p. 121)

	WOM	sWOM
Receiver	Individuals	Social network
Communicator	Identifiable, accountable	Identifiable, accountable
Interaction	One-to-one, high level of interaction	One-to-many, moderate level of interaction
Communication	Simultaneous, through spoken word in a face-to-face situation	Non-simultaneous, through written word in a non-face-to- face situation
Social connection between communicators and receivers	Weak or strong ties	Combination of weak/strong ties

*Note.* WOM = (traditional, offline) word-of-mouth, sWOM = word-of-mouth on SNS.

Muntinga and colleagues (2011) developed a framework categorizing consumers' motivations for engaging in consumers' online brand-related activities along a continuum with gradually increasing consumer involvement and brand-related activeness. The three dimensions were consuming (e.g., reading comments on brand pages), contributing (e.g., joining brand pages), and creating brand-related content (e.g., uploading brand-related content). To clarify, brand pages or brand fan pages are Facebook profile pages created by companies where customers can interact with companies and brands by liking, commenting on, and sharing brand(-related) posts (deVries et al., 2012). Muntinga and colleagues (2011) then conducted 20 interviews to detect motivations underlying the different dimensions. The corresponding results showed that self-presentation and self-expression were, among others, motivations for contributing and creating brand-related content. Accordingly, the authors noted that users could utilize brands to express and shape their identity and personality. (Muntinga et al., 2011)

Related to these findings, Hollenbeck and Kaikati (2012) extended the study of Back and colleagues (2010) (see 2.2.1.2), but with focus on brands as identity claims. That is, they examined whether Facebook users make use of brands as subtle cues to depict their real personalities (i.e., actual selves) or idealized information not reflecting their real personality (i.e., idealized selves). The authors observed the activities on the Facebook profile pages of 86 users, additionally asked these users to keep diary identifying brands on their profile pages and comparing these brands' images with their own personality, and conducted in-depth interviews with 23 individuals. The observational data stressed that brands could be presented on Facebook profiles by various forms. These included likes, profile activities, profile interests, ordinary routines displayed in narrative forms (comparable to brand stories described by Gensler et al., 2013), photos of consumption, and attitudes displayed in narrative form. That covered all identity claims of the continuum of Zhao and colleagues (2008).

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Refining the results of Back and colleagues (2010), the study findings underlined that users expressed both their actual and ideal selves (ideal self-representation and ideal self-presentation) by brand cues. While the actual self (i.e., who the user is) was expressed by brands to maintain the self-concept, ideal self-representation (i.e., expansion of the actual self) and ideal self-presentation (i.e., restrictive version/limitation of the actual self to influence others' perceptions) were motivated by self-enhancement (i.e., exaggerate virtues) and self-protection (i.e., minimize shortcomings), respectively. The users' actual and ideal selves were either congruent or incongruent. The degree or lack of congruity determined the use of brand cues. In the case of congruity, users expressed their selves by a mix of brands, whereas in the case of noncongruity, subjects used brands for self-enhancement and self-protection or simply avoided brand linkages and self-expression. (Hollenbeck/Kaikati, 2012)

The findings of Hollenbeck and Kaikati (2012) drew an insightful connection to the empirical evidence presented in section 2.2.1.2. Facebook users utilize brands to express their selves. Since users also tend to portray their ethnic/racial identities (Grasmuck et al., 2009), brand use might also differ depending on the users' ethnic/racial background. Reed II and colleagues (2012) raised another crucial, complementary point concerning identity expression on Facebook. They proposed that Facebook allowed users to present oppositional or "not me" identities to express dislike or hate, which could harm brands (Reed II et al., 2012, p. 315).

Generally, the research on brand-related topics in the context of Facebook and SNS has steadily grown. Table 8 presents a brief overview of selected brand-related studies and topics.

On the one hand, the scholarly work has focused on the content generated by companies, particularly, in respect to brand pages, corresponding content (i.e., brand posts) evaluations of this content by users (e.g., brand post popularity) and user-generated content (see left column of Table 8). On the other hand, the researchers studied consumer behavior and customer engagement (for a definition, see the Table notes) related to branded content (see right column of Table 8). It should be pointed out that the overview is not exhaustive, includes both conceptual and empirical research, and that the two superordinate categories 'Branded Content' and 'Consumer Behavior' are not mutually exclusive. For instance, some studies analyzed the relation between content and content evaluation (by users) (e.g., de Vries et al., 2012; Sabate et al., 2014).

Table 8. Overview of Extant Research on Brands on Facebook

Branded Content		Consumer Behavior
Firm-Generated	User-Generated	
<b>Attitude towards posts/brand:</b> Chen et al. (2015)		<b>Customer Engagement<sup>g</sup>:</b> Ashley/Tuten (2015) Alhabash, McAlister, Lou, et al. (2015) Alhabash, McAlister, Quilliam, et al. (2015) Chang et al. (2015) Jahn/Kunz (2012) de Vries et al. (2012) Langaro et al. (2015) Pletikosa Cvijikj/Michahelles (2013) Relling et al. (2016) Sabate et al. (2014) Tucker (2014) <sup>h</sup>
<b>Purchase behavior:</b> Goh et al. (2013)		<b>Customer/Brand Loyalty:</b> Gamboa/Gonçalves (2014) Jahn/Kunz (2012) Labrecque (2014) Munnukka et al. (2015) Ruiz-Mafe et al. (2014)
<b>Attitude towards:</b> <b>Posts:</b> Celebi et al. (2015) <sup>a</sup> Hsu et al. (2015) <b>Brand:</b> Beukeboom et al. (2015) <b>Brand page:</b> Manthiou et al. (2014) Ruiz-Mafe et al. (2014)	<b>Antecedents<sup>c</sup>:</b> <b>Self-Presentation:</b> Choi/Kim (2014) <b>Motivations:</b> Halliday (2016) <sup>d</sup> <b>Brand Communities<sup>e</sup>:</b> Munnukka et al. (2015) Goh et al. (2013) Relling et al. (2016) Zaglia (2013)	<b>Outcomes of Customer Engagement:</b> <b>Customer Visit Frequency/ Profitability:</b> Rishika et al. (2013) <b>Sales:</b> Brettel et al. (2015) <b>Stock Price:</b> Connor (2012)
<b>Brand Page Use/Engagement:</b> Ashley/Tuten (2015) Jahn/Kunz (2012)	<b>Content Differences<sup>f</sup>:</b> Smith et al. (2012)	<b>Product Adoption:</b> Hinz et al. (2014)
<b>Brand Post Reach:</b> Lipsman et al. (2012)	<b>Product Sales:</b> Tang et al. (2014)	
<b>Brand Post Popularity<sup>b</sup>:</b> Chang et al. (2015) de Vries et al. (2012) Pletikosa Cvijikj/Michahelles (2013) Sabate et al. (2014)		
<b>Brand Recall:</b> Nelson-Field et al. (2013)		

<sup>a</sup>Attitude towards Facebook advertising.

<sup>b</sup>Brand post popularity measured by likes of, comments on, shares of branded content on Facebook.

<sup>c</sup>User-specific antecedents of posting brand-related content.

<sup>d</sup>Motivations to contribute content to SNS in general (including Facebook).

<sup>e</sup>Defined as "a specialized, non-geographically bound community, based on a structured set of social relationships among admirers of a brand" (Muniz/O'Guinn, 2001, p. 412).

<sup>f</sup>Content differences between different SNS (e.g., Facebook, Twitter).

<sup>g</sup>Defined as "customer's behavioral manifestations [beyond transactions] that have a brand or firm focus, beyond purchase, resulting from motivational drivers" (van Doorn et al., 2010, p. 254); for instance, operationalized by likes of, comments on, and shares of branded content on Facebook.

<sup>h</sup>Engagement measured by clicks on Facebook advertisements.

Apart from structural, individual- (identity-), and brand-related research foci, the extant literature further examined the outcomes of Facebook use. The following section (2.2.2) elaborates on the different consequences of varying levels of Facebook use intensity.

## 2.2.2 Outcomes of Facebook Use

One of the first studies analyzing the consequences of Facebook use was the seminal article by Ellison and colleagues (2007). They studied the effect of Facebook use on social capital (for a definition, see 2.2.1.1) and detected a positive relationship between both. The Facebook

intensity scale (for details, see 4.2.3.1) they had developed (Ellison et al., 2007, p. 1150) has been employed by numerous subsequent studies. Table 9 summarizes the empirical work on the effect of Facebook use on different dependent variables. The literature search was comparable to that described in section 2.1.1.5, that is, a two-step approach. Database and journal searches (e.g., *Journal of Computer-Mediated Communication*, *Computers in Human Behavior*) with Facebook-related search terms, for instance, “Facebook use”, “Facebook use intensity”, or “Facebook” in general, was supplemented by reviewing seminal articles and reviews for references and citations. Similar to the literature overview in section 2.1.1.5, the focus of this anthology was on direct effects of Facebook use on different dependent variables. The independent variable was either a numerical or categorical Facebook use estimation (e.g., in minutes or different categorical ranges of use intensities) or the Facebook intensity scale (or parts of it). Considering the dependent variables, the variety of topics and concepts stick out. Besides social capital and self-esteem as the most prominent and frequently studied dependent variables, there is a broad range and diversity of dependent variables. Cross-sectional designs dominate, followed by experimental and longitudinal studies.

Table 9. Overview of Extant Empirical Research on Outcomes of Facebook Use

Outcome	Selected Studies		Key Findings	Design	N
Advertising Awareness <sup>a</sup>	Duffett (2015)		(+)	CS	3,634
Advertising Knowledge <sup>a</sup>			(+)	CS	3,634
Anxiety	Labrague (2014)		(+)	CS	76
Civic Participation	Valenzuela et al. (2009)		(+)	CS	2,603
Cultural Orientation	Li (2014)		(+)	CS/E	251
(Acculturation <sup>b</sup> )	Li/Tsai (2015)		(+)	CS	996
Deception <sup>c</sup>	Vishwanath (2015b)		(+)	CS	150
Depression	Labrague (2014)		(+)	CS	76
Disorders (Mood/Personality) <sup>d</sup>	Rosen et al. (2013)		(+)	CS	1143
Envy	Tandoc et al. (2015)		(+)	CS	736
Life Satisfaction	Kross et al. (2013)		(-)	L	82
	Valenzuela et al. (2009)		(+)	CS	2,603
Mood	Fardouly et al. (2015)		(-)	E	112
	Sagioglou/Greitemeyer (2014)	<i>Study 1</i>	(-)	CS	123
		<i>Study 2</i>	(-)	E	263
	Vogel et al. (2015) <sup>e</sup>	<i>Study 2</i>	(+)	E	120
Narcissism	Horton et al. (2014)	<i>Study 1</i>	(+)	CS/E	88
		<i>Study 2</i>	(+)	CS	218
	Rosen et al. (2013)		(+)	CS	1143
Perceived Others' Better Lives <sup>f</sup>	Chou/Edge (2012)		(+)	CS	425
Perceived Others' Happiness <sup>f</sup>			(+)	CS	425
Procrastination	Hinsch/Sheldon (2013)	<i>Study 1</i>	(+)	E/L	136
		<i>Study 2</i>	(+)	E/L	104
Psychological Well-Being	Rae/Lonborg (2015)		(+/-)	CS	119

Outcome	Selected Studies		Key Findings	Design	N
Racist Message Agreement	Rauch/Schanz (2013)		(+)	CS/E	590
Relatedness Need-Satisfaction <sup>g</sup>	Sheldon et al. (2011)	<i>Study 1</i>	(+/-)	CS	1,002
		<i>Study 2</i>	(+/-)	CS	96
		<i>Study 3</i>	(+)	E	87
Self-Control	Wilcox/Stephen (2013) <sup>h</sup>	<i>Study 3</i>	(-)	E	84
		<i>Study 5</i>	(-)	CS	541
Self-Disclosure	Trepte/Reinicke (2013)		(+)	L	488
Self-Esteem	Gentile et al. (2012) <sup>e</sup> Gonzalez/Hancock (2011) <sup>e</sup> Kalpidou et al. (2011) Toma (2013) <sup>e</sup> Wilcox/Stephen (2013) <sup>h</sup>	<i>Study 2</i>	(+)	E	72
			(+)	E	63
			(-)	CS	70
			(+)	E	159
		<i>Study 1</i>	(+)	E	100
		<i>Study 3</i>	(+)	E	84
	<i>Study 4</i>	(+)	E	88	
Social Activities <sup>i</sup>	Hargittai/Hsieh (2010)		(+)	CS	1060
Social Capital	Aubrey/Rill (2013) Ellison et al. (2007) Ellison et al. (2011) Ellison, Vitak, et al. (2014) Jin (2015) Johnston et al. (2013) Li/Chen (2014) Steinfeld et al. (2008)		(0)	CS	473
			(+)	CS	286
			(0)	CS	450
			(+)	CS	614
			(+)	CS	306
			(+)	CS	383
			(+)	CS	210
			(+)	L	85
(Negative) Social Comparison	de Vries/Kühne (2015)		(+)	CS	231
Social Comparison (Frequency)	Lee (2014)		(+)	CS	191
Social Trust	Valenzuela et al. (2009)		(+)	CS	2,603
(Cognitive) Task Performance	Toma (2013)		(-)	E	159
Viral Behavioral Intentions <sup>j</sup>	Alhabash/McAlister (2015)	<i>Study 1</i>	(-)	CS/E	365

Note. (+) = positive relationship, (-) = negative relationship, (+/-) = both positive and negative relationship. (0) = no sign. relationship. All relationships at significance level  $p < .05$ , except, where (\*)/(c) (superscripted signs) indicates  $p < .10$ . CS = cross-sectional, E = experimental, L = longitudinal, N = sample size.

<sup>a</sup>Advertising on Facebook.

<sup>b</sup>Defined as acquisition of social norms and values of majority group of a society by (ethnic) minorities.

<sup>c</sup>Likelihood to respond to friend request of fake profile users and information request attack.

<sup>d</sup>Personality disorders included antisocial, compulsive, paranoid, and histrionic disorders.

<sup>e</sup>Exposure to users' own Facebook profile page vs. other pages as experimental conditions.

<sup>f</sup>Perception that friends have a better life and are happier than oneself, respectively.

<sup>g</sup>Relatedness need defined as need of interpersonal closeness.

<sup>h</sup>Respective effects of Facebook use occurred for users with strong ties, not for users with weak ties.

<sup>i</sup>Communication with other users, look at other users' photo albums, get to know new people

<sup>j</sup>Willingness of liking, commenting on, and sharing of Facebook status updates.

The key findings highlight that the impact of Facebook use was partly ambiguous and inconsistent, that is, Facebook use had both positive and negative consequences. On the one hand, more intense Facebook use was related to higher anxiety (e.g., Labrague, 2014), higher depression (e.g., Labrague, 2014), and lower self-esteem (e.g., Kalpidou et al., 2011). On the other hand, higher Facebook use intensity was associated with higher life satisfaction (e.g., Valenzuela et al., 2009), higher self-esteem (e.g., Wilcox/Stephen, 2013), more social capital (e.g., Ellison, Vitak, et al., 2014), and more social trust (e.g., Valenzuela et al., 2009). The

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influence of Facebook use on self-esteem is particularly interesting. A recent study of von Soest and colleagues (2016) corroborated findings of extant research by showing that self-esteem increased with age. The authors used longitudinal data of individuals aged between 13 and 31. Especially in this age cohort (adolescence and young adulthood), individuals frequently use Facebook (McAndrew/Jeong, 2012). Hence, Facebook might also contribute to the development of self-esteem in this defining phase of life. In general, the overview presented in Table 9 emphasizes a striking effect of Facebook use on various facets of users' (social) lives and their well-being.

The studies of Li (2014) and Li and Tsai (2015) revealed that Facebook use impacted the orientation towards other cultures. Taking further into account the ethnic/racial identity claims and its corresponding prevalence on Facebook (see section 2.2.1.2), Facebook might generally shape perceptions of other ethnic/racial groups. The following paragraph sheds light on the concepts of ethnicity and ethnic diversity as well as on ethnic minorities and outgroups.

### **2.3 Ethnic Diversity, Ethnic Minorities, and Outgroups**

As indicated in section 2.2.1.2, conceptualizations of and generally research on racial and ethnic identities are fragmentary and inconclusive (Phinney, 1990; Ponterotto/Park-Taylor, 2007; see the latter for an overview of different theories/models and operationalizations). Brubaker (2009) also attested fragmentation and compartmentalization of the scholarly work on ethnicity, race, nations, and nationalism and underlined the difficulty to sharply distinguish between ethnicity and race, an issue Yinger (1985) previously referred to by "overlapping concepts" (p. 158). For the sake of simplification and comprehensibility, this dissertation concentrates on ethnicity and refrains from a comprehensive distinction of ethnicity and race (both concepts are used coherently).

As long as ago in 1978, Cohen (1978) stated that "ethnicity, as presently used in anthropology, expresses a shift to multicultural, multiethnic interactive contexts in which attention is focused on an entity-the ethnic group-which is marked by some degree of cultural and social commonality" (p. 386). Yinger (1976) defined an ethnic group as "a segment of a larger society whose members are thought, by themselves and/or others, to have a common origin and to share important segments of a common culture and who, in addition, participate

in shared activities in which the common origin and culture are significant ingredients” (p. 200). A population can be composed of different ethnic groups. If various ethnic groups form a population, this population is more ethnically heterogeneous (i.e., ethnically diverse) than a population formed by just one ethnic group. Hence, ethnic diversity (or heterogeneity) generally relates to the ethnic composition of a certain population (van der Meer/Tolsma, 2014). Ethnic diversity has been researched at the macro level, that is, within geographical areas of different size and boundaries (i.e., neighbourhood, regional, or country level, e.g., the seminal study of Putnam, 2007; for a broader review, see also Dinesen/Sønderskov, 2015; van der Meer/Tolsma, 2014) and at the micro-level, that is, within groups and work teams, particularly, in organizational contexts (e.g., Joshi/Roh, 2009; Stahl et al., 2010; van Dijk et al., 2012). Various conceptualizations and operationalizations of diversity exist, which additionally differ depending on the level of analysis. Van der Meer and Tolsma (2014) underscored that the categorization of ethnicity/ethnic groups determined the conceptualization of ethnic diversity. That is, dichotomous (e.g., native versus foreign), more detailed distinctions (e.g., different ethnic groups by generational status), or combinations of various criteria (e.g., citizenship, migration status, ethnicity, race etc.) were used.

In this dissertation, ethnic diversity is defined as the ethnic composition of a population or (geographical) area (e.g., countries) and operationalized by the percentage of ethnic minorities within the larger population/society (van der Meer/Tolsma, 2014). Ethnic diversity pertains to both the social close and distant environment (for a definition of social distance, see 1.1). That is, both an individual’s circle of friends and colleagues and family (i.e., social close environment) and a society as the more distant social environment can be ethnically diverse. High ethnic diversity implies a high percentage of different ethnic minorities in a certain population or area. This dissertation bases the definition of ethnic minorities on immigration status and citizenship of individuals in a country, meaning nonnative individuals (without citizenship) who live in a country but were not born there (Akay et al., 2014). To study ethnic diversity and minorities, scholars frequently made use of the distinction of in- and outgroups, which is based on self-categorization (Turner et., 1987) and social identity theory (Tajfel, 1974; Tajfel/Turner, 1986) In short, these theories argue that individuals tend to categorize themselves into different identity groups. Based on shared identities (e.g., ethnic/racial identities) with other individuals, in-groups (same identity) and out-groups (different identity) are built, and in-group-out-group dynamics develop. That is, individuals favor their own social identities and self-segregate from other social identities. In their review, Richeson and



Sommers (2016) condensed the rationale of social identity theory as follows: “intergroup relations are shaped by cognitive and motivational processes whereby others are viewed through the lens of either ingroup or outgroup membership” (p. 445). In this context, ethnic minorities belong to the outgroup, while the ethnic majority (usually Caucasians) forms the ingroup.

In relation to ethnic diversity and minorities, Dinesen and Sønderskov (2015) drew the important distinction between the exposure to ethnic minorities (or people with different ethnic background) (i.e., interethnic exposure) and the contact with ethnic minorities (i.e., interethnic contact). In the authors’ view, exposure related to observation of and being around with individuals of other ethnic background, whereas contact entailed more intimate forms of social interaction (e.g., conversations). Another central differentiation criterion for exposure and contact referred to self-selection. While individuals might deliberately seek or self-select into interethnic contact, interethnic exposure might be unavoidable, particularly, in geographical areas of smaller size (e.g., neighborhoods). (Dinesen/Sønderskov, 2015)

On Facebook, interethnic exposure and contact might operate in conjunction, although contact is of virtual nature (Schwab/Greitemeyer, 2015). On the one hand, Facebook users consciously communicate with other users of different ethnic backgrounds and that at a global scale (see also 2.2.1.1). On the other hand, users are exposed to ethnic identities and corresponding communication content on Facebook (see 2.2.1.2).

Previous research on ethnic minorities and ethnic diversity (e.g., intergroup contact hypothesis/theory (Allport, 1954; for an overview see also Pettigrew, 2016), extended contact hypothesis (Wright et al., 1997), imagined contact hypothesis (Crisp/Turner, 2009)) indicated that contact (also imagined contact) between ethnic majority and minority groups influenced perceptions and attitudes of the majority group towards ethnic minorities. For instance, intergroup and cross-group friendships (e.g., Wright et al., 1997) or mass-media portrayals of intergroup relationships (between ethnic majority and minority members) (e.g., Lienemann/Stopp, 2013) increased attitudes towards ethnic minorities. Similarly, Joyce and Harwood (2014) experimentally proved that exposure towards a positive, mediated intergroup interaction (termed “vicarious” contact) resulted in more positive attitudes towards the outgroup. Pettigrew and Tropp (2006, 2008) meta-analytically studied the intergroup contact theory (Allport, 1954) and found that intergroup contact (with different ethnic and racial groups) reduced intergroup prejudices and thus lead to more favorable attitudes towards other

ethnic and racial groups. A study by Walther and colleagues (2015) showed that also virtual contact via computer-mediated communication, that is, chatting, could reduce prejudices towards outgroups. In the same vein, Amichai-Hamburger and McKenna (2006) theoretically underlined the Internet's unique qualities to help to facilitate positive intergroup contact and to reduce prejudices. Recently, Schwab and Greitemeyer (2015) revealed that virtual intergroup contact on Facebook positively influenced outgroup attitudes. The authors operationalized virtual intergroup contact and the exposure to outgroups on Facebook by the percentage of users' Facebook friends coming from a country different from the users' home country (Schwab/Greitemeyer, 2015).

A study by Stark and colleagues (2013) found that positive but also negative interpersonal attitudes to individual outgroup members (i.e., liking or disliking) could transfer or generalize to the outgroup as a whole. Attitudes towards a specific outgroup shaped by intergroup contact could further transfer to another outgroup. In this context, Pettigrew (2009) proposed a secondary transfer effect of intergroup contact, that is, "attitudes toward a noncontacted outgroup improve over and above any effect of contact with that outgroup following the attitude change that occurs with the contacted outgroup" (p. 55f.). Tausch and colleagues (2010) empirically proved the secondary transfer effect and attitude generalization from one outgroup to another.

Although numerous studies referred to intergroup contact, they often analyzed intergroup (interethnic) exposure (e.g., Joyce/Harwood, 2014). A multitude of studies examined the influence of exposure to ethnic/racial media representations on outgroup evaluations (for a general review of minorities in mass media, see Greenberg et al., 2002). For instance, Liu (2006) showed that exposure to newspapers positively impacted outgroup perceptions. In respect to ethnic/racial portrayals on TV, the work of Mastro and colleagues (e.g., Mastro, 2003; Mastro et al., 2008; Mastro/Kopacz, 2006; Mastro/Tukachinsky, 2011) and Dixon and colleagues (e.g., Dixon, 2006a, b; 2008a, b; Dixon/Azocar, 2007; Dixon/Maddox, 2005) should be exemplarily mentioned. The majority of these studies provided evidence that stereotypical depictions of certain ethnic minorities lead to stereotypical and more negative judgments of these groups.

Moreover, a few studies tested how perceived consensus (i.e., a person's perception that other individuals share the same opinions, attitudes, beliefs, and others or generally agree with oneself (Sechrist/Stangor, 2001; Tormala et al., 2009)), influenced stereotypical judgments,

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prejudices, and outgroup attitudes. In brief, the results illustrated that perceived consensus (high vs. low consensus) could either strengthen or inhibit stereotypical judgments, outgroup attitudes, and/or prejudices (e.g., Crandall et al., 2002; Sechrist/Stangor, 2001; Stangor et al., 2001). This relationship was also contingent on whether individuals of the in- or outgroup seemingly agreed to stereotypical judgments (i.e., perceived consensus) (Haslam et al., 1996; Stangor et al., 2001). Cialdini and Goldstein (2004) subordinated perceived consensus to the conformity (i.e., “act of changing one’s behavior to match the responses of others” (p. 606)) dimension of social influence. As previously pointed out (2.2.1.1 and Table 6), social contagion and influence are widespread on Facebook. Consequently, perceived consensus and the users’ perceptions of their Facebook friends’ attitudes might also shape their own judgments.

A theoretical foundation that explains more negative outgroup attitudes is provided by the integrated threat theory which is mainly based on the work of Stephan and colleagues (e.g., Stephan, Boniecki, et al. 2002; Stephan, Diaz-Loving, et al., 2000; Stephan, Ybarra et al., 1998). Riek and colleagues (2006) meta-analytically documented the negative association of threats that are caused by interethnic and interracial contact and negative expectations about these interactions, and outgroup attitudes.

Another social-psychological concept predicting (negative/prejudiced) outgroup attitude is ethnocentrism (Hainmueller/Hopkins, 2014; see also for a general review on attitudes towards immigrants). In the most general sense, Hainmueller and Hopkins (2014) defined ethnocentrism as “generalized predisposition toward out-groups” (p. 233).

Bizumic and Duckitt (2012) conducted a fine-grained analysis of different conceptualizations and operationalizations of ethnocentrism and stated that “Ethnocentrism is so widespread that evolutionary theorists have argued that it is natural to humans and has evolutionary underpinnings” (p. 888). They reconceptualized it as “strong sense of ethnic group self-importance and self-centeredness” (p. 903), which comprises intergroup expressions (i.e., superior of the ingroup over outgroups) and intragroup expressions (i.e., higher importance of the ingroup as a whole in comparison to individual ingroup members). That establishes the conceptual link to social identity and self-categorization theories (Bizumic/Duckitt, 2012).

Hence, ethnocentrism can affect group cohesion. In this context, the reviews of Portes and Vickstrom (2011) and van der Meer and Tolsma (2014) demonstrated that ethnic diversity (in

neighborhoods) could have detrimental effect on social cohesion (i.e., degree of interconnectedness between individuals) and social capital (for a definition, see 2.2.1.1).

Besides, researchers intensively studied ethnic minorities in advertising and corresponding consumer responses (mainly advertising and brand evaluations), for instance, Brumbaugh (2002, 2009), Desphandé and Stayman (1994), Forehand and Desphandé (2001), Forehand et al., (2002) Grier and Desphandé (2001), Johnson and Grier (2011, 2012), and Whittler and Spira (2002). A meta-analytical investigation of Kareklas and Polonsky (2010) suggested that consumers (of all ethnicities/races) evaluated advertisements more positively when exposed to advertising endorsers of the same as compared to a different ethnic/racial background (i.e., source-participant ethnic/racial similarity).

In sum, ethnic minorities and ethnic diversity have been studied in various disciplines, and empirical findings implied both favourable and detrimental effects of ethnic diversity and contact with and exposure to ethnic minorities on a broad spectrum of different dependent variables.

As shown, ethnic/racial minorities in advertising shape brand and consumer attitudes. The following subchapter addresses attitudes, some of their properties, and formation processes in general and specifically in relation to brands and consumers.

## **2.4 Brand and Consumer Attitudes**

Since a comprehensive review of all scholarly work related to attitudes goes beyond the scope of this dissertation (for reviews see Ajzen, 2001; Bohner/Dickel, 2011; Petty et al., 1997; and the special issue of *Social Cognition* (2007), 25 (5)), the attitude concept and different perspectives on it are briefly described. Afterwards, the central focus is on brand and consumer attitudes.

In general, attitudes can be defined as “evaluations of an object of thought” (Bohner/Dickel, 2011, p. 392) or as “a psychological tendency that is expressed by evaluating a particular entity with some degree of favor or disfavor” (Eagly/Chaiken, 1993, p. 1). Bohner and Dickel (2011, p. 393) referred to the latter as the “umbrella definition” of attitudes, because it encompassed the key features of tendency, entity (i.e., attitude object), and evaluation (Eagly/Chaiken, 2007). Attitude objects can include everything an individual holds in mind,

for instance, people, groups (like ethnic groups), things, as well as brands and advertisements. In the scientific discourse, two views on the conceptualization of attitudes exist. They are particularly related to attitude construction and attitude stability (Gawronski, 2007). While some researchers claimed that attitudes were relatively stable across time and space and stored in memory (i.e., stable-entity/file-drawer view; e.g., Eagly/Chaiken, 2007; Fazio, 2007), others adopted the view that attitudes were temporary judgments made on the spot from information at hand (i.e., constructionist view; e.g., Schwarz, 2007). Bohner and Dickel (2011, p. 393) arranged different definitions of attitudes along a continuum ranging from “stored in memory” (i.e., stable entities) to “made on the spot” (i.e., temporary constructions). While the former implied attitude stability, the latter meant context sensitivity. The umbrella definition mentioned above was concentrically located and covered both ends of the continuum. For both the stable-entity and constructionist perspectives, empirical evidence and theoretical models exist (for details, see Bohner/Dickel, 2011). This continuum from purely memory-based, easily retrievable judgments to constructive judgments on the basis of currently accessible information also draws the analogy to first- and second-order cultivation judgments (Hastie/Park, 1986; see 2.1.2) and underlines that attitudes (i.e., second-order judgments) could be also constructed in a memory-based fashion (Shrum et al., 2004).

Attitudes can differ in terms of structural and functional bases, which have been often studied under the label “attitude strength” (Petty et al., 1997). Strong attitudes (i.e., high attitude strength) are “persistent over time, resistant to change, and influential on thought and action” (Bizer/Krosnick, 2001, p. 566) compared to weak attitudes. Researchers identified different dimensions (measures) of attitude strength (for definitions of various dimensions, see Krosnick et al., 1993). These dimensions include attitude extremity, intensity, certainty, importance, knowledge, accessibility, ambivalence, and centrality (Krosnick et al. 1993; Lavine et al., 1998; Pomerantz et al., 1995). Particularly, attitude certainty (i.e., “a person’s sense of conviction about his or her attitude, or the extent to which a person views his or her attitude as correct” (Tormala/Petty, 2002, p. 1299)) has attracted research in the last decades (e.g., Rucker et al., 2014; Tormala/Petty, 2002, 2004; Wan et al., 2010). For instance, Bizer and colleagues (2006) demonstrated that attitudes constructed in an online fashion were stronger (i.e., held with more certainty) and more predictive for behavioral intentions than attitudes formed in a memory-based fashion. Tormala and colleagues (2011) found that individuals were more certain of their attitudes when they evaluated familiar (unfamiliar)

objects and believed that they took a short (long) time for this evaluation (i.e., perceived evaluation duration) as compared to perceived long (short) evaluation duration.

Besides, Visser and Mirabile (2004) studied the influence of (real-world) social network composition on attitude strength. The authors' findings confirmed that subjects embedded in a heterogeneous social network (in terms of diverse attitudes/views) were more susceptible to attitude change and persuasion than those embedded in an attitudinally congruent social network (i.e., like-minded others). This effect was partly mediated by attitude strength, that is, attitudinally congruous social networks increased attitude strength, which, in turn, lead to more resistance to attitude change. (Visser/Mirabile, 2004)

The findings of Visser and Mirabile (2004) implied that not only intra-individual but also interpersonal factors like the individual's social network could shape attitudes and cause attitude change. Later, Levitan and Visser (2008, 2009) corroborated the (positive) effect of social network attitudinal diversity on attitude change and susceptibility to persuasion.

In relation to attitude change, Schwarz (2007), who advocated the constructionist view of attitude formation, contrasted divergent empirical evidence concerning the relation between attitude strength and attitude change. Although the persuasion and social influence literature proved that stronger attitudes were more resistant to attitude change, disproving empirical evidence also exists (Schwarz, 2007).

Attitude change is explained, *inter alia*, by the persuasion literature (persuasion defined as formation/change of an attitude by processing information resulting from exposure to messages about an attitude object (Bohner/Dickel, 2011)), which is mainly guided by the elaboration likelihood model (Petty/Cacioppo, 1986a, b) and the heuristic-systematic model (HSM) (Chaiken et al., 1989). Petty and colleagues (1997) noted that both "theories are generally more similar than different, and typically they can accommodate the same empirical results, though the explanatory language and sometimes the assumed mediating processes vary" (p. 616). In sum, these two dual-process models suggested that attitude change (persuasion) was accomplished via two qualitatively different routes or modes, that is, high-effort evaluation and extensive elaboration of attitude-relevant information (central route (ELM), systematic processing (HSM)) and low-effort evaluation/elaboration (shortcuts) of attitude-relevant information (peripheral route (ELM), heuristic processing (HSM)) (Kruglanski/Thompson, 1999; Petty et al., 1997). While argument/content quality of persuasive messages was traditionally assumed to induce central route/systematic processing,

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(peripheral) cues external to the message (e.g., source attributes like expertise or attractiveness) restricting effortful elaboration were usually linked to peripheral route/heuristic processing (Bohner/Dickel, 2011; Petty/Cacioppo, 1986a, b). Persuasion via the central route/systematic processing was assumed to be more persistent, more predictive of behavior, and more resistant to counterpersuasion than attitude change via the peripheral route/heuristic processing (Chaiken et al., 1989; Petty/Cacioppo, 1986a, b). However, both routes/processing modes could also co-occur (Kruglanski/Thompson, 1999).

Recently, researchers proposed unimodels (i.e., persuasion via a single route) assuming that persuasive messages and related cues vary on a continuum of processing difficulty. Depending of the processing difficulty, attitude change requires higher or lower levels of processing effort. (Kruglanski et al., 2007; Kruglanski/Thomas, 1999)

The persuasion literature and social psychologists have hinted at and extensively studied the link between attitudes and behavior. Glasman and Albarracín (2006) meta-analytically examined studies that focused attitude formation (rather than attitude change) and corroborated the association between attitudes and (future) behavior. The overall weighted mean attitude-behavior correlation (i.e., the weighted mean of all study correlations between attitudes and behavioral outcomes) amounted to  $r = .52$  (for concise general information on meta-analyses, see 2.1.1.4). Furthermore, the attitude-behavior link was stronger when attitudes were easy to retrieve from memory (i.e., accessible) and stable over time, when participants had direct experience with the attitude object and expressed their attitudes frequently, when participants were confident in their attitude, and when they formed their attitudes based on information relevant to behavior. (Glasman/Albarracín, 2006, p. 806ff.)

The extensive scholarly work on attitudes has also involved brand and consumer attitudes and judgments, for instance, towards brands, advertising, or advertising endorsers/characters.

In his seminal review and in subsequent studies, Schwarz (2004a) discussed the role of metacognitive experiences on consumer judgments. Metacognitions relate to “people's thoughts about their thoughts, or their awareness of their own cognitive states and processes” (Tormala/Petty, 2004, p. 428). Schwarz (2004a) identified the ease or difficulty of recall and thought generation as well as processing fluency of new information as metacognitive experiences and bases for consumer judgments in addition or even instead of solely focusing on information (termed “declarative”) content. Thereby, Schwarz (2004a) refrained from purely content-focused models of (consumer) judgment and propagated to account for the

interplay of information content and metacognitive, subjective experiences. Schwarz (2010) drew the generalized conclusion that “it is now increasingly acknowledged that an understanding of human cognition requires attention to the subjective [metacognitive] experiences that accompany cognitive processes” (p. 119) (for a critical discussion of the framework of Schwarz (2004a), see also Huber, 2004; Lee, 2004; Schwarz, 2004b). Figure 6 illustrates the framework of Schwarz (2004a), as summarized by Huber (2004, p. 356). For instance, the ease of recall and retrieval of information (i.e., accessibility) can shape consumer judgments. That, *inter alia*, relates to the availability heuristic of Tversky and Kahneman (1973) and further establishes the connection to first-order cultivation effects (see 2.1.2.1). Processing fluency refers to the “ease or difficulty with which new, external information can be processed” (Schwarz, 2004a, p. 338) and constitutes a broad research field of social psychologists and consumer researchers on its own (Alter/Oppenheimer, 2009). Various forms of fluency exist, for example, perceptual fluency (e.g., Novemsky et al., 2007; Song/Schwarz, 2009), conceptual fluency (e.g., Lee/Labroo, 2004), memory-based fluency (e.g., Tsai/McGill, 2011), and linguistic fluency (e.g., Alter/Oppenheimer, 2006) (for a review, see Alter/Oppenheimer, 2009). Interestingly, Alter and Oppenheimer (2009) conceptualized the availability heuristic of Tversky and Kahneman (1973) as one demonstration of fluency, that is, (memory-based) retrieval fluency.

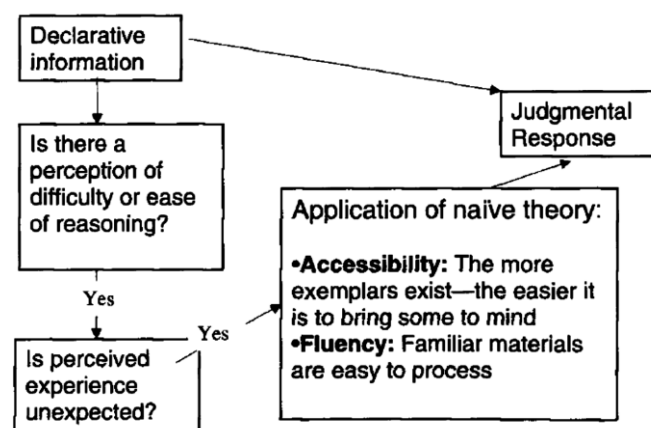


Figure 6. Metacognitive Experiences and Consumer Judgments (Huber, 2004, p. 356)

*Note.* Naïve theories refer to common-sense theories or people’s general beliefs about certain phenomena (Schwarz, 2004a).

Processing fluency has been one of the focal explanations of the mere exposure effect (MEE) (for different explanations, see Fang et al., 2007; Monahan et al., 2000; Stafford/Grimes, 2012). That is, repeated exposure enhances the subjective feeling of perceptual fluency,



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which, in turn, increases affective judgments (i.e., perceptual fluency/misattribution model) (Bornstein/D'Agostino, 1992; Reber et al., 1998). The MEE has been first introduced and empirically proven by Zajonc (1968). Zajonc (1968) conceptualized mere exposure as “a condition making the stimulus accessible to the individual's perception” (p. 1) and revealed that mere repeated exposure to a stimulus object increases an individual's attitude towards it (i.e., MEE). Bornstein (1989, p. 268) meta-analytically confirmed the existence of the MEE, that is, the mean correlation between exposure to a stimulus and subjects' responses (e.g., attitudes) amounted to  $r = .26$ . He further emphasized the valuable insights of his findings and the MEE in general for advertising research and practice (Bornstein, 1989). In this context, Schmidt and Eisend (2015) recently meta-analytically detected a curvilinear (inverted u-shaped) relationship between number of advertising exposures and brand attitudes, while the effect of advertising exposure on recall was linear and positive. The optimum level maximizing brand attitudes was ten complete exposures (Schmidt/Eisend, 2015, p. 423).

Janiszewski (1993) showed that even incidental exposures (i.e., “preattentive” exposure) to unfamiliar brand names without any intentional effort to process brand information increased attitudes towards the brand name. Janiszewski (1993) also underlined the importance of initial exposure as persuasive technique influencing brand judgments. Hansen and Wänke (2009) revealed that repeated exposure enhanced attitudes towards fictitious brand names independent of the degree of conscious recognition of the names (i.e., whether subjects focused on the product names versus a distracting unrelated text). Hence, enhanced unconscious familiarity with stimuli (i.e., brand names) positively influenced attitude formation through mere exposure (Hansen/Wänke, 2009). Shapiro and Nielsen (2013) added a dynamic perspective to fluency and MEE research by experimentally demonstrating that even subtle changes of location of advertising stimuli from one exposure to the next improved consumer evaluations.

One specific form of fluency, that is, conceptual fluency (i.e., the “ease with which the target comes to consumers' minds and pertains to the processing of meanings” (Lee/Labroo, 2004, p. 151)) might be further relevant in relation to brand exposure on Facebook. Conceptual fluency can be achieved by priming/exposing subjects to semantically related concepts (Alter/Oppenheimer, 2009) or by activating associative networks in memory (Lee/Labroo, 2004). In respect to brands on Facebook, conceptual fluency could result from the frequent exposure to brands, that is, judgments towards a certain brand might be shaped by exposure to related brands or brand of the same product category (i.e., indirect priming).

In sum, the mere (repeated) exposure to brands can enhance attitudes. Given the enormous brand and advertising presence (de Vries et al., 2012; Sabate et al., 2014) on Facebook, but also the increasing amount of user-generated brand-related content (Hollenbeck/Kaikati, 2012; see also 2.2.1.3), users are frequently exposed to different forms of brands-related content on Facebook, primarily via the news feed (Lipsman et al., 2012). Hence, Facebook use might contribute to the formation and change of brand attitudes.

## **2.5 Summary**

The preceding subchapter presented an overview of the conceptual and theoretical foundations underlying the research questions of this dissertation. First, cultivation theory and research was illustrated (2.1). Both started out from the cultural indicators project in 1967/1968, which was a tripartite research paradigm (Gerbner, 1970). It originally consisted of institutional process analysis (i.e., the influences on the production of mass media content), message systems analysis (i.e., the content of mass media content), and cultivation analysis (i.e., the relationship between exposure to mass media content and the audiences' conception of social reality) (2.1.1.1). Second, cultivation research as known and conducted to date was examined (2.1.1.2). Cultivation research initially comprised message systems analysis and cultivation analysis. Focal part of the former were, for instance, the "Violence Profiles" of TV content, while the television answer and the percentage difference of heavy over light TV viewers giving the TV answers, that is, the cultivation differential, were central to the latter (Gerbner/Gross, 1976). The seminal study by Gerbner and Gross (1976), as the first empirical cultivation study, was a prelude to various subsequent studies conducted by Gerbner and colleagues at the Annenberg School of Communications. The study by Gerbner, Gross, Morgan, and colleagues (1980) first provided empirical evidence for the phenomena of mainstreaming and resonance, which became pivotal to both early and succeeding cultivation research (2.1.1.3). Forth, the first (and to date sole) empirical generalization of two decades of empirical cultivation research was presented, that is, the meta-analysis of Shanahan and Morgan (1999) and Morgan and Shanahan (1997), respectively (2.1.1.4). They meta-analytically proved a generalized, consistent, and theoretically predicted cultivation effect of TV viewing. Fifth, an overview of recent developments and topics of cultivation research was given by means of a comprehensive literature review, that is, empirical cultivation studies published between 1998 and 2015 (2.1.1.5). Particularly, cultivation effects of genre-specific

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TV exposure, experimental and longitudinal research designs, and cultivation effects induced by other media became striking extensions of cultivation research. Afterwards, the mechanisms underlying cultivation effects were explained (2.1.2). On the one hand, first-order cultivation judgments (2.1.2.1) pertain to prevalence and occurrence estimates (Potter, 1991a) and rely on the availability, accessibility, and retrieval of information from memory (Hastie/Park, 1986), for instance, the availability heuristic by Tversky and Kahneman (1973). On the other hand, second-order cultivation judgments (2.1.2.2) relate to beliefs and attitudes (Potter, 1991b) and are constructed in an online fashion based on persuasion processes by incoming information (Hastie/Park, 1986). Finally, critique of cultivation research was highlighted (2.1.3), particularly, the partly cross-sectional nature of empirical cultivation research and the respective lack of causality proofs (Potter, 1993; Shrum et al., 1998).

Research related to Facebook, as the most prevalent SNS, constituted the second building block of the conceptual framework (2.2). First, the social network structure within Facebook was analyzed (2.2.1.1). Facebook is characterized by large-scale networks, though with relatively small distances between any two network members (Backstrom et al., 2012; Ugander et al., 2011), by social contagion processes and peer influences (e.g., Kramer et al., 2014), and by diverse content (e.g., Bakshy et al., 2015). Topic of the second subsection (2.2.1.2) was the user-generated content related to identity claims and self-presentation on Facebook. Identities (e.g., personality, ethnic/racial origin) are prevalent, both in subtle indirect and salient manner, and diverse on Facebook (Grasmuck et al., 2009; Zhao et al., 2008). User-generated content is further associated with brands on Facebook (2.2.1.3), since both users and brands contribute to the creation and dissemination of brand-related content on Facebook in various ways, for instance, self-expression via brands, brand pages with brand posts, brand communities, and others (e.g., de Vries et al., 2012; Hollenbeck/Kaikati, 2012). Facebook use is not only linked to content creation and diffusion, but also influences on numerous aspects of users' lives; these outcomes of Facebook use were considered in the last subsection concerning research related to Facebook (2.2.2). A literature review revealed equivocal effects of Facebook use. While the influence on social capital was positive (e.g., Ellison et al., 2007; Ellison, Vitak, et al., 2014), it was negative for self-control (e.g., Wilcox/Stephen, 2013), as well as both positive and negative for self-esteem (e.g., Kalpidou et al., 2011; Wilcox/Stephen, 2013) and life satisfaction (e.g., Kross et al., 2013; Valenzuela et al., 2009). Generally, Facebook use was shown to exert an influence on various facets of users' (social) lives and their well-being.

Subsequent to the research related to Facebook, the third central part of the conceptual framework dealt with the scholarly work on ethnic diversity, ethnic minorities, and outgroups (2.3). This section outlined the fragmented conceptualizations and operationalizations of ethnic/racial identity (e.g., Ponterotto/Park-Taylor, 2007) and the distinction between interethnic contact and exposure (Dinesen/Sønderskov, 2015). It further summarized extant research on ethnic diversity, ethnic minorities, outgroups, and ethnocentrism at the micro and macro level, from empirical and theoretical perspectives, and in different disciplines. In brief, previous research found positive and negative effects of ethnic diversity as well as exposure to and contact with ethnic minorities and outgroups on a multitude of variables (e.g., social cohesion, attitudes/prejudices etc.) and in different contexts (e.g., groups, larger populations, advertising etc.).

The fourth and final constituent of the conceptual framework concerned brand and consumer attitudes (2.4). This paragraph shed light on different definitional and theoretical views on attitudes and their construction (e.g., Bohner/Dickel, 2011; Kruglanski/Thompson, 1999) and the attitude-behavior link (e.g., Glasman/Albarracín, 2006). Finally, the influence of metacognitions and, particularly, fluency (Schwarz, 2004a) on attitude formation and change was described. In this context, the theoretical underpinnings and empirical evidence of the MEE (Bornstein, 1989; Zajonc, 1968) were highlighted.

After underlining the conceptual framework and theoretical foundations, the next chapter provides the research model and hypotheses derivations (sections 3.1, 3.2, and 3.3). Based on extant cultivation research, first- (3.1) and second-order cultivation effects (3.2) are distinguished and empirically tested by appropriate research designs.

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### 3 Hypotheses and Research Model

The first part of the empirical investigation (Study 1) focuses on the prevalence of ethnically diverse content on Facebook in comparison to the real world. Following the two-step cultivation research approach proposed by Gerbner and Gross (1976) (see section 2.1.1.2), a content analysis (i.e., message systems analysis) precedes the empirical analysis (i.e., cultivation analysis) quantifying the first- and second-order cultivation effects of Facebook use (Studies 2-4). By means of content analysis, the following research question is answered:

**RQ:** How prevalent is ethnic diversity on Facebook and is the exposure to ethnic diversity on Facebook higher than in the real world?

#### 3.1 First-Order Cultivation Effects

Television as major source of enculturation (Gerbner/Gross, 1976, p. 175) has been supplemented by SNS. This development is mirrored by increasing scholarly research and interest in the field (Wilson et al., 2012; Zhang/Leung, 2015; see also 2.2). Other than TV, SNS and Facebook are individual media based on user-generated content (see 2.2.1.2). The communication content portrayed on Facebook is highly individualized and particularly concerns the users' close social environment (friends and colleagues), but also relates to the wider social environment due to the (friendship) network structure of Facebook (friends of friends and so forth) and other media content disseminated on Facebook (e.g., videos, links, but also brand-related content (see 2.2.1.3)). Tie strength within Facebook users' networks also relates to different degrees of social distance (see 2.2.1.1). To recapitulate the findings of Bakshy, Rosenn, and colleagues (2012), both strong ties and the plenty of weak ties contribute to content diffusion on Facebook.

Contrarily, the media communication content portrayed on TV is socially more distant. Apart from familiar TV communication content from direct experience in everyday lives or first-hand knowledge, labeled as experiential closeness by Bilandzic (2006, p. 339), the media content consists of fictitious stories and narratives contained in films and TV series (Bilandzic/Busselle, 2008). In this case, closeness of media content is mainly generated by transportation (Bilandzic, 2006; Bilandzic/Busselle, 2008), that is, "the extent that individuals are absorbed into a story or transported into a narrative world" (Green/Brock, 2000, p. 701;

for a review and meta-analysis, see van Laer et al., 2014). Besides, parasocial interaction (i.e., an imaginary relationship or friendship between media users and media characters/figures, as they would be real (Horton/Wohl, 1956; Schiappa et al., 2005; for a review, see Giles, 2002)) can create perceived closeness towards media characters (e.g., celebrities, fictional characters). Although parasocial interaction takes place on Facebook, real social relationships are at the core of the users' networks (Baek et al., 2013; Tsiotsou, 2015). Besides, parasocial relationships on Facebook are more reciprocal, interactive, and seemingly closer on Facebook (Russell et al., 2013), for instance, due to the possibility to communicate with celebrities on Facebook via posts on their profile pages. Oppositely, parasocial interactions and relationships with TV characters are unilateral. The specific (socially more distant) content depicted on TV makes the cultivation of TV viewers' perceptions of their social close environment more difficult and unlikely. In respect to the more distant social environment, extant literature already proved cultivation effects of TV viewing on minority prevalence perceptions, that is, subjects overestimated the share of homosexuals (lesbians, gay males) in society after watching homosexuality-related talk show content (Rössler/Brosius, 2001).

In contrast to TV viewing, Facebook use is likely to cultivate both perceptions of the users' closer (e.g., friends, colleagues) due to the users' self-presentation and self-disclosure (Back et al., 2010; Nadkarni/Hofman, 2012; Trepte/Reinecke, 2013) and more distant social environment due to the global-scale of Facebook and related diverse communication content.

By joining Facebook, people oftentimes establish and maintain world-spanning networks with people of diverse cultures and nationalities (Backstrom et al., 2012; Ugander et al., 2011; see also 2.2.1.1). The global scale of Facebook (1.65 billion of users worldwide (Facebook, 2016b)) enables cross-cultural interaction, communication and exposure to ethnically diverse communication content. That captures both contact with and exposure to ethnic minorities, which Dinesen and Sønderskov (2015) conceptually distinguished (see 2.3). National, cultural, and ethnic borders blur on Facebook. That also relates to the work of Sanders (2002) about ethnic boundaries, that is, "patterns of social interaction that...reinforce, in-group members' self-identification and outsiders' confirmation of group distinctions" (Sanders, 2002, p. 327). The author argued that ethnic boundaries became porous when ethnic (ingroup) networks appropriated resources from outside the network (i.e., from outgroups) and fostered intergroup relations (Sanders, 2002), which is the case on Facebook. Facebook users are building one world-wide community rather than being separated according to ethnic, cultural, and national characteristics (Backstrom et al., 2012; Ugander et al., 2011). As a result,

Facebook users experience exposure to more users from different ethnic groups and their personal information than in the real world, since ethnic-racial identities are highly salient on Facebook profiles, as found by Grasmuck and colleagues (2009). Thus, the content of Facebook is highly ethnically diverse due to the diverse users and the personality- and identity-related information they disclose (Back et al., 2010; Grasmuck et al., 2009). The more time users spend on Facebook, the more they project the virtual, ethnically diverse world as perceived and experienced on Facebook onto the real world. That is, Facebook use cultivates real world perceptions. Facebook users' intensified, direct communication with and contact to their social close environment and, particularly, exposure to the corresponding communication content (posts, personal information of friends etc.) characterize the virtual world on Facebook. This direct communication and personalized, often identity-based content is supplemented by mass medial communication content such as videos, links, and brand-related content posted by users (and companies). This content is rather related to the users' more distant social environment. Facebook users who are often in contact with diverse ethnicities on Facebook and exposed to related information and communication content form perceptions of the prevalence of ethnic groups according to the depictions and increased prevalence of these groups on Facebook rather than in the real world (i.e., first-order cultivation judgments) (Briley et al., 2007). Information related to ethnic diversity is stored in memory, and enhanced accessibility and easier retrieval of this information from memory leads to overestimations of prevalence of ethnic diversity (Busselle/Shrum, 2003; see also 2.1.2.1). Hence, a cultivation effect of Facebook use (intensity) on the perceived prevalence of ethnic diversity is hypothesized. The perceived prevalence of ethnic diversity involves the perceived societal ethnic diversity, which is related to the more distant social environment of the users, and the perceived number of ethnic minority friends and ethnic minority colleagues, which refer to the close social environment of the users.

**H1a:** Facebook use increases the perceived societal ethnic diversity.

**H1b:** Facebook use increases the perceived number of ethnic minority friends.

**H1c:** Facebook use increases the perceived number of ethnic minority colleagues.

### 3.2 Second-Order Cultivation Effects

Apart from perceptions of the prevalence of ethnic diversity, Facebook use is assumed to cultivate attitudes related to ethnic diversity, that is, attitudes towards ethnic minorities and ethnocentrism (see 2.3). According to cultivation theory, media can influence attitudes and personal values as media content is assimilated into personal values structures. These (second-order cultivation) judgments are constructed in an online fashion, when information is encountered (Shrum et al., 2005), that is, while users browse Facebook. The literature overview depicted in Table 5 illustrated that a couple of studies utilized experimental designs to prove second-order cultivation judgments (i.e., beliefs/attitudes) made online while TV exposure (e.g., Bilandzic/Busselle, 2008; Rössler/Brosius, 2001; Shrum et al., 2011). However, these studies used genre- or topic-specific TV exposure manipulations. For instance, Rössler and Brosius (2001) concentrated on the effect of TV talk show exposure, while Shrum and colleagues (2011) manipulated the degree of exposure to materialistic content. Therefore, participants saw either a film segment conveying high materialism (i.e., “*Wall Street*”) or a segment portraying low materialism (i.e., “*Gorillas in the Mist*”) (Shrum et al., 2011). Besides, two studies experimentally investigated the cultivation effect of video game exposure (i.e., Chong et al., 2012; Williams, 2006), but the video games used were specifically related to violent content. So far, no study experimentally examined the general cultivating influence of a communication medium (e.g., overall TV viewing or Facebook use) on attitudes, even less related to ethnic diversity. In the first empirical cultivation study, Gerbner and Gross (1976) noted that experimental or quasi-experimental exposure to a particular type of TV programming was inappropriate and that such studies “are of limited value because... [TV] effects cannot be measured with regard to any single element or program seen in isolation” (p. 181). Although the authors propagate to analyze the cumulative impact of TV viewing and conducted cross-sectional analyses in the course of their study, they already got to the heart of potential issues of experimentally analyzing (second-order) cultivation effects. To date, there has been sparse research on the effect of TV viewing on perceptions related to ethnic minorities (e.g., Busselle/Crandall, 2002; but with focus on first-order cultivation judgments). A study by Rauch and Schanz (2013) (without cultivation effect focus or test) experimentally proved that frequent Facebook users were more susceptible to messages with negative racial content, except those with high information seeking motives for Facebook use. However, the authors manipulated messages in respect to positive or negative racial content and not Facebook use intensity (Rauch/Schanz, 2013).



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The ethnically diverse communication content on Facebook in both the users' close (e.g., Facebook friends' posts, personal information) and more distant social environment (e.g., general news, videos, and links concerning ethnic diversity in society) can shift the focus from ethnic group self-importance and self-centeredness, which capture ethnocentrism (Bizumic/Duckitt, 2012; see also 2.3), to an intergroup focus limiting ethnocentric attitudes. Following intergroup contact theory (Allport, 1954) and the subsequent extensions and applications (e.g., virtual contact hypothesis (Schwab/Greitemeyer, 2015)), intensive and frequent contact in conjunction with exposure to other ethnic groups and minorities can lead to the formation of favorable attitudes towards ethnic diversity. Previous research further showed that positive attitudes towards individual outgroup members (i.e., a specific ethnic minority) could generalize to outgroups as a whole (i.e., ethnic minorities in general) (Stark et al., 2013) and that attitudes towards outgroups could transfer from one outgroup to another (Pettigrew, 2009; Tausch et al., 2010). Hence, favorable attitudes towards ethnic minority Facebook friends (of both strong and weak ties) resulting from users' daily or frequent intergroup contact/exposure experiences might transfer to positive ethnic diversity attitudes. Thus, Facebook use is hypothesized to increase attitudes towards ethnic minorities and decrease ethnocentric attitudes.

**H2:** Facebook use increases attitudes towards ethnic minorities.

**H3:** Facebook use decreases ethnocentric attitudes.

Ethnocentrism and attitudes towards ethnic minorities are stable, enduring, and resistant attitudes (Bizumic/Duckitt, 2012; Hainmueller/Hopkins, 2014). Attitudes in general vary in strength, and often no a priori evaluations are available in memory, for instance, for unfamiliar objects such as new brands or brand names (Fazio, 2007; see 2.4). Schwarz (2007) argued that these "nonattitudes" need to be made up on the spot, following an "attitudes as constructions" perspective (see 2.4). The construction of attitudes in real time on the basis of incoming information is a process of online judgments (Hastie/Park, 1986). The process of altering attitudes depends on their stability and endurance. It is more difficult and demanding to change stable, strong, or enduring attitudes, for example, ethnocentrism or attitudes towards ethnic minorities, by stimulus exposure than to alter fleeting or transient attitudes, for instance, towards brands or brand names.

To further differentiate second-order cultivation judgments, the cultivation effect of Facebook use on attitude towards brand names (Study 3) and brands (Study 4) as potentially weaker attitudes (in comparison to ethnocentrism and attitudes to ethnic minorities) are integrated. In Study 3, the focus is on attitudes towards fictitious, thus unknown brand names, which are assumed to be unfamiliar to the subjects and build on the spot (i.e., no prior attitudes exist). To directly compare the cultivating influence of Facebook use on attitudes of different strengths but towards the same attitude object, attitudes towards fictitious, unknown and real-world, known brands are included in Study 4.

The extant literature presented in section 2.2.1.3 provided ample evidence that brands are present on Facebook (see also Table 8). On the one hand, Facebook users utilize brands on Facebook, that is, through integration on their profiles (interests, likes), posts, narratives, or photographs of consumption, and others, for self-expression (Hollenbeck/Kaikati, 2012; Muntinga et al., 2011). In respect to consumer identities, Zhang and Khare (2009) proved that consumers with accessible global (local) identities preferred global (local) products. Reed II and colleagues (2012) stated that social media can foster associations between users' identities and certain objects/concepts (e.g., brands) and that "Facebook specifically offers a convenient toolbox for its users to coalesce into 'like' groups" (p. 315). In this context, Kosinski and colleagues (2013) and later Youyou and colleagues (2015) showed that Facebook likes, which also entail positive associations with brands, can predict personality characteristics. Furthermore, Choi and Kim (2014) showed that self-presentation, which is one of the focal predictors of Facebook use (Nadkarni/Hofman, 2012), on Facebook was positively related to brand-related WOM on Facebook (i.e., posting brand-related content). Bakshy, Eckles, and colleagues (2012) and Naylor and colleagues (2012) found evidence for social contagion effects in relation to like brand-related content on Facebook, that is, brand-related content diffuses through the social networks of Facebook. On the other hand, the global reach and massive-scale user bases make Facebook highly attractive and effective for global branding and marketing activities (Lipsman et al. 2012). For instance, the majority of the top 100 corporate brands on Facebook (as measured by the number of users liking the corresponding brand page) are international/global brands (Fan Page List, 2016). Thus, both firm- and user-generated, brand-related content is disseminated on Facebook.

Given the multitude of ethnic groups and ethnic identity claims portrayed on Facebook (see 2.2.1.2), Facebook users are also likely to use diverse brands in terms of country of origin for self-expression. The generally ethnically diverse communication content (users' personal

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information etc.) in combination with diverse brand-related communication content can lead to the construction of corresponding brand attitudes.

Following the predictions of the MEE (see 2.4) and conceptual fluency, repeated exposure to brand names or brands on Facebook can shape user's attitudes towards these or comparable/related brand names or brands. Kohli and colleagues (2005), for instance, proved that repeated exposure to a fictitious brand name increased overall liking of brand names.

Facebook users that are frequently exposed to content (e.g., advertising, brand stories (Gensler et al., 2013; section 2.2.1.3), brand posts (de Vries et al., 2012; Sabate et al., 2014)) spread by global brands and brands of various country of origins might form more favorable attitudes towards global brands names, because conceptual fluency or processing fluency in general take effect. Since higher Facebook use intensity might induce repeated and more exposure to content related to global brands in comparison to exposure to local-brand content, frequent Facebook use is assumed to increase attitudes towards global brand names and decrease attitudes towards local brand names. Fictitious, unknown brand names are supposed to be made on the spot based on incoming information, that is, brand-related content users are (both consciously and unconsciously) exposed to while using Facebook.

**H4:** Facebook use decreases attitudes towards (unknown) local brand names.

**H5:** Facebook use increases attitudes towards (unknown) global brand names.

The same attitude construction process in an online fashion is assumed to pertain to attitudes towards fictitious, unknown brands. To account for different attitude strengths, the attitude change process is further studied for real-world, known brands. Therefore, the same attitude objects are utilized. Comparable to attitudes towards (unknown) brand names, Facebook use is hypothesized to decrease attitudes towards unknown local brands and increase attitudes towards unknown global brands. For the known brands, prior attitudes might already exist. Hence, content related to global or local brands users encounter on Facebook might influence attitude change, but the known attitudes are more resistant to change and less susceptible to newly incoming, external information (Reed II et al., 2002). The distinction of unknown and known brands can be further related to different perceived social distances to the corresponding attitude objects (Bilandzic, 2006). Known brands might be associated with personal, real-world experiences and familiarity and thus perceived more close to the personal

life compared to unknown brands. That, in turn, can limit susceptibility to mediated communication content (Bilandzic, 2006). Besides, exposure to content that is specifically related to or promoting a known brand might be more influential for attitude change than general brand-related content. Furthermore, friendship networks (Aral/Walker, 2012; Bakshy, Rosenn, et al., 2012), the Facebook algorithm (Kramer et al., 2014; Lazer, 2015), and self-selection (Bakshy et al., 2015) determine the users' exposure to certain content, and only the minority of users liking a brand page, for instance, sees the corresponding brand-related content (i.e., brand page posts) (Lipsman et al., 2012). Thus, users' exposure to brand-related content is less predictable and frequent than exposure to ethnically diverse content (due to ethnically diverse friendship networks etc.). In sum, Facebook use might affect attitudes towards known brands that already exist and that are more resistant to change by persuasive communication and (mere) exposure to it to a lesser extent than unknown brands. That leads to the following hypotheses:

- H6:** Facebook use decreases attitudes towards local brands. This effect is stronger for unknown local brands than for known local brands.
- H7:** Facebook use increases attitudes towards global brands. This effect is stronger for unknown global brands than for known global brands.

### 3.3 Summary of Hypotheses and Research Model

Table 10. Overview of Hypotheses

<b>H1a</b>	(+)		increases the perceived societal ethnic diversity.
<b>H1b</b>	(+)		increases the perceived number of ethnic minority friends.
<b>H1c</b>	(+)		increases the perceived number of ethnic minority colleagues.
<b>H2</b>	(+)		increases attitudes towards ethnic minorities.
<b>H3</b>	(-)	<b>Facebook Use</b>	decreases ethnocentric attitudes.
<b>H4</b>	(-)		decreases attitudes towards (unknown) local brand names.
<b>H5</b>	(+)		increases attitudes towards (unknown) global brand names.
<b>H6</b>	(-)		decreases attitudes towards local brands. This effect is stronger for unknown local brands than for known local brands.
<b>H7</b>	(+)		increases attitudes towards global brands. This effect is stronger for unknown global brands than for known global brands.

Note. (+) = positive relationship, (-) = negative relationship.

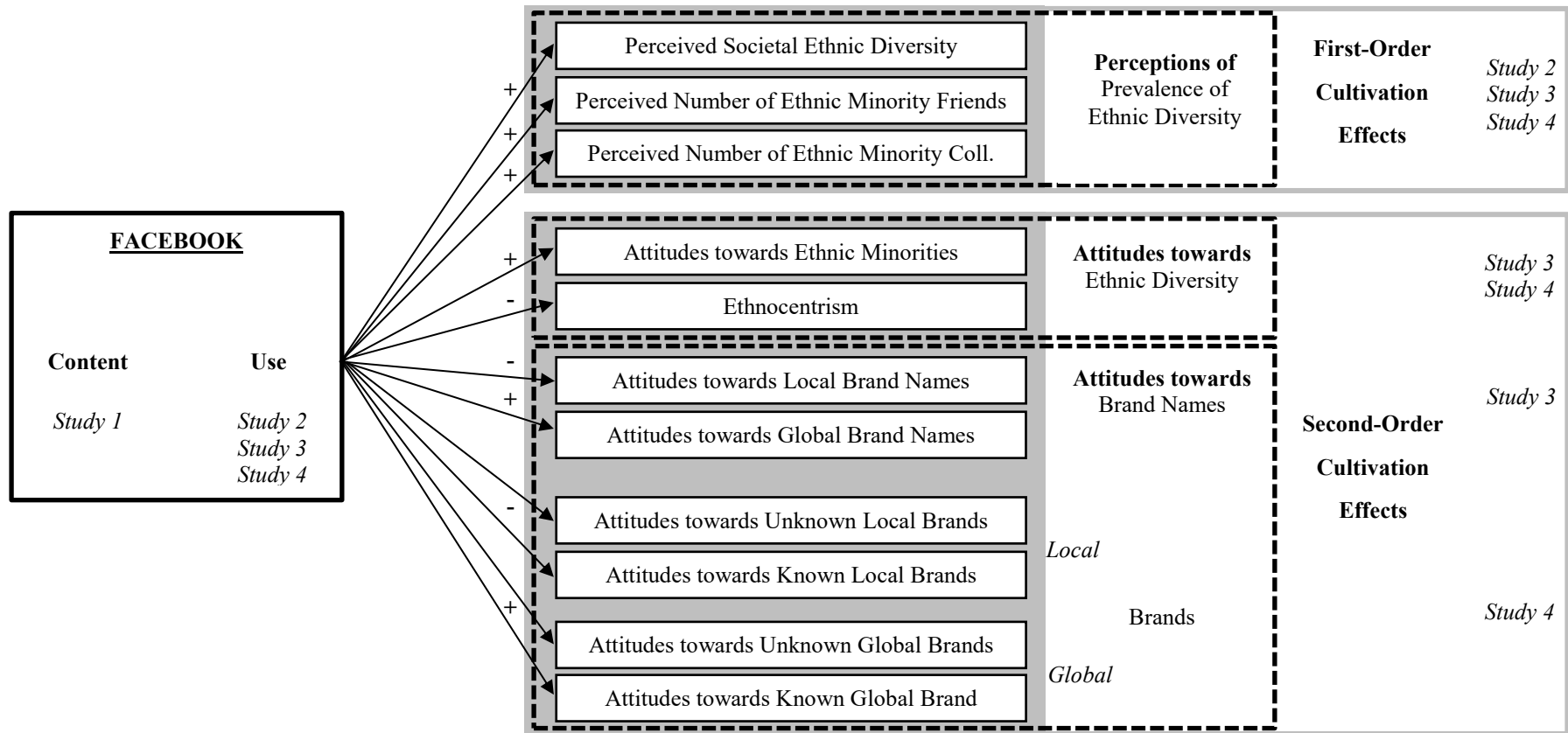


Figure 7. Research Model  
 Note. + = increases, - = decreases.

## 4 Empirical Investigations

In this section, four different studies testing the hypotheses and research model are presented. First, a content analysis (4.1) assesses the prevalence of ethnic diversity on Facebook. Second, a cross-sectional survey (4.2) investigates the first-order cultivation effects. Third, an experimental investigation (4.3) examines the second-order cultivation effects. Fourth, a follow-up experiment (4.4) extends the first experiment by specifically focusing on attitudes towards the same attitude object but of different strengths.

For the statistical analyses, the statistical software packages SPSS and Stata were utilized. The presentation of results of statistical tests and methods mainly followed the guidelines of the Publication Manual of the American Psychological Association (2009). The majority of analytical findings are rounded to three decimal places to foster statistical precision, except those figures that are also easily comprehensible with two decimal digits of accuracy (e.g., means, percentages). When significance levels (i.e., *p*-values) are reported, the exact values are presented, except for some tables (e.g., correlation matrix) for the sake of clarity. For better readability, statistical tests are fully referenced only the first time they appear in the text. Afterwards, abbreviations are used, and references (i.e., publication year) are omitted.

### 4.1 Study 1: Content Analysis

Both the cultural indicators and later the classical cultivation research comprised message systems analyses, that is, content analyses of TV communication content (see sections 2.1.1.1 and 2.1.1.2). Recent studies also followed the bipartite approach consisting of a content-analytical assessment of communication content and subsequent cultivation analyses (e.g., Hetsroni et al., 2014; Hetsroni/Tukachinsky, 2006; Niederdeppe et al., 2010). Moreover, content analyses of Facebook profile pages have also become increasingly popular among SNS researchers. Exemplary literature includes the studies of Zhao and colleagues (2008), Grasmuck and colleagues (2009), Back and colleagues (2010) (see section 2.2.1.2), and the study by Hollenbeck and Kaikati (2012) (see 2.2.1.3); all these studies mainly focused on self-presentation and identity construction on Facebook. The majority of content analyses examined how Facebook profile page content (e.g., posts, photographs) could predict certain personality traits of the users (e.g., Buffardi/Campbell, 2008; Hall/Pennington, 2013; Wu et

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al., 2015). Schober and colleagues (2016) and Kosinski and colleagues (2015) highlighted the high informative value and enormous potential of social media in general and specifically of Facebook for data collection (e.g., profile data, self-reports, lexical analyses) and conducting social science research. In order to analyze the prevalence of ethnically diverse content on Facebook, a content-analytical approach was used. Therefore, the number of ethnic minority Facebook friends of a set of Facebook users was quantified. The relation of the users' ethnic minority Facebook friends to all Facebook friends was used as a predictor of ethnically diverse content users are exposed to. It is assumed that ethnic minority users disclose corresponding ethnically diverse content in form of identity claims, self-presentation on Facebook, posts, likes, and others (see 2.2.1.2). Hence, a high percentage of ethnic minority Facebook friends relates to frequent exposure to ethnically diverse content, which, in turn, might cultivate perceptions and attitudes.

#### **4.1.1 Methodology**

In order to identify Facebook users' ethnic minority Facebook friends, name-based ethnicity classification and manual coding were combined. Mateos (2007) referred to name-based ethnicity classification as "the classification of surnames and forenames into ancestral groups of origin" (p. 244). This method has been applied in various contexts (for a review, see Mateos, 2007), particularly, in the demographic and public health literature. For instance, Razum and colleagues (2001) employed the method in a health research context to classify Turkish migrants in Germany. While most methods are dictionary-based, Harris (2015), for example, developed a probability-based classification method. This dissertation used a dictionary-based ethnicity classification method, that is, matching of subjects' names to dictionary entries belonging to a certain ethnicity/nationality. For the sake of simplification, the distinction was drawn between native German Facebook users and non-German/ethnic minority users. The latter comprises foreigners and ethnic minorities in Germany (according to the definition in section 2.3). In the first step, the users' names were compared with and matched to the entries of a digital dictionary of German surnames (*Digitales Familienwörterbuch Deutschlands*, 2015). These entries were partly supplemented by entries of a classical work on German names (Gottschald, 2006). The surname list was complemented by the most comprehensive, available list of German forenames (Nübling, 2009) ([www.beliebte-vornamen.de](http://www.beliebte-vornamen.de)). This first step gave a first indication of the

ethnic/national origin of Facebook users. In the second step, the Facebook user profiles that could not be matched to German names were checked for any hint revealing the users' ethnic origin. That could include information in the "About me" section (e.g., home town), the profile picture and depicted users' faces (Hugenberg et al., 2010; Zebrowitz, 2006), the dominant language of posts, and others.

#### **4.1.2 Data Collection and Sample Characteristics**

A Facebook group related to current and former students of a German university was chosen for the data collection. This Facebook group had about 1,400 members at the time of data gathering. Since the group consisted of current and former students of a German university, its members were assumed to be representative of both typical Facebook users in general (particularly, in terms of age) and the participants of the subsequent cross-sectional study (see 4.2). For the cross-sectional study, students of the same university and Facebook users targeted directly online via Facebook were surveyed (for details, see 4.2.2). The program Facepager (Keyling/Jünger, 2013) downloaded the surnames and forenames of 1,391 group members (in December 2015). The name-based ethnicity classification was utilized to detect German group members by their names and lead to the selection of 460 German names. The corresponding 460 profiles were checked whether the friends' lists were publicly visible. That reduced the sample to 120 German Facebook profiles with friends' lists visible to all Facebook users. Thus, only data were gathered from users granting public access to their friends' lists (Kosinski et al., 2015; van Dam/van de Velden, 2015), which overcame data privacy concerns. Out of these 120 profiles, 50 were randomly c. These 50 profile owners had 14,483 Facebook friends in total and thus 289.66 Facebook friends on average. After applying name-based ethnicity classification, the cases of the 50 Facebook users' friends' lists that could not be matched to German surname and forenames or the ones that were not unambiguously classifiable, were manually classified by the author as German vs. non-German/ethnic minority. A second person (i.e., a student assistant at the Master's level) coded a subset (24%; 12 of the 50 Facebook profiles and corresponding friends' lists) of the data. This subset included the four Facebook user profiles with the highest, lowest, and mid-level percentage of non-German/ethnic minority friends, respectively. The percentage agreement of the two coders was 94.89%, and agreement measured by Cohen's (1960) Kappa was .880, which indicated almost perfect agreement (Landis/Koch, 1977). Additionally, the coder



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agreement was quantified by Krippendorff's (1970) Alpha, as proposed by Hayes and Krippendorff (2007). Its value also amounted to .880, which was above the threshold of .800 recommended by Krippendorff (2004).

### 4.1.3 Results

The content analyses of Facebook profiles revealed that the average percentage of Facebook friends of different ethnic background of a German Facebook user to all Facebook friends amounted to 28.92% (4,198 ethnic minority Facebook friends in total, 83.96 ethnic minority Facebook friends on average). (The percentage values were normally distributed, as indicated by the Kolmogorov-Smirnov (Kolmogorov, 1933; Smirnov, 1939) (KS) test statistic:  $d = 0.095$ ,  $p > .200$ .) This value is significantly ( $t(49) = 2.135$ ,  $p = .038$ ) higher than the percentage of people with migration background in Germany (i.e., foreigners, ethnic minorities etc.,  $M = 24.75\%$ ) for the cohort aged between 20 and 35 years in 2014 (as the latest available figure) (Statistisches Bundesamt, 2015), which serves as comparison value of a comparable age cohort. Thus, ethnic diversity is more prevalent, and users are more exposed to ethnic diversity on Facebook than in the real world.

### 4.1.4 Discussion

The content-analytical findings confirm a higher prevalence of ethnic diversity in Facebook users' friendships networks than in the real world. This discrepancy is assumed to induce cultivation effects. That is, the prevalence of ethnic diversity and related exposure to ethnically diverse content biases the perceived prevalence of ethnic diversity in the real world. Frequent exposure to ethnic diversity and related communication content (personal information, identity claims, posts etc.; see also 2.2.1.2) increases accessibility and ease of retrieval of corresponding exemplars and information from memory and results in first-order cultivation effects (see 3.1). Besides, second-order cultivation judgments, particularly, attitudes (see 3.2), are constructed when users frequently encounter ethnically diverse content. To conclude, the content analysis revealed a high prevalence of ethnic diversity and ethnically diverse content on Facebook, which constitutes the focal foundation for the cultivation effects hypothesized in sections 3.1 and 3.2. In the following subchapter, the first-order cultivation effects are studied by means of cross-sectional survey analyses.

## **4.2 Study 2: Cross-Sectional Survey**

The subsequent sections present the empirical investigation of the first set of hypotheses focusing on the first-order cultivation effects. After providing the questionnaire development method (4.2.1), the sampling frame and data collection (4.2.2) are explained, and the sample characteristics and descriptives (4.2.3) are displayed. In sections 4.2.4, 4.2.5, and 4.2.6, the measures, corresponding properties and descriptives, and the analytical procedure are described, respectively. Afterwards, the results of the analyses are depicted (4.2.7) and discussed (4.2.8).

### **4.2.1 Questionnaire Development**

The survey design and questionnaire development mainly followed the recommendations and guidelines by Dillman and colleagues (2014) as well as MacKenzie and Podsakoff (2012).

The questionnaire was introduced by emphasizing the sponsorship by a legitimate authority, that is, the Chair of International Marketing of the European University Viadrina Frankfurt/Oder, and by briefly stating the research purpose, that is, to study “Facebook use and attitudes”. Underscoring the university sponsorship of the survey is also advocated by Newman (2014) to avoid missing data. Afterwards, the scientific purpose of the study and data anonymization were assured. As proposed by Dillman and colleagues (2014), the most general question concerning nearly every participant was placed at the beginning, while sensitive demographic questions were asked at the end of the questionnaire (Lindell/Whitney, 2001). The questions comprised both self-developed cultivation items and established scales from extant literature that were translated into German. A detailed description of them is to be found in section 4.2.4. Generally, the questionnaire length was limited and understandability was increased by including shortened scales from extant literature and questions that were not too complex (also for the questionnaires of the two experiments described in sections 4.3 and 4.4). Avoiding lengthy questionnaires can also help to reduce common method bias (Lindell/Whitney, 2001) (see also section 4.2.5.6). Another way is to proximally separate criterion and predictor variables (Podsakoff et al., 2003), which was also done in the survey.

A mixed-mode survey design was employed to create synergistic effects and increase response rate (Dillman et al., 2014). Thus, two different survey modes, that is, online and

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offline, were utilized to address different people of the target population (see also section 4.2.2). As recommended by Dillman and colleagues (2014), the same wording and question format was used for the online and offline questionnaire. Additionally, visually appealing and easy to handle elements as sliders were integrated in the online survey (Vincente/Reis, 2010), while forced or required responses were not. Besides, respondents were also allowed to go back and forth within the survey. Finally, the web-based survey was also optimized and made compatible for survey participation via mobile devices.

The questionnaire was reviewed by an experienced senior researcher and three other researchers. Controversial questions and wording were discussed to optimize the questionnaire. Additionally, the usability of the online survey was tested and assessed by an expert. Corresponding feedback was incorporated before finalizing and distributing the online questionnaire. The data collection method and the sampling frame are presented in the following paragraph (4.2.2).

#### **4.2.2 Sampling Frame and Data Collection**

Facebook users served as target population, since the cultivation of perceptions by Facebook use constitutes the study focus. To directly target Facebook users, a web-based, online questionnaire was firstly distributed via Facebook.

Nowadays, web-based surveys are popular data collection techniques corporations, researchers, and institutions make use of. In his highly cited review in 2000, Couper (2000) already stressed that “Web surveys are proliferating at an almost incomprehensible rate” (p. 490). Focal advantages range from low costs, speed and scope of distribution and data availability, economies of scale, and reach, to anonymity and thus reduced interviewer bias, as well as convenience for respondents (Couper, 2000; Dillman et al., 2014; Fan/Yan, 2010). Contrarily, potential shortcomings in comparison to traditional surveys which are typically underlined include response rates and nonresponse bias (Couper, 2000). However, Barrios and colleagues (2011) highlighted that response rate comparisons between web and traditional surveys revealed ambiguous results. These mixed empirical findings could be attributed to the methodology applied and survey administration (e.g., Sax et al., 2003), sample characteristics, questionnaire design and topic, and sampling method (Barrios et al., 2011; Fan/Yan, 2010; Huang, 2006). Limited internet access and computer literacy and experience as obstacles for

web surveys might be an issue of decreasing importance due to the ubiquity of computers, smartphones, and wireless internet availability. The issue of representativeness and diversity of web survey samples that is often raised was, among others, studied by Gosling and colleagues (2004). They compared the internet and traditional samples of all publications of the *Journal of Personality and Social Psychology* in 2002 and found that internet samples were even more diverse in many domains (e.g., gender), although not completely representative of the population at large. Web surveys and data collection via Facebook are gaining constantly more popularity and recognition among researchers (Schober et al., 2016), since Facebook facilitates the recruitment of large and diverse samples (Baltar/Brunet, 2012; Kosinski et al., 2015).

Due to the sample unit and the advantages of Facebook as research tool, the questionnaire link created by the online survey hosting site Qualtrics ([www.qualtrics.com](http://www.qualtrics.com)) was posted on the author's personal Facebook profile page end of October 2013. By this means, Facebook users, which are the target sample, could be directly addressed via the medium of interest. The link was also shared by some of the author's Facebook friends, which created a snowball sampling effect (Kosinski et al., 2015; McAndrew/Jeong, 2012). Additionally, the survey link was posted on the official Facebook pages of several German universities and in forums of professional SNS including LinkedIn ([www.linkedin.com](http://www.linkedin.com)) and Xing ([www.xing.com](http://www.xing.com)), a German version of LinkedIn. A reminder was posted on the author's personal Facebook profile page three days, one and two weeks after the initial posting. Again, the link was also shared by some Facebook friends. Overall, the survey link was active for 25 days.

The survey was further administered offline to a convenience sample of undergraduate marketing students of a German university. Thereby, a bias towards people using the internet and SNS more frequently and thus being more inclined to take part in the online survey could be avoided (Hargittai, 2007). Moreover, this mixed-mode survey design can increase the response rate (Dillman et al., 2014), and personally distributing the questionnaires can additionally reduce missing values (Newman, 2014).

Gathering data online and offline yielded a sample of 678 individuals. Since the objective of the study was to consider Facebook use intensity and not whether someone uses Facebook in general or never, respondents without a Facebook account were excluded. Accordingly, all participants who indicated both to browse Facebook zero minutes and to have no Facebook friends (or who did not provide any information for these questions) were eliminated. That

related to the definition of an active Facebook user by Ugander and colleagues (2011), that is, login in the last 28 days and at least one Facebook friend (see section 2.2.1.1). Besides, all non-German respondents, that is, without a German passport (or those who did not provide any information for this question) (see control variables in section 4.2.4.3), were excluded. That is due to the focus on perceived prevalence of ethnic diversity in Germany (see section 4.2.4.2) from German individuals' (i.e., the ethnic majority) point of view. Furthermore, the subjects that did not indicated sex, age, income, and/or education were not considered (for more details on missing data, see section 4.2.5.3). These demographic data served as crucial control variables in the further analyses (see control variables in section 4.2.4.3). The exclusion of non-German respondents and respondents without a Facebook account and demographic data resulted in a final sample of 476 individuals. Before eliminating them from the sample, there were eight individuals (or 1.65%) without a Facebook account that indicated to have a German passport and revealed all demographic information. Due to this small number/percentage of cases, it was not further tested if they were any differences between subject with and without a Facebook account on the demographic and outcome variables of the subsequent analyses (cf. Valenzuela et al., 2009). The data collection procedure and sample figures are summarized in Table 11. In the subsequent section (4.2.3), the sample is characterized and described in depth.

Table 11. Study 2: Data Collection Overview

	Data Collection	
	Online	Offline
<b>Sample</b>	Facebook Professional SNS	Undergraduate Marketing students
<b>Sample Size</b>	$n = 416 \rightarrow$	$N = 678$ $\leftarrow n = 262$
<b>Excluded Cases</b>	Subjects without Facebook account and without German passport Subject that did not provide demographic data	
<b>Final Sample Size</b>	$n = 273 \rightarrow$	$N = 476$ $\leftarrow n = 203$

### 4.2.3 Sample Characteristics and Descriptives

The mean age of the sample population was 23.99 years and ranged from 16 to 53 years. 96.7% of the sample was between 18 and 34 years old. By comparison, 81.09% of the German Facebook users in January 2014 was between 18 and 54 years old and the majority, that is, 51.87%, of the German Facebook users was between 18 and 34 years old (allfacebook.de, 2014). Thus, the sample is a good representative of the Facebook population

in Germany. Globally, 91% of the Facebook users were between 16 and 54 years old as end of 2014 and 53% between 16 and 34 years old, respectively (GlobalWebIndex, 2015) (97.1% in the sample were between 16 and 34 years old).

More than half of the sample, that is, 57.35% of the sample were female, which is in line with studies showing that females were more likely to be Facebook users as well as heavier and more active Facebook users (e.g., McAndrew/Jeong, 2012; Wells/Link, 2014). Among the users, 28.57% possessed a university degree. The mean Facebook usage time was 44.29 minutes. Table 12 gives an overview of the sample descriptives.

Table 12. Study 2: Sample Descriptives

	<i>Mean</i>	<i>(SD)</i>	<i>Min</i>	<i>Max</i>
Facebook Use	44.29	(58.78)	0	800
Age	23.99	(4.70)	16	53
Income	1,081.36	(1,187.95)	0	7,000
	<b>Male (%)</b>		<b>Female (%)</b>	
Sex	42.65		57.35	
	<b>University Degree (%)</b>		<b>No Degree (%)</b>	
Education	28.57		71.43	

*Note.*  $N = 476$ .

#### 4.2.4 Measures

In the following paragraphs, the independent (4.2.4.1), dependent (4.2.4.2), and control variables (4.2.4.3) included in the questionnaire are described.

##### 4.2.4.1 Independent Variables

The independent variable was Facebook use. It was measured by self-reports of the average daily amount of time (in minutes) actively (i.e., posting, chatting, messing etc. and not just be passively logged in) spent on Facebook (Ellison et al., 2007; Ellison, Vitak, et al., 2014). The question was related to active use to avoid answers including the time spent online on Facebook but inactive (Ellison, Vitak, et al., 2014). The majority of cultivation studies (see also section 2.1.1) employed daily hours (e.g., Eisend/Möller, 2007) or weekly hours of TV viewing (e.g., O'Guinn/Shrum, 1997; Shrum et al., 1998) as operationalization of TV

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exposure. The self-reported, average daily amount of Facebook use in minutes (but with six categories as answer format) was only one part of the Facebook intensity scale of Ellison and colleagues (2007). The scale also contained a self-reported measure of total Facebook friends and six attitudinal Liker-type scale items. The two self-reported measures and the attitudinal items were standardized and averaged to create a composite, multi-item measure. To measure TV viewing, Shrum and colleagues (2011) also favored a multi-item scale consisting of six Likert-typed scale items. Their justification was the relative inferiority and potential lower reliability of single-item compared to multi-item scales. Nevertheless, the authors further tested their hypotheses using a single-item measure (i.e., self-reported average daily hours of TV viewing) instead of the multi-item measure, and the results remained the same (Shrum et al., 2011).

Generally, measurement by multi-item scales has dominated in empirical (marketing) research. The advocating of multi-item scales has been already strengthened by the seminal articles of Churchill (1979) and Peter (1979) underlining the scales' superior validity and reliability. More recently, Rossiter (2002) and Bergkvist and Rossiter (2007, 2009) doubted this view and recommended the use of single-item use for (doubly) concrete constructs. The latter authors also presented evidence of better predictive validity of single-item scales for doubly concrete constructs. The scholarly discussions and empirical validation which scale to employ went on and are still in progress (Bergkvist, 2015; Diamantopoulus et al., 2012; Kamakura, 2015; Sarstedt et al., 2016). Böckenholt and Lehmann (2015) concluded "that there is no definite answer to the question of whether one "should" use single- or multi-item scales" (p. 259). The decision rather depends on a trade-off between practical aspects (e.g., scale length) and the impact on the respondent on the one hand and psychometric aspects and measurement precision on the other hand. This dissertation utilizes a single-item scale similar to measures of TV viewing in prior cultivation studies (e.g., Hetsroni/Tukachinsky, 2006).

#### ***4.2.4.2 Dependent Variables***

Three cultivation items were developed to measure the perceived prevalence of ethnic diversity. Extant cultivation research (e.g., O'Guinn/Shrum, 1997; Shrum et al., 1998) regularly used frequency (i.e., percentage) estimations to quantify the prevalence of certain social phenomena and incidents (e.g., affluence, occupations). In general, probability and prevalence/frequency estimates are typical first-order cultivation judgments

(Hawkins/Pingree, 1982; Potter, 1991a, b; see also section 2.1.2.1). Moreover, the percentage of migrants or minority group members within a larger group or population constitute the typical measure of ethnic diversity in previous research (van der Meer/Tolsma, 2014).

Hence, survey participants were asked to estimate the percentage of ethnic minorities in Germany (“*How high is the percentage of people that belong to ethnic minorities in Germany?*“), which measured the perceived societal ethnic diversity. For the sake of understandability, the following brief definition of ethnic minorities was given subsequent to the question: “*Ethnic minorities are people who were born in non-German countries or children of them who are currently living in Germany.*” Besides, respondents had to indicate the number of friends of ethnic minority groups (“*How high is the percentage of your friends who are members of an ethnic minority group?*”) and how many colleagues (work, university, and/or school) of ethnic minority groups they have (“*How high is the percentage of your colleagues, classmates, and/or schoolmates who are members of an ethnic minority group?*”). Comparable to previous cultivation studies, these three perceptual cultivation items were open questions, which Potter (1994), for instance, advocated to achieve more variance in responses. While the perceived number of international friends and colleagues refers to the users’ close social environment, the perceived societal ethnic diversity relates to the users’ distant social environment (i.e., society) (Bilandzic, 2006). Prior studies (e.g., O’Guinn/Shrum, 1997; Shrum et al., 1998) often averaged different topic-related prevalence (percentage) estimates to create composite measures.

However, the survey comprised separate measurements by single-item scales to account for the respondents’ different social distances to the constructs.

#### **4.2.4.3 Control Variables**

Cultivation effects are predominantly examined by controlling for demographic background factors (Morgan et al., 2015; see also section 2.1.3). These factors typically included age, sex, income, and education level (Shrum et al., 2011). They were assumed to correlate with TV viewing (e.g., Shrum, 2007a) and may be sources of spuriousness of cultivation effects (Shrum, 1999b; Shrum et al., 1998).

Demographic user characteristics might correlate with Facebook use intensity, too. In their review, Nadkarni and Hofman (2012) revealed that users’ sociodemographic characteristics



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(e.g., gender) influenced Facebook use. McAndrew and Jeong (2012) investigated that female and younger individuals used Facebook more frequently. Hargittai (2007) figured out the same relationships and that subjects' parental education (which might predict the subjects' educational level) was positively related to Facebook use.

Furthermore, demographic characteristics might also affect the dependent variables of the present study, that is, the perceived prevalence of ethnic diversity. For instance, Yearwood and colleagues (2015) found that Facebook users' income was negatively related to their amount of international Facebook friends. As an individual's online social network is usually coupled with his/her offline social network (Ellison et al., 2007), Facebook international friends and real-world international friends (and the perceived number of them) might be correlated. Accordingly, income might also influence the perceived number of ethnic minority friends and probably that of ethnic minority colleagues, since the social capital on Facebook unifies strong (i.e., friends) and weak (i.e., colleagues) ties (Ellison et al., 2007). Demographic controls were also regularly included in studies concerning social capital and Facebook authored by Ellison, Gray, and colleagues (2014), Ellison and colleagues (2007, 2011), and Ellison, Vitak, and colleagues (2014).

Consequently, the survey participants were asked to indicate their age (in years), sex (male versus female), income (before taxes), and education level (university degree (Bachelor, Master, Diploma) versus no university degree as the two major education groups in the sample). While the items for age and income were open questions, sex and income were dummy-coded. Both answer formats are best suitable for the subsequent regression analyses, and measuring demographics by single-item scales is accepted practice (Wanous et al., 1997).

Additionally, a dummy variable "data" for the way the data were collected (i.e., online versus offline) was included to control for possible confounds of the context of data collection. Shrum (2007b) argued that cultivation effects could differ due to data collection methods. That results from different levels of time pressure. While online survey participants could complete the questionnaire in their leisure at home without time restrictions, their offline survey counterparts had to fill out self-administered questionnaires in a certain timeframe at the beginning of their classes. Time pressure can induce heuristic processing (Shrum, 2001). Shrum (2007a) experimentally revealed stronger cultivation effects in a telephone survey (high time pressure and more heuristic processing) compared to a mail survey (low time pressure and less heuristic processing) condition, where cultivation effects did even not reach

statistical significance (see also section 2.1.2.2). Moreover, differences can be due to the social distance between researcher and participant, which is larger for the online survey (Kosinski et al., 2015). That can induce anonymity that might influence the respondents' motivation and the integrity of data (e.g., repeat responders) (Gosling et al., 2004).

Finally, the questionnaire asked for the number of total Facebook friends (*"As for now, about how many total Facebook friends do you have?"*), international Facebook friends (*"As for now, about how many total Facebook friends of different ethnical/national background do you have?"*), and working hours (*"On average, how many hours per week do you work and/or study?"*). These were open questions. Respondents also had to indicate whether they have a German passport (*"Do you have a German passport?"*, dummy coded). As already mentioned in section 4.2.2, number of total and international Facebook friends and the question asking for the German passport served to control whether the respondents are appropriate subjects for the final sample and the analyses concerning the research hypotheses. The control variable working hours was additionally included because it probably influences the perception of ethnic minority colleagues. The amount of working/studying hours might influence the contact with and exposure to ethnic minority colleagues (i.e., personal experiences with them) and thus the corresponding perceptions of their prevalence.

#### **4.2.5 Measurement Properties and Descriptives**

After illustrating the focal measures of the study, their properties and descriptives are portrayed, specifically, descriptive statistics (4.2.5.1), data distribution (4.2.5.2), missing data (4.2.5.3), reliability and validity (4.2.5.4), nonresponse bias (4.2.5.5), and common method bias (4.2.5.6). The paragraph dwells on some topics to present different approaches and methods and the reasoning of their use for the present data.

##### **4.2.5.1 Descriptive Statistics**

The correlation matrix of all directly relevant measures as well as descriptives statistics for the independent and dependent variables are displayed in Table 13.

Table 13. Study 2: Correlation Matrix

	<i>Mean (SD)</i>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	
<b>1</b>	Facebook Use	44.29(58.78)	-									
<b>2</b>	Age	-	-.090*	-								
<b>3</b>	Sex	-	-.040	-.050	-							
<b>4</b>	Income	-	-.051	.600***	-.163***	-						
<b>5</b>	Education	-	-.064	.433***	-.047	.478***	-					
<b>6</b>	Data	-	.045	-.455***	-.055	-.404***	-.470***	-				
<b>7</b>	Working Hours	35.15(16.27)	.044	.168***	-.096*	.263***	.142**	-.065	-			
<b>8</b>	Perceived Societal Ethnic Diversity	25.22(13.69)	.124**	-.034	.275***	-.071	.002	-.026	-.096*	-		
<b>9</b>	Perceived Number of Ethnic Minority Friends	23.93(23.39)	.142**	-.129**	-.051	-.104*	-.112*	.217***	-.050	.147**	-	
<b>10</b>	Perceived Number of Ethnic Minority Coll.	27.13(20.41)	.096*	-.132**	.002	-.177***	-.136**	.189***	-.160***	.249***	.589***	-

Note. Coll. = Colleagues. Missing values excluded pairwise. For means and standard deviations of age and income, see Table 12.

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .

#### 4.2.5.2 Distribution of Data

For choosing the appropriate test, the distribution of data, particularly, of the dependent measures, is often decisive. Consequently, the dependent measures were checked whether they follow a normal distribution. That is realized by a) visualizing the distribution, that is, by histograms (Greene, 2011), and b) by statistical tests including the KS and Shapiro-Wilk (1965) tests. The histograms displayed in Figure 8 already indicated deviations from normality. The results of the KS test revealed significant deviations from normal distribution for all three dependent variables, that is, perceived societal ethnic diversity ( $d = .114, p < .001$ ), perceived number of ethnic minority friends ( $d = .191, p < .001$ ), and perceived number of ethnic minority colleagues ( $d = .121, p < .001$ ). The Shapiro-Wilk test corroborated these findings for the perceived societal ethnic diversity ( $W = .950, p < .001$ ), the perceived number of ethnic minority friends ( $W = .853, p < .001$ ), and the perceived number of ethnic minority colleagues ( $W = .930, p < .001$ ).

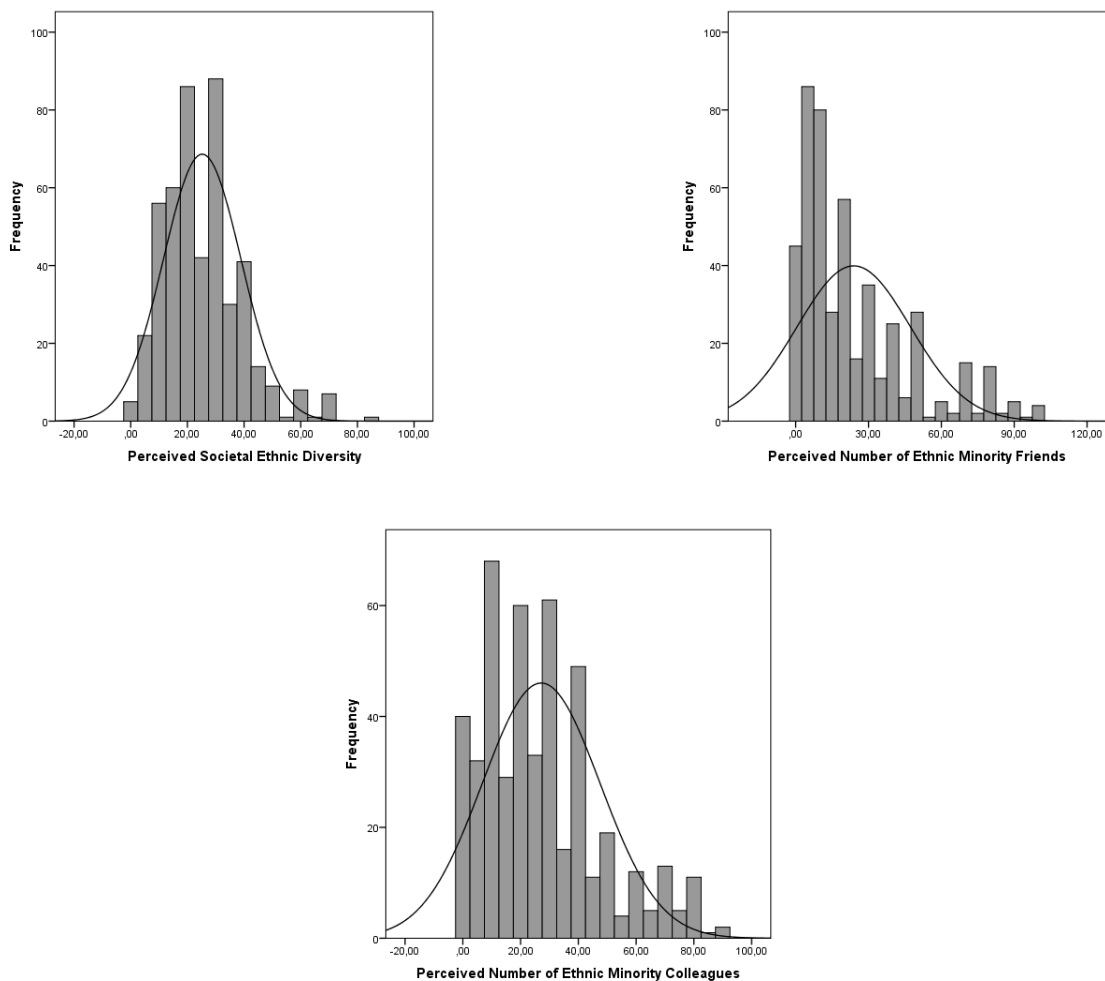


Figure 8. Study 2: Histograms of Dependent Measures

#### 4.2.5.3 *Missing Data*

As already mentioned in section 4.2.2, the initial survey sample comprised 202 cases (29.8% missing data/excluded cases) that are not suitable for further analyses because of the study objective as well as the necessity to include certain control variables. Accordingly, the issue of treating missing data that challenges field and empirical researchers from year one arised.

A multitude of recommendations and missing data treatments has evolved, but the seminal books of Little and Rubin (1987) and Rubin (1987) have revolutionized the scholarly discourse about and the treatment of missing data (for reviews, see also Graham, 2009; Little/Rubin, 2002; Schafer/Graham, 2002). The default option of missing data treatment for regression analyses is usually listwise deletion of cases (or complete case analysis), that is, to incorporate only the cases in the analyses for which all (relevant) data are available (Graham, 2009). This method seems also to dominate in communication research (Myers, 2011). However, listwise deletion is only considered unbiased for data missing completely at random (Newman, 2014). The latter term stems from Rubin's (1976) typology that differentiated missing data into missing completely at random (MCAR), missing at random (MAR), and missing not at random (MNAR). MCAR meant that the probability that data were missing depended neither on the observed data nor on the missing data values. MAR implied that the probability that data are missing might depend on the observed data, but not on the missing data values. In the case of MNAR, the probability of missing data depended on the value of the missing data themselves (Graham, 2009; Newman, 2014).

Out of the 202 cases considered not usable for further analyses, 80 participants lacked all demographic data and generally the majority of the answers. Nearly all (77 out of 80) of these cases were participants of the online survey (70.8% of all missing data were online survey cases) and 16 of them (all online) did not respond to any of the survey questions. These subjects possibly clicked on the survey link accidentally or had not enough time to finish. Thus, these missing data might be just MCAR.

The other cases ( $n = 122$ ) are more difficult to evaluate. For 87 cases, the income figure was missing. This sensitive question was possibly not answered on purpose. That would imply data MNAR, as missingness of income might depends upon the value of the income (Myers, 2011). The remaining 35 cases lacked different answers and no pattern was identifiable. These missing data might be MCAR or MAR.

In sum, the missing cases in the sample might comprise missing data MCAR, MAR, and MNAR. According to Graham (2009), nonignorable missingness is related to MNAR, while ignorable missingness applies to MCAR and MAR. A definite quantification of the number of cases of every type in the sample was rather difficult. Concerning the pattern of missing data, one might assume that substantially less than the half of cases is MNAR. Therefore, the default option listwise deletion was applied.

To test for a potential bias due to missing data and their listwise deletion, excluded participants ( $n = 202$ ) and subjects of the finale sample ( $n = 476$ ) were compared in terms of differences in the outcomes variables. Before testing for potential differences, the distributions of the dependent variables of interest were again checked, but this time for the whole sample consisting of the initial 678 answers. The KS test indicated significant deviations from normal distribution for all three dependent variables, that is, perceived societal ethnic diversity ( $d = .122, p < .001$ ), perceived number of ethnic minority friends ( $d = .188, p < .001$ ) and perceived number of ethnic minority colleagues ( $d = .127, p < .001$ ). Thus, a Mann-Whitney U (Mann/Whitney, 1947) test, that is, a nonparametric test comparing ranks, instead of an independent sample  $t$ -test should be applied (MacDonald, 1999; Sawiloswky/Blair, 1992). Generally, scholarly discussions about the use of nonparametric or robust statistical methods are vivid and ongoing (e.g., Erceg-Hurn/Mirosevich, 2008; Glass et al., 1972; Wilcox, 1998; see also 4.3.5). The results of the Mann-Whitney U test are depicted in Table 14. The findings did not reveal any differences between removed cases and cases of the final sample in relation to the dependent variables, that is, a bias due to missing data was not detected.

Table 14. Study 2: Comparison of Final Sample and Removed Cases

	Final Sample	<i>n</i>	Mean Rank	Sum of Ranks	Mann-Whitney U	
					<i>Z-Value</i>	<i>p</i>
Perceived Societal Ethnic Minority	Yes	471	313.36	147,594.50	-1.082	.279
	No	164	331.31	54,335.50		
Perceived Number of Ethnic Minority Friends	Yes	468	290.86	136,120.50	-.188	.851
	No	114	294.14	33,532.50		
Perceived Number of Ethnic Minority Coll.	Yes	471	294.38	138,651.00	-.254	.800
	no	115	289.91	33,340.00		

Note. Coll. = colleagues

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#### 4.2.5.4 *Reliability and Validity*

Reliability and validity are the central measurement quality criteria (Churchill, 1979). Hereafter, the discussion concentrates on the most essential forms of both.

The dominant measure for assessing the reliability of scales (besides test-retest measurements) is internal consistency quantified by Cronbach's (1951) Alpha (Churchill, 1979; Cortina, 1993b; Peter, 1979). Its computation was not possible for the constructs of the cross-sectional survey, since only single-item scales were included (for details, see section 4.2.4). Wanous and Reichers (1996) offered an approach to estimate the minimum reliability value of a single-item scale by using the correction for attenuation formula of Nunnally and Bernstein (1994), and different researchers empirically applied it (e.g., Bergkvist, 2015; Wanous/Hudy, 2001; Wanous et al., 1997). However, it is not applicable to the present data, since at least one reliability estimate of another measure from the same conceptual domain has to be known.

The main forms of validity are face (or content) and construct validity (Churchill, 1979), whereas the latter is composed of convergence and discriminant validity (Campbell/Fiske, 1959).

Face validity was retained by using established or slightly adapted scales. Comparable to the assessment of reliability, consistency is also the norm for evaluating convergent validity (Voorhees et al., 2016). Again, an assessment was not possible.

In their recent review, Voorhees and colleagues (2016) studied the usage of discriminant validity assessment in the seven leading marketing journals between 1996-2012 (and more exhaustively from 2008-2012). Based on their findings, the authors recommended to use the average variance extracted versus shared variance method (Fornell/Larcker, 1981) or the heterotrait-monotrait ratio method (Henseler et al. 2015). Unfortunately, both methods are intended for studying multi-item scales. Thus, they advised to deploy the overlapping confidence intervals technique (Anderson/Gerbing, 1988). This technique compares the correlations for all variables in the model. Discriminant validity will be supported, if the 95% confidence interval for any correlation does not include 1.0. Since this was the case for the present data and study variables, discriminant validity was indicated. The highest correlations of .600 and .589, respectively (see Table 13), already prompted this conclusion.

#### 4.2.5.5 *Nonresponse Bias*

As explained in section 4.2.2, the sample consisted of an online and offline subsample. The questionnaire administered offline was completed by all the undergraduate students it was distributed to. Hence, nonresponse bias is not assumed to be an issue for this part of the sample. On the contrary, response rates and nonresponse bias are points of criticism of online or web surveys (Couper, 2000). This critique usually relates to web-based mail surveys and their response rates and nonresponses.

In this regard, Facebook as a research and survey tool is different. The process and pattern of exposure to and dissemination of information are highly complex and based on the interplay of social algorithms and user behavior (Lazer, 2015). The audience of posts is invisible and difficult to quantify (Bernstein et al., 2013). Nevertheless, Facebook offers tremendous potential for snowball sampling (Kosinski et al., 2015).

Thus, neither the audience which can be addressed by a post (or survey participation request) nor the corresponding response rate can be determined with certainty. That also pertained to the online sample described in section 4.2.2. However, it can be assumed that not all people who noticed the survey link participated in the survey.

Following Armstrong and Overton (1977), the early and late respondents (of the online sample) were compared to check for nonresponse bias.

Recent studies in the marketing field use different figures to delineate early and late respondents, for instance, the first and last 25% of responses (Frank et al., 2014), the first and last 50 respondents (Koch/Benlian, 2015), or the respondents within the first and last two weeks of a four-week data collection period (Hille et al., 2015). For the present survey data, all 30 respondents completing the survey after the last reminder (i.e., late respondents) were compared to the 30 first respondents (i.e., early respondents) of the final online sample. As an additional check, the first and last 50 respondents of the final online sample were contrasted. The last 50 respondents nearly coincided with all the participants of the second half of the data collection period (cf. Hille et al., 2015).

The KS test indicated significant deviations from normal distribution for all three dependent variables for both sample sizes: perceived societal ethnic diversity ( $d = .153$ ,  $N = 100$ ,  $p < .001$ ), perceived number of ethnic minority friends ( $d = .184$ ,  $N = 60$ ,  $p < .001$ ;  $d = .174$ ,  $N = 100$ ,  $p < .001$ ), perceived number of ethnic minority colleagues ( $d = .116$ ,  $N = 59$ ,  $p = .047$ ;  $d$



= .096,  $N = 99$ ,  $p = .024$ ), except for perceived societal ethnic diversity ( $d = .093$ ,  $N = 60$ ,  $p > .200$ ) for the comparison of the 30 early and late respondents. Hence, Mann-Whitney U tests were used to compare early and late respondents, except for perceived societal ethnic diversity for  $N = 60$ . The independent-samples  $t$ -test comparison of the early and late respondents ( $N = 60$ ) for the perceived societal ethnic diversity showed no differences ( $t(58) = -0.913$ ,  $p = .365$ ) between respondents.

The results of Mann-Whitney U tests in Tables 15 and 16 also indicated no differences between early and late respondents. The only exception was a marginally significant difference in relation to perceived number of ethnic minority friends for the larger sample of overall 100 respondents (see Table 16). Therefore, it was assumed that nonresponse bias was not present in the data, particularly, since it was not even proven in the (online) subsample.

Table 15. Study 2: Test for Nonresponse Bias ( $N = 60$ )

	Data Collection	$n$	Mean Rank	Sum of Ranks	Mann-Whitney U	
					$Z$ -Value	$p$
Perceived Number of Ethnic Minority Friends	Early	30	27.65	829.50	-1.265	.206
	Late	30	33.35	1,000.50		
Perceived Number of Ethnic Minority Coll.	Early	29	30.02	870.50	-0.008	.994
	Late	30	29.98	899.50		

Note. Coll. = colleagues.

Table 16. Study 2: Test for Nonresponse Bias ( $N = 100$ )

	Data Collection	$n$	Mean Rank	Sum of Ranks	Mann-Whitney U	
					$Z$ -Value	$p$
Perceived Societal Ethnic Minority	Early	50	46.72	2,336.00	-1.305	.192
	Late	50	54.28	2,714.00		
Perceived Number of Ethnic Minority Friends	Early	50	45.35	2,267.50	-1.777	.076
	Late	50	55.65	2,782.50		
Perceived Number of Ethnic Minority Coll.	Early	49	47.49	2,327.00	-0.862	.389
	Late	50	52.46	2,623.00		

Note. Coll. = colleagues.

#### **4.2.5.6 Common Method Bias**

Common method bias can be defined as the “magnitude of discrepancies between the observed and the true relationships between constructs that results from common methods variance” (Doty/Glick, 1998, p. 376). Common method variance (CMV) is the “systematic error variance shared among variables measured with and introduced as a function of the same method and/or source” (Richardson et al., 2009, p. 763). CMV can bias estimates of construct validity and reliability as well as parameter estimates of relationships between constructs (for a review, see MacKenzie/Podsakoff, 2012). It can arise from numerous sources including common rater, item characteristic, item context, and measurement context effects (for a review, see Podsakoff et al., 2003). In their review, MacKenzie and Podsakoff (2012) also summarized several factors influencing respondents’ ability (e.g., complex or abstract questions) and motivation (e.g., low personal relevance of the issue) to answer accurately. Lindell and Whitney (2001) advised researchers to reduce CMV by questionnaire design, for instance, limited questionnaire length, certain question ordering, and reverse scoring of items. In the questionnaire design stage, several recommendations were followed to limit the potential of CMV *ex ante* (see section 4.2.1). Additionally, statistical remedies supplemented these procedural ones.

One way, besides others, to detect and test for CMV constitutes the correlational marker technique (Richardson et al., 2009). Originally developed by Lindell and Whitney (2001), it became the predominant technique used in empirical studies (for a review, see Simmering et al., 2015). More recent studies and reviews (Podsakoff et al., 2012; Williams et al., 2010; Williams/O’Boyle, 2015) advocate the use of a confirmatory factor analysis marker technique to detect and correct for CMV. This technique requires the use of reflective indicators of latent variables and the *a priori* choice of a marker variable that captures or taps into at least one source of bias (Williams et al., 2010; Williams/O’Boyle, 2015). In the present case, the correlational marker technique was preferred because it also allows to select a marker variable in a *post hoc* fashion (Malhotra et al., 2006; Richardson et al., 2009). Lindell and Whitney (2001) originally suggested to *a priori* identify and use a marker variable that is theoretically unrelated to the substantive or focal variables in the research. However, they simultaneously shared the view of Lindell and Brandt (2000) of using the smallest correlation between the manifest variables as a proxy for a CMV marker variable. Moreover, the second-lowest correlation has been regularly used as a more conservative estimate of CMV (e.g., Bergkvist, 2015; Malhotra et al., 2006). The correlation between the marker variable (or the proxy

described above) and the substantive variables provides an estimate for CMV. The logic of is as follows: if there is any observed correlation between marker and substantive variable, it might not result from a theoretical relation but from something else they have in common, that is, CMV. The shared variance among them is assumed to be related to an unmeasured method factor and thus to be representative for CMV (Richardson et al., 2009). Equation (2) can be used to partial out the same amount of variance at the construct level from every relationship it is applied to, while Equation (3) provides the  $t$ -statistic to test whether this relationship is significant. Thus, the impact of CMV on magnitude and significance of correlations can be examined (Malhotra et al., 2006).

$$r_A = \frac{r_U - r_M}{1 - r_M} \quad (2)$$

$$t_{\alpha/2, n-3} = \frac{r_A}{\sqrt{(1 - r_A^2)/(n-3)}}, \quad (3)$$

where  $r_A$  is the CMV-adjusted correlation,  $r_M$  is the (second-)lowest correlation between the marker variable and substantive variables,  $r_U$  is the uncorrected correlation between two variables suspected to be contaminated by CMV, and  $n$  is the sample size (Lindell/Whitney, 2001).

Table 13 above displays the correlations between the focal measures of the analyses. The lowest and second lowest correlations are  $r = .00232$  and  $r = .00229$ , respectively (in Table 13, all correlations were rounded to three decimal figures). Nevertheless, the value of  $r = .002$  is used for the CMV adjustment of correlations and test of significance levels explicated in Equations (2) and (3). The CMV-adjusted correlation matrix is shown in Table 17. None of the correlations became insignificant, and none of their signs changed. That holds also true for  $r = .00232$  and  $r = .00229$ . Accordingly, the relationships between the focal variables of the study at hand were assumed to be not biased due to CMV.

Another possibility to detect CMV in a post hoc fashion is Harman's single-factor test. In this test, all study variables are subject to exploratory factor analysis. If one single factor emerges from this analysis, or one general factor explains the majority of covariance among the variables, CMV will be assumed to exist (Podsakoff et al., 2003). Despite its simplicity, this technique lacks generally sensitivity to detect moderate or small levels of CMV, and researchers from different disciplines discourage from applying it (Chang et al., 2010; Malhotra et al., 2006; Podsakoff et al., 2003).

Table 17. Study 2: Correlation Matrix (CMV-Adjusted)

	1	2	3	4	5	6	7	8	9	10
1 Facebook Use	-									
2 Age	-.092*	-								
3 Sex	-.042	-.052	-							
4 Income	-.053	.599***	-.165***	-						
5 Education	-.066	.432***	-.049	.477***	-					
6 Data	.043	-.458***	-.057	-.407***	-.473***	-				
7 Working Hours	.042	.166***	-.098*	.262***	.140**	-.067	-			
8 Perceived Societal Ethnic Diversity	.122*	-.036	.274***	-.073	.000	-.028	-.098*	-		
9 Perceived Number of Ethnic Minority Friends	.140**	-.131**	-.053	-.106*	-.114*	.215***	-.052	.145**	-	
10 Perceived Number of Ethnic Minority Colleagues	.094*	-.135**	.000	-.179***	-.138**	.187***	-.162***	.247***	.588***	-

Note. Missing values excluded pairwise.

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .

#### 4.2.6 Analytical Procedure and Regression Assumptions

In contrast to the preceding section about measurement properties and descriptives (4.2.5), the following discussion will be more concise, as standard statistical tests and methods are applied.

Similar to previous cultivation studies (e.g., Shrum, 2001; Shrum et al., 1998), stepwise multiple regression analyses were performed in order to test the first-order cultivation effects. Stepwise multiple regression meant that the control variables were entered as a block in the first step, and Facebook use was entered in the second step. If Facebook use was related to the dependent variables over and above the control variables, the incremental change in  $R^2$  (i.e., the goodness fit measure) in the second entry step should be significant.

The generic form of the multiple linear regression model is as follows:

$$y = \beta_0 + \beta_1x_1 + \beta_2x_2 + \dots + \beta_kx_k + \varepsilon, \quad (4)$$

where  $y$  is the dependent variable,  $x_1, \dots, x_k$  are the independent variables,  $\beta_0$  is the intercept constant,  $\beta_1, \dots, \beta_k$  are the regression coefficients,  $k$  is the number of independent variables, and  $\varepsilon$  is the random disturbance or error term (Greene, 2011).

In stepwise or hierarchical multiple regression models (not to be confused with Hierarchical Linear Modeling), the independent variables are entered in sequence (Cohen et al., 2003). Referring to Cortina (1993a) (but without interaction effects), the procedure with the present variables is the following:

$$y = \beta_0 + \sum \beta_i c_i + \varepsilon \quad (5)$$

$$y = \beta_0 + \beta_1x_1 + \sum \beta_i c_i + \varepsilon \quad (6)$$

where  $y$  is the dependent variable (i.e., perceived prevalence of ethnic diversity),  $c_i$  are the control variables (i.e., age, sex, income, education, and data),  $x_1$  is the independent variable (i.e., Facebook use),  $\beta_0$  is the intercept constant,  $\beta_1$  and  $\beta_i$  are the regression coefficients,  $i$  is the number of control variables, and  $\varepsilon$  is the random disturbance or error term.

Equation (5) represents the baseline model with the control variables as predictors of the dependent variables, that is, the first step of the stepwise regression. In Equation (6), Facebook use as the focal independent variable (predictor) is added in the second step.

Several tests were conducted to check whether the conditions of ordinary least squares regression (OLS) were met. The main assumptions for OLS regression are linearity, model specification (e.g., no omitted independent variables), no perfect (multi-)collinearity, as well as homoscedasticity, nonautocorrelation (or independence), and normal distribution of residuals. (Cohen et al., 2003; Greene, 2011).

To check for linearity, the residuals can be plotted against each of the independent variables or the predicted value (Cohen et al., 2003). This graphical method can also be used to check for homoscedasticity of residuals. Furthermore, the regression specification test developed by Ramsey (1969), which was opted for in this dissertation, gives also a hint whether nonlinearities between independent variables exist, that is, the assumption of linearity is rejected. While there were no violations of linearity for the models predicting the perceived societal ethnic diversity ( $F(3, 461) = 1.398, p = .243$ ) and the perceived number of ethnic minority friends ( $F(3, 458) = 0.296, p = .829$ ), the model predicting the perceived number of ethnic minority colleagues ( $F(3, 461) = 6.119, p < .001$ ) seemed to violate this assumption.

However, this result can also originate from model misspecification, because the Ramsey test additionally investigates whether models are misspecified and/or variables are omitted. Although Gujarati and Porter (2008) argued that the test was not able to provide a better alternative to the misspecified model, it provided a good and easily applicable indication for model specification errors. Another possibility to test for model misspecification is the link test that is based on an idea of Tukey (1949). The link test regresses the dependent variable of the model on the variable of prediction ( $X\hat{\beta}$ ) and the variable of prediction squared ( $(X\hat{\beta})^2$ ). This test is based on the idea that there will be no other significant predictors except those already integrated in the model, if the model is correctly specified. Consequently, if the variable of prediction squared is significantly predicting the dependent variable, the assumption of correct model specification will be rejected. For the model predicting the perceived societal ethnic diversity ( $t(468) = -0.658, p = .511$ ) and the perceived number of ethnic minority friends ( $t(465) = -0.534, p = .593$ ), the variable of prediction squared was no significant predictor. However, it significantly predicted the perceived number of ethnic minority colleagues ( $t(468) = -2.049, p = .041$ ). That corroborated the findings of the Ramsey test and implied a potential specification error for the model predicting the perceived number of ethnic minority colleagues. Therefore, either the independent variables or their relationships to the dependent variable had to be revisited. A curvilinear relationship (e.g., inverted U-shaped) between Facebook use and the perceived number of ethnic minority

colleagues (i.e., the inclusion of a quadratic term of Facebook use) seems to be implausible, as it contradicts cultivation theory and the underlying availability heuristic. A variable that might influence the perceived number of ethnic minority colleagues is working hours (see also 4.2.4.3). After adding working hours as an additional independent variable to the model, the Ramsey and Link tests did not demonstrate specifications errors anymore (see Table 18).

For the subsequent regression assumption tests, the model predicting the perceived number of ethnic minority colleagues was supplemented by working hours as additional independent variable.

The variance inflation factor (VIF) gives indication of problems with (multi-)collinearity of variables, because it will be inflated by the presence of (multi-)collinearity (Gujarati/Porter, 2008). The VIFs of the independent variables of all models ranged from 1.010 – 1.851 (maximum for all three models). As a rule of thumb, VIFs higher than 10 indicate issues with (multi-)collinearity (Gujarati/Porter, 2008). Thus, there was no problem with (multi-)collinearity of independent variables in the present models.

To test homoscedasticity of residuals, the Breusch-Pagan (1979) test was applied. Its findings signified deviations from homoscedasticity for the model predicting the perceived societal ethnic diversity ( $\chi^2(1) = 15.680, p < .001$ ) and the model predicting the perceived number of ethnic minority friends ( $\chi^2(1) = 31.580, p < .001$ ). For the model predicting the perceived number of ethnic minority colleagues ( $\chi^2(1) = 2.672, p = .102$ ), no significant deviations were detected.

Since heteroscedasticity of residuals can lead to biased parameter estimates and to liberal confidence and significance tests (i.e., confidence intervals that are too wide and  $p$ -values that are too liberal), it is advisable to use heteroscedasticity-robust (or -consistent) standard errors (Hayes/Cai, 2007). These are asymptotically valid in the presence of heteroscedasticity (Woolridge, 2010). In this context, Hayes and Cai (2007) recommended to weight the squared OLS residuals by the factor  $\frac{1}{(1-h_{ii})^2}$ , where  $h_{ii}$ s are so-called leverage values. The weighting procedure does not alter the parameter estimates but provides more accurate confidence intervals and significance levels (Hayes/Cai, 2007). Thus, robust and heteroscedasticity-consistent standard errors were applied for the models predicting the perceived societal ethnic diversity and the perceived number of ethnic minority friends.

Though more relevant for longitudinal rather than cross-sectional data, autocorrelation can be statistically detected by the Durbin-Watson (1950, 1951, 1971) test. For the model predicting the perceived societal ethnic diversity, the Durbin-Watson test value amounted to  $d^l = 1.868$ . For the models predicting the perceived number of ethnic minority friends and the perceived number of ethnic minority colleagues, it was  $d^l = 2.036$  and  $d^l = 1.815$ , respectively. There is no exact critical value of the Durbin-Watson test statistic, but rather upper and lower bounds. Values around  $d^l = 2$  indicate no violations of the nonautocorrelation assumption (Cohen et al., 2003). Since that was the case for the three models, the assumption of nonautocorrelation was retained.

The KS test signified that the regression residuals did not follow a normal distribution, that is, the residuals of the regression models predicting perceived societal ethnic diversity ( $d = .066$ ,  $p < .001$ ), the perceived number of ethnic minority friends ( $d = .144$ ,  $p < .001$ ), and the perceived number of ethnic minority colleagues ( $d = .088$ ,  $p < .001$ ). The Shapiro-Wilk test confirmed these deviations from normality for the residuals for the models predicting perceived societal ethnic diversity ( $W = .961$ ,  $p < .001$ ), the perceived number of ethnic minority friends ( $W = .890$ ,  $p < .001$ ), and the perceived number of ethnic minority colleagues ( $W = .932$ ,  $p < .001$ ).

Violations of the normality assumption and related biased significance tests and confidence intervals are particularly problematic for small samples (Cohen et al., 2003). In large samples, the problems are less severe (estimators are rather robust against violations and approximately valid) and in the light of the central limit theorem, the assumption of normality of residuals can be relaxed (Greene, 2011; Howell, 2012). In general, the assumption of normality is rarely met in practice (Erceg-Hurn/Mirosevich, 2008).

Table 18 summarizes the findings of the regression assumptions tests.

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<sup>l</sup> *d*-value for Durbin-Watson test statistic not to be confused with *d*-value of KS test statistic



Table 18. Study 2: Regression Assumption Tests

Regression Assumptions and Tests	Perceived Societal Ethnic Diversity		Perceived Number of Ethnic Minority Friends		Perceived Number of Ethnic Minority Colleagues <sup>a</sup>	
	(Test) Value	p-Value	(Test) Value	p-Value	(Test) Value	p-Value
<b>Linearity/Model Specification</b>						
Ramsey	$F = 1.398$	.243	$F = 0.296$	.829	$F = 1.999$	.113
Link Test $((X\hat{\beta})^2)$	$t = -0.658$	.511	$t = -0.534$	.593	$t = -1.543$	.123
<b>(Multi-)collinearity</b>						
VIF	1.010 – 1.778		1.011 – 1.783		1.015 – 1.851	
<b>Homoscedasticity</b>						
Breusch-Pagan	$\chi^2 = 15.680$	< .001	$\chi^2 = 31.580$	< .001	$\chi^2 = 2.672$	.102
<b>Nonautocorrelation</b>						
Durbin-Watson	$d^b = 1.868$		$d^b = 2.036$		$d^b = 1.815$	
<b>Normality</b>						
KS	$d = .066$	< .001	$d = .144$	< .001	$d = .088$	< .001
Shapiro-Wilk	$W = .961$	< .001	$W = .890$	< .001	$W = .932$	< .001
<i>N</i>	471		468		466	

<sup>a</sup>Test results for the model including working hours as independent variable.

<sup>b</sup> $d$ -value for Durbin-Watson test statistic not to be confused with  $d$ -value of KS test statistic.

#### 4.2.7 Results

The results of the stepwise (hierarchical) multiple regression analyses are depicted in Table 19 and demonstrate that Facebook use significantly increases the perceived prevalence of ethnic diversity. In all three models, Facebook use is related to the corresponding dependent variable over and above the control variables, that is, the incremental change in  $R^2$  is significant for all three models (see 4.2.6). Hence, Facebook use explains a significant amount of variance in the three indicators of perceived prevalence of ethnic diversity.

First, Facebook has a significant positive effect ( $\beta = .132, p = .001$ ) on the perceived societal ethnic diversity, that is, on the estimated percentage of ethnic minorities in Germany. The real percentage of ethnic minorities in Germany in 2013 (when the survey was conducted) amounted to 20.52% (Statistisches Bundesamt, 2014). One-sample Wilcoxon (1945) signed rank tests (as nonparametric alternatives to one-sample  $t$ -tests for nonnormal data distributions) were used to test whether subjects' estimations of the perceived societal ethnic

diversity differs from the real percentage of ethnic minorities in Germany. A median split of the sample in relation the Facebook use intensity (median = 30 minutes) shows that subjects in both the high-Facebook-use group ( $Z = 5.658, p < .001, M_{highFB} = 26.892$ ) and the low-Facebook-use group ( $Z = 1.943, p = .052, M_{lowFB} = 23.166$ ) significantly and marginally significantly overestimate the perceived societal ethnic diversity in Germany. Furthermore, the difference of the mean estimates in both groups is statistically significant ( $Z = -2.576, p = .010$ ). That implies that Facebook use biases the perception of the prevalence of societal ethnic diversity, which relates to the more distant social environment of the users. This bias is strengthened by higher Facebook use intensity.

Second, Facebook use significantly positively influences the perceived number of ethnic minority friends ( $\beta = .129, p = .022$ ) and colleagues ( $\beta = .090, p = .048$ ). Hence, more intense Facebook use leads to higher percentage estimates of ethnic minority friends and colleagues, which pertains to the close social environment of the users.

Table 19. Study 2: Hierarchical Multiple Regression Results

Predictors	Perceived Societal Ethnic Diversity <sup>a</sup>		Perceived Number of Ethnic Minority Friends <sup>a</sup>		Perceived Number of Ethnic Minority Colleagues	
	$\beta$	$\Delta R^2$	$\beta$	$\Delta R^2$	$\beta$	$\Delta R^2$
<b>Step1</b>						
Age	-.021		-.036		.010	
Sex	.268***		-.043		-.022	
Income	-.037		-.010		-.086	
Education	.032		-.002		-.024	
Data	-.024		.193**		.137*	
<i>Working Hours<sup>b</sup></i>					-.129**	
Controls (Block)		.078***		.050***		.064***
<b>Step2</b>						
Facebook Use	.132**	.017**	.129*	.016**	.090*	.008*
Total $R^2$		.095***		.066***		.072***
$F$ -Test Value		8.791		4.763		5.078
$N$		471		468		466

Note. Standardized  $\beta$ -coefficients are reported.

<sup>a</sup>Heteroscedasticity-consistent standard error estimators were applied.

<sup>b</sup>Only included for the model predicting Perceived Number of Ethnic Minority Colleagues.

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .

To sum up, the hierarchical multiple regression results corroborate Hypotheses 1a-c and thus first-order cultivation effects of Facebook use.

#### **4.2.8 Discussion**

Study 2 explores the relation between Facebook use and the perceived prevalence of ethnic diversity. The results provide evidence for cultivation effects of Facebook use on the perceived societal ethnic diversity, the perceived number of ethnic minority friends, and the perceived number of ethnic minority colleagues. Thus, Facebook use cultivates the perceptions of both the more distant and close social environment of the users. As suggested in section 3.1, intense Facebook use leads to frequent exposure to ethnically diverse communication content, and respective exemplars of ethnic diversity are stored in memory. When first-order judgments (i.e., prevalence estimates) are required, easier accessibility and retrieval of these exemplars from memory result in higher prevalence estimates of ethnic diversity.

The regression findings demonstrate that the cultivation effect of Facebook use on the users' perceptions of their more distant social environment (i.e., perceived societal ethnic diversity) is larger than on the perceptions of their close social environment (i.e., perceived number of ethnic minority friends and colleagues). In this context, previous cultivation studies found larger associations between TV viewing and prevalence estimates of crime/violence at the societal level compared to corresponding personal-level estimates (e.g., Nabi/Riddle, 2008; Shrum/Bischak, 2001). An explanation and theoretical reasoning for this pattern was the impersonal impact hypothesis (Tyler, 1980; Tyler/Cook, 1984) stating that personal-level judgments are less affected by media consumption, but more by recalling personal experiences. Contrarily, societal-level judgments are more influenced by media exposure and mediated content due to a potential lack of personal experiences (Tyler/Cook, 1984).

Although this theoretical assumption and related empirical evidence related to violence and crime risk perceptions, a comparable pattern is conceivable in respect to perceived prevalence of ethnic diversity at different levels of social distance. That is, the cultivation effect of Facebook use is weaker for personal-level judgments (i.e., perceived number of ethnic minority friends and colleagues) than for societal-level judgments (i.e., perceived societal ethnic diversity). For societal-level judgments, individuals might rely more heavily on

exemplars depicted by media, that is, the societal ethnic diversity portrayed on Facebook. Consequently, Facebook use more strongly cultivates first-order cultivation judgments at the societal level.

Study 2 focuses on first-order cultivation effects. These first-order judgments pertain to aspects of the Facebook world that can be related to the same aspects of the real world (Shrum et al., 2004). That is, ethnic diversity is prevalent on Facebook as well as in the real world and society (see also 4.1). In Study 3, second-order cultivation effects, that is, attitudes are analyzed next to perceptions. These second-order judgments are stimuli-based and formed online via browsing Facebook (Shrum et al., 2011). They can best be assessed after exposure to media content (see 2.1.2.2).

As illustrated in section 2.1.3, one substantial caveat of cultivation studies is the correlational nature of the cross-sectional designs (Shrum, 1999b). Although the spuriousness of correlations can be reduced by the integration of control variables, only experimental research designs can prove causality and the fact that media use affects attitudes, rather than media use is affected by attitudes (Shrum et al., 1998). In the context of this dissertation, that could imply that ethnocentric attitudes, for instance, determine the intensity of Facebook use (i.e., highly ethnocentrically oriented individuals use Facebook less frequently) and not, as suggested, vice versa. Therefore, an experimental investigation (Study 3) studies the second-order cultivation effect of Facebook use on attitudes and further strengthens the validity and reliability of the cultivation effects of Facebook use proved in Study 2.

### **4.3 Study 3: Experimental Investigation**

This experimental investigation analyzes the cultivation effect of Facebook use on attitudes. In contrast to previous experimental cultivation studies (see 3.2), the influence of the exposure to the aggregate communication content on Facebook is examined and not only the impact of one single stimulus or very specific, topic-related content.

In the following sections, the experimental design (4.3.1), the data collection method (4.3.2), the sample characteristics (4.3.3), the measures (4.3.4) and the analytical procedure (4.3.5) are described. Afterwards, the experimental findings are presented (4.3.6) and discussed (4.3.7).

### **4.3.1 Experimental Design and Manipulation**

For the experiment, a one-factorial between-subject design was used. The factor experimentally manipulated was Facebook use intensity. In previous experimental studies manipulating Facebook exposure, subjects browsed Facebook either for 5 minutes (e.g., Toma, 2013; Vogel et al., 2015; Wilcox/Stephen, 2013) or for 20 minutes (e.g., Sagioglou/Greitemeyer, 2014). The Facebook use (treatment) condition was usually compared to a control (non-Facebook use) condition. Since cultivation effects are based on different levels of media use/exposure (e.g., low vs. high), the current experiment utilized two experimental conditions, that is, low Facebook use intensity (i.e., 5 minutes) versus high Facebook use intensity (i.e., 20 minutes). Extant cross-sectional studies (e.g., Ellison, Vitak, et al., 2014) often reported subjects' estimates of average Facebook use per day above 20 minutes. However, if cultivation effects are induced by the manipulation of the present experiment, these effects might be even more pronounced for larger use intensity differences, given the persuasive mechanism underlying second-order cultivation effects.

### **4.3.2 Data Collection and Experimental Procedure**

The experiment was conducted at a German university in October 2014. Participants were recruited by personally contacting professors at the university and arranging experimental sessions with their classes. For the sake of practicability, the two experimental conditions were not mixed in one experimental session. That is, all participants in one session browsed Facebook either for 5 minutes or for 20 minutes. Therefore, the participants entered a computer lab and were instructed to log into their personal Facebook accounts and browse Facebook for either 5 or 20 minutes (depending on the session and experimental condition). In line with the experiment of Sagioglou and Greitemeyer (2014), participants were asked to browse Facebook as under normal circumstances, thus allowing for posting, interacting, and others. Contrarily, Wilcox and Stephen (2013), for example, instructed subjects to avoid interacting with their Facebook friends or posting content. However, the former procedure facilitated exposure to all possible forms of content on Facebook, while the latter would restrict certain Facebook using behavior and hence might bias exposure to content as usual. Because the student participants entered the experimental sessions as a class, it was impossible to exclude participants without Facebook account beforehand. These subjects were asked to browse an online news website either for 5 minutes or for 20 minutes. After the

Facebook use session, subjects filled in a questionnaire. The questionnaire also followed the recommendations described in 4.2.1, contained questions that were identical to those used in Study 2 and additional ones for attitudes (see 4.3.4); all of them were translated into German.

The student classes were randomly assigned to the low- or high-Facebook-use condition, which is recommended (whenever possible) by Rubin (1974) and advocated for web experiments by Kohavi and colleagues (2009). In their (large-scale, online) experimental studies, Bakshy, Eckles, and colleagues (2012) judged randomized experiments as the “gold standard for causal inference” (p. 4). Shadish and Cook (2009) defined a randomized experiment as “a design that assigns units to conditions based on some chance process such as the toss of a coin” (p. 608). Since student classes were assigned to the two experimental conditions, the design was actually a group-randomized design, that is, aggregates (i.e., classes) rather than individuals (i.e., students) were randomly assigned to conditions (Shadish/Cook, 2009). However, the classes themselves were assumed to be randomly distributed in terms of demographics, which were additionally included as control variables (see 4.3.4).

Overall, 85 students took part in the experiment. Identical to Study 2, non-German participants ( $n = 4$ ) and subjects without a Facebook account ( $n = 6$ ) were excluded (for the reasoning, see 4.2.2), which lead to a final sample of 75 individuals.

### **4.3.3 Sample Characteristics and Descriptives**

Table 20 gives an overview of the sample descriptives. The experimental sample consisted of younger and less female participants in comparison to the cross-sectional sample of Study 2. Besides, no one of the subjects had a university degree. Both the lower average age and the lack of a university degree can be explained by the fact that freshmen who just started their studies participated in the experiment. However, the sample is assumed to be representative of the usual Facebook users, since younger and female individuals tend to be more active users (McAndrew/Jeong, 2012). Besides, the age range of the experiment participants represents the age cohort using Facebook mostly, both in Germany and globally (see 4.2.3). Finally, the majority of extant studies investigating Facebook effects considered undergraduate student samples as representative of Facebook users in general (e.g., Ellison et al., 2007, 2011).

Table 20. Study 3: Sample Descriptives

	<i>Mean</i>	<i>(SD)</i>	<i>Min</i>	<i>Max</i>
Age	20.93	(2.33)	18	29
Income	1,264.35	(537.27)	690	5,000
	<b>Male (%)</b>		<b>Female (%)</b>	
Sex	46.67		53.33	
	<b>University Degree (%)</b>		<b>No Degree (%)</b>	
Education	0		100	

Note.  $N = 75$ , except for income ( $N = 74$ ).

#### 4.3.4 Measures

The measures of the perceived prevalence of ethnic diversity were identical to those used in Study 2.

Attitudes towards ethnic minorities were measured on a thermometer scale provided by prior research, for example, to measure attitudes towards different outgroups (e.g., homosexuals) (Haddock et al., 1993; Hodson et al., 2013), but also in research related to Facebook (Schwab/Greitemeyer, 2015). Subjects were asked to indicate their feelings towards ethnic minorities in Germany by choosing a number between 0 (“*extremely negative feelings*”) and 100 (“*extremely positive feelings*”). This question was a single-item scale (see also 4.2.4.1 and 4.2.5.4).

Ethnocentrism was assessed by a scale developed by Bizumic and Duckitt (2012) that consisted of eight items, four of them reverse-coded. Each item was measured on 7-item Likert-type scales ranging from “*strongly disagree*” to “*strongly agree*”. Exemplary items were “*In most cases, I like people from my culture more than I like others.*” or “*I don’t think I have any particular preference for my own cultural or ethnic group over others.*” (reverse-coded). Since ethnocentrism was a multi-item scale, the computation of reliability measures was possible (see also 4.2.5.4). Cronbach’s Alpha (as the most prevalent reliability measure (Cortina, 1993b)) amounted to .817, which exceeded the minimum threshold of .700 (Nunnally/Bernstein, 1994, p. 265).

To measure the attitudes towards unknown local and global brand names, different brand names were created and tested whether they differed in terms of perceived brand globalness (i.e., the extent to which “consumers believe that the brand is marketed in multiple countries

and is generally recognized as global in these countries” (Steenkamp et al., 2003, p. 54)). The brand names were fictitious, without linguistic complexities (Yorkston/Menon, 2004), and artificial words to avoid certain semantic associations (Lowrey/Shrum, 2007). Reed II and colleagues (2012) stressed the role of the English language as lingua franca, and that English was often associated with a more global and less ethnocentric consumer identity and culture. Thus, fictitious English (i.e., global brand names) and German brand names (i.e., local brand names) were designed. Following the literature on phonetic/sound symbolism (e.g., Klink, 2000; Lowrey/Shrum, 2007; Shrum et al., 2012) the brand names differed only slightly, that is, single consonants or vowels were *ceteris paribus* changed. Consequently, six pairs of global and local brand names were created, which were then pretested in respect to perceived brand globalness. To test for perceived brand globalness, the scale by Steenkamp and colleagues (2003) was used. Participants had to evaluate the brand names on three 7-point semantic differentials, for instance, anchored by “*To me, this is a global brand*”/“*To me, this is a local brand*” (reverse-coded). The twelve brand names (six global and six local ones) were randomly distributed across two questionnaires, so that the local and global brand name of each pair were not part on the same questionnaire. Overall, 56 individuals participated in the pretest (29 versus 27 subjects for the two questionnaires). For three pairs, significant differences in terms of perceived brand globalness were detected. The pair “*Bolsch Bräu*” (i.e., local brand name) and “*Bolsh Brew*” (i.e., global brand name) showed the highest, significant differences. The corresponding pretest result are depicted in Table 21 (perceived brand globalness was not normally distributed:  $d = 0.105$ ,  $p < .001$ ). Hence, this pair was integrated in the questionnaire succeeding the first experiment. The brand names were associated with a beer brand indicated by “*Bräu*”/“*Brew*”. Hence, non-meaningful (i.e., “*Bolsch*”/“*Bolsh*”) and meaningful (i.e., “*Bräu*”/“*Brew*”) parts built the composite brand name. That further accounted for evaluative differences of meaningful and non-meaningful brand names, as found by Kohli and colleagues (2005). Beer as product category is of interest for and likely to be purchased by students. Besides, product evaluations are linked to a rather small number of attributes (e.g., taste, costs) (Yorkston/Menon, 2004).

A single item (7-point semantic differential) anchored by “*negative*” and “*positive*” was then used to measure the attitude towards the brand name for the local beer brand “*Bolsch Bräu*” and the global beer brand “*Bolsh Brew*” (see also 4.2.4.1 and 4.2.5.4).

Control variables included gender, age, education level, income, and whether subject had a German passport, and scales were identical to those utilized in Study 2. Additionally,



Facebook use (measured as in Study 2) was included as control to account for differences of general Facebook use between the experimental groups. Different regular Facebook use intensities of subjects might have induced first-order cultivation effects concerning the perceived ethnic diversity variables, which could bias the experimental results for these perceptual judgments.

As mentioned in 4.3.2, all scales were in German.

Table 21. Study 3: Pretest Results

	Brand Name	<i>n</i>	Mean Rank	Sum of Ranks	Mann-Whitney U	
					<i>Z-Value</i>	<i>p</i>
Perceived Brand	Bolsch Bräu (local)	29	16.91	490.50	-5.536	< .001
Globalness	Bolsh Brew (global)	27	40.94	1,105.50		

#### 4.3.5 Analytical Procedure

One-way analysis of variance (ANOVA) using the manipulated Facebook use intensity as factor were performed in order to test hypotheses 1-5.

The requirements for conducting a factorial ANOVA are normal distributions of residuals, homogeneity of variances between the experimental conditions, independence of observations (which is fostered by random sampling), and at least interval-scaled dependent variables. If conditions were violated, type I (i.e., likelihood of falsely rejecting the null hypothesis) and type II (i.e., probability of falsely retaining the null hypothesis) errors could occur. (Howell, 2012; Leys/Schumann, 2010)

In the last decades, various researchers advocated nonparametric or robust test alternatives (Erceg-Hurn/Mirosevich, 2008; Wilcox, 1998). Cumming (2014) even propagated the departure from conventional null-hypothesis significance testing due to its flaws and a shift to alternative estimations techniques, for example, based on effect sizes and confidence intervals.

Glass and colleagues (1972) demonstrated that nonnormality and heterogeneous variances could affect significance levels of ANOVA *F*-tests at different degrees depending on equal or unequal sample sizes across the experimental conditions. Harwell and colleagues (1992) meta-analytically showed that significance levels of ANOVA *F*-tests were quite robust

(“modest inflation” (p. 333)) against violations of the assumptions of normality and equality of variances for equal sample sizes across experimental groups (i.e., balanced design). However, the significance level of the *F*-test was seriously affected by unequal variances in unbalanced designs. Contrarily, the Kruskal-Wallis (1952) and Welch (1947) tests, as nonparametric alternatives, were less and only slightly affected, respectively. For deviations from normality in the case of unbalanced designs, there were negligible effects on the significance levels for the Kruskal-Wallis test, a slight inflation for the *F*-test, and a substantial inflation for the Welch test. Both the *F*-test and Kruskal-Wallis test were robust against violations of both normality and unequal variances in the unequal group size case, whereas significance levels of the Welch test were moderately inflated. (Harwell et al., 1992)

Later, Lix and colleagues (1996) meta-analytically found that violations of the normality assumption were less severe (in terms of type I error) than of the variance homogeneity assumption.

The extant findings on the robustness of test methods against violations of underlying assumptions were rather ambiguous, and the scientific discourse about the application of alternative nonparametric and robust test methods, as well as robustness of tests itself (for an exemplary overviews, see Bradley, 1980; Erceg-Hurn/Mirosevich, 2008; Wilcox, 1998) is ongoing. To check for robustness of results, the ANOVAs of the present experimental data (Studies 3 and 4) will be supplemented by additional Kruskal-Wallis and Welch tests, if assumptions are violated.

First, tests of normal distributions of residuals and homogeneity of variances (i.e., equal variances) across the experimental groups were conducted. The corresponding findings are displayed in Table 22. All residuals were not normally distributed. For the ANOVAs for the perceived number of ethnic minority friends and colleagues, the variances were not equal in the two experimental groups.

Second, the experimental groups were checked for differences in respect to demographic composition and Facebook use. Of these variables, only gender composition was found to be significantly different for the low- and high-Facebook-intensity conditions ( $\chi^2(1) = 5.804, p = .021$ ). Thus, regression analyses using sex as additional independent variable (i.e., control variable) next to Facebook use were conducted to control for possible confounds of the gender composition. The regression-based analyses also accounted for heterogeneity of

variances/heteroscedasticity (see Table 25) by using heteroscedasticity-robust estimators (Hayes/Cai, 2007; Judd et al., 1995). The findings are compared to the ANOVA results.

The final condition for the factorial ANOVA constituted at least interval-scaled dependent variables, which was fulfilled (see 4.3.4).

Table 22. Study 3: ANOVA Assumption Tests

ANOVAs for Dependent Variables	ANOVA Assumption Tests				N
	Normality		Equal Variances		
	Test value <sup>a</sup>	p-value	Test value <sup>b</sup>	p-value	
<b>Perceived Prevalence of Ethnic Diversity</b>					
Perceived Societal Ethnic Diversity	.128	.004	0.004	.947	75
Perceived Number of Ethnic Minority Friends	.152	< .001	9.067	.004	74
Perceived Number of Ethnic Minority Colleagues	.152	< .001	8.643	.004	70
<b>Attitude towards Ethnic Minorities</b>	.161	< .001	0.413	.523	74
<b>Ethnocentrism</b>	.105	.041	< 0.001	.986	75
<b>Attitude towards</b>					
Local Brand Names	.135	< .001	0.529	.469	75
Global Brand Names	.146	.002	0.064	.801	74

Note. Unequal experimental group sizes for each dependent variable.

<sup>a</sup>d-value of KS test statistic. <sup>b</sup>Value of Levene test statistic.

#### 4.3.6 Results

Means, standard deviations, and *F*-test values (of ANOVAs) with significance levels are provided in Table 23. Before drawing the conclusions concerning the hypotheses, the robustness checks are evaluated. The results of the robustness checks are depicted in Table 24 (to account for violations of normality and homogeneity of variances) and Table 25 (to check for confounds due to different gender composition of experimental groups), respectively.

The ANOVA results (see Table 23) reveal that Facebook use has an significant effect on the perceived societal ethnic diversity ( $F(1,74) = 16.370, p < .001$ ) and on attitudes towards local

brand names ( $F(1,74) = 8.444, p = .005$ ) and a marginally significant effect on the perceived number of ethnic minority colleagues ( $F(1,69) = 3.927, p = .052$ ). In the high-Facebook-use-intensity condition, participants have significantly higher estimates of the percentage of ethnic minorities in society ( $M_{20min} = 37.48$ ) than in the low-Facebook-use-intensity condition ( $M_{5min} = 24.39$ ). The real percentage of ethnic minorities in Germany in 2014 (when the experiment was conducted) amounted to 20.23% (Statistisches Bundesamt, 2015). The results of one-sample Wilcoxon signed rank tests show that subjects in the high-Facebook-use-intensity condition ( $Z = 5.027, p < .001$ ) significantly overestimate the perceived societal ethnic diversity in Germany, while this estimate of subjects in the low-Facebook-use condition ( $Z = 1.069, p = .285$ ) is not significantly higher than the real percentage of ethnic minorities in Germany. Besides, participants have significantly less favorable attitudes towards local brand names in the high-Facebook-use-intensity condition ( $M_{20min} = 3.69$ ) than in the low-Facebook-use-intensity condition ( $M_{5min} = 4.75$ ). Facebook further increases the perceived number of ethnic minority colleagues ( $M_{5min} = 18.36$  vs.  $M_{20min} = 27.38$ ).

Table 23. Study 3: ANOVA Results

	Experimental Condition		<i>F</i> -Test
	5 min Facebook Use	20 min Facebook Use	
Dependent Variables	<i>Mean (SD)</i>	<i>Mean (SD)</i>	
<b>Perceived Prevalence of Ethnic Diversity</b>			
Perceived Societal Ethnic Diversity	24.39 (13.45)	37.48 (15.45)	16.370***
Perceived Number of Ethnic Minority Friends	22.61 (19.02)	28.74 (27.50)	1.229
Perceived Number of Ethnic Minority Colleagues	18.36 (14.07)	27.38 (23.17)	3.927 <sup>+</sup>
<b>Attitude towards Ethnic Minorities</b>	60.11 (17.59)	60.16 (19.76)	0.001
<b>Ethnocentrism</b>	2.74 (1.09)	2.55 (1.01)	0.605
<b>Attitude towards</b>			
Local Brand Names	4.75 (1.46)	3.69 (1.67)	8.444**
Global Brand Names	3.56 (1.56)	3.61 (1.42)	0.021

<sup>+</sup> $p < .10$ ; \* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .

The Welch test (see Table 24) leads to the same results as the *F*-tests of the ANOVAs. However, the findings of the Kruskal-Wallis test implies that Facebook use does not influence the perceived number of ethnic minority colleagues. In the light of the findings of Harwell and colleagues (1992) (see 4.3.5), these findings have to be interpreted cautiously. Furthermore, Lix and colleagues (1996) stated that the Kruskal-Wallis test validated a different null hypothesis than parametric tests and should be used with caution. According to the authors, the Welch test could be used in factorial one-way designs with unequal variances (for both equal and unequal group sizes) (Lix et al., 1996).

Table 24. Study 3: Robustness Checks I

<b>Dependent Variables</b>	<b>5 min</b>	<b>20 min</b>	<b>K-W Test</b>	<b>Welch Test</b>
	<i>Mean Rank</i>	<i>Mean Rank</i>	$\chi^2$	<i>Test value</i>
<b>Perceived Prevalence of Ethnic Diversity</b>				
Perceived Societal Ethnic Diversity	29.04	46.27	11.741***	16.555***
Perceived Number of Ethnic Minority Friends	36.86	38.11	0.620	1.253
Perceived Number of Ethnic Minority Colleagues	32.15	39.04	2.017	3.823 <sup>+</sup>
<b>Attitude towards Ethnic Minorities</b>	37.22	37.76	.012	0.001
<b>Ethnocentrism</b>	40.11	36.05	.651	0.602
<b>Attitude towards</b>				
Local Brand Names	44.78	31.74	7.007**	8.536**
Global Brand Names	36.49	38.46	.162	0.020

Note. *K-W Test = Kruskal-Wallis test.*

<sup>+</sup>*p* < .10; \**p* < .05; \*\**p* < .01; \*\*\**p* < .001.

The second set of robustness checks presents a different picture (see Table 25). The regression models predicting the dependent variables by Facebook use (i.e., the experimentally manipulated use intensity) and sex as additional control variable manifest deviations from the ANOVA findings for the perceived number or ethnic minority friends and colleagues. For these dependent variables, gender seems to have biased the results of the ANOVAs. By controlling for sex, Facebook use has a significant positive influence on the perceived number of ethnic minority colleagues ( $\beta = .295$   $p = .018$ ) and a marginally significant positive impact on the perceived number of ethnic minority friends ( $\beta = .225$ ,  $p = .058$ ).

Table 25. Study 3: Robustness Checks II

IVs	SocDiv $\beta$	Friends <sup>a</sup> $\beta$	Coll. <sup>a</sup> $\beta$	A(EthnM) $\beta$	Ethno $\beta$	A(local) $\beta$	A(global) $\beta$
FB Use	.407***	.225 <sup>+</sup>	.295*	.015	-.128	-.310**	.043
Sex	.075	-.354**	-.270*	-.046	.134	-.044	-.097
Total $R^2$	.188***	.133**	.124*	.002	.025	.106*	.009
$F$ -Test	8.357	5.018	4.537	0.069	0.915	4.245	0.326
$N$	75	74	70	74	75	75	74

Note. Standardized  $\beta$ -coefficients are reported. SocDiv = Perceived Societal Ethnic Diversity, Friends = Perceived Number of Ethnic Minority Friends, Coll. = Perceived Number of Ethnic Minority Colleagues, A(EthnM) = Attitudes towards Ethnic Minorities, Ethno = Ethnocentrism, A(local) = Attitudes towards Local Brand Names, A(global) = Attitudes towards Global Brand Names. IVs = Independent Variables.

<sup>a</sup>Heteroscedasticity-consistent standard error estimators were applied.

<sup>+</sup> $p < .10$ ; \* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .

Taken all together, hypothesis 4 is supported and hypotheses 1a, 1c, and 1b (at a marginal significance level) are further corroborated. For the other constructs, no significant differences between the low- and high-Facebook-use-intensity conditions are found. Hence, hypotheses 2, 3, and 5 are rejected.

#### 4.3.7 Discussion

The experimental findings confirm the central cultivation effect of Facebook use on the prevalence of ethnic diversity, that is, the perceived societal ethnic diversity, the perceived number of ethnic minority colleagues, and the perceived number of ethnic minority friends (at a marginal significance level). Thus, the results provide further support for the findings of Study 2 and a causality proof, which addresses the central critique of previous cultivation research (see 2.1.3). The findings of Study 3 also establish and prove the causal relationship between Facebook use and attitudes towards local brand names by showing that Facebook use decreases these attitudes. The cultivation effects on attitudes towards ethnic minorities, ethnocentrism, and attitudes towards global brand names are not supported.

Similar to the findings of Study 2, Facebook use exerts the strongest cultivation effect on the perceived societal ethnic diversity, which relates to the more distant social environment of the users. Again, media and its content might mostly influence societal-level judgments, since these judgements are less associated to personal experiences than personal-level judgments (i.e., perceived number of ethnic minority friends and colleagues).

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The findings concerning the second-order cultivation effects highlight that some attitudes are influenced, while others are not affected by Facebook use. That is, Facebook use influences attitudes towards local brand names, whereas attitudes towards ethnic minorities and ethnocentrism remain unchanged. The different strength of these attitudes and thus their resistance to change provide one possible explanation for the present findings. Attitudes towards ethnic minorities and ethnocentrism are rather strong and persistent (Bizumic/Duckitt, 2012; Hainmueller/Hopkins, 2014; see also 2.3 and 3.2). Contrarily, attitudes towards a fictitious, unknown brand name have to be made on the spot, since no a priori evaluative association towards the attitude object exists (Fazio, 2007). In this context, Fazio (2007) and Fazio and colleagues (1986) referred to an attitude-nonattitude continuum, which could be projected on the present context. While attitudes towards (unknown) local brand names would be situated at the nonattitude end of the continuum (i.e., no a priori evaluation of the attitude object exists), attitudes towards ethnic minorities and ethnocentrism would rather approach the attitude end of the continuum (i.e., attitudes as evaluative knowledge stored in memory). Fazio (2007) further stressed the contradictory construction perspective in relation to strong attitudes by stating that he “fail[s] to see how a strong “attitudes as constructions” perspective can be granted credence” (p. 620). Some attitudes or knowledge about attitude objects are represented in memory and activated when subjects are presented to or required to make judgments about attitude objects (Shrum et al., 2004). The statement of Bizumic and Duckitt (2012, p. 888) that ethnocentrism might be natural to humans and evolutionary developed alludes to the representation of ethnocentric attitudes and/or related knowledge in individuals’ memory. That might also pertain to attitudes towards ethnic minorities. Hatemi and McDermott (2016, p. 338) proved that more than 40% of the variance of racial attitudes and attitudes narrowly related to and predictive of ethnocentrism and outgroup attitudes (i.e., right-wing authoritarianism) was explained by the aggregate effect of all genetic influences, while the remaining percentage of variance was explained by the combination of environmental influences. In sum, the alteration of ethnocentrism and attitudes towards ethnic minorities, which might be already represented in memory, by newly incoming information (e.g., Facebook communication content) is more difficult than creating attitudes towards novel entities like brand names. That would further hint at a combined memory-based and online construction of attitudes and hence at synergistic first- and second-order cultivation effects, which have not been investigated yet.

Moreover, ethnocentrism and attitudes towards ethnic minorities might be associated with the value of equality. Bernard and colleagues (2003) stressed that “equality may be a general prejudice antidote” (p. 66). Values are more abstract goals and guiding principles in life; they are less vulnerable to change and important for creating strong attitudes that are, in turn, less resistant to change (Bernard et al., 2003; Blankenship/Wegener, 2008). Blankenship and colleagues (2012) verified that attitudes could be changed by shaping underlying or associated values. Relating to the experiment’s context, ethnocentrism and attitudes towards ethnic minorities might remain unchanged due to their association with the value of equality which is even more stable and persistent than the related attitudes and not affected by a rather short-term exposure to Facebook communication content.

Another possible explanation could be the selective exposure towards attitude-consistent information on Facebook, also referred to as confirmation bias (Jonas et al., 2001). Brannon and colleagues (2007), for instance, experimentally demonstrated that individuals sought attitudinally consistent information mostly when they held strong attitudes. Hart and colleagues (2009) meta-analytically showed that people were nearly two times more likely to select information supporting pre-existing attitudes, beliefs, and behaviors (termed “congenial information” by the authors) than information disagreeing them (“noncongenial information”). Knobloch-Westerwick and colleagues (2015), for example, proved this phenomenon for political attitudes and preference of attitude-consistent information in an online search context. The studies of Goel and colleagues (2010) and Bakshy and colleagues (2015) (see 2.2.1.1) further found that users were not necessarily aware of the diversity of opinions in their social networks, and that users themselves contributed to the degree of exposure to attitudinally diverse content on Facebook, respectively. People with strong attitudes further tend to resist information threatening these strong attitudes; they refute attitude-inconsistent information and/or value counter-attitudinal information less than attitude-consistent information (Ahluwalia, 2000). Finally, Visser and Mirabile (2004) and Levitan and Visser (2008, 2009) (see also 2.4) revealed that individuals embedded in attitudinal diverse (real-world) social networks were more susceptible to attitude change and persuasion, which might also pertain to social networks on Facebook. To conclude, if subjects already hold strong ethnocentric attitudes and attitudes towards ethnic minorities, they might pay more attention to attitude-consistent communication content on Facebook. Besides, users might be embedded in attitudinally homogenous networks and hence less prone to attitude



change and persuasion. Thus, ethnocentrism and attitude towards ethnic minorities might not change, but just persist.

After providing possible explanations for the lack of cultivation effects on ethnocentrism and attitudes towards outgroups, the significant cultivation effect on attitudes towards brand names should be elaborated on in more detail. While Facebook use significantly decreases attitudes towards local brand names, there is no significant cultivation effect on attitudes towards global brand names. This specific pattern might be explained by different levels of fluency induced by different Facebook use intensities. As explained in section 2.4, repeated exposure to certain stimuli can increase attitudes towards them (Bornstein, 1989). Besides, conceptual fluency implies that priming of/exposure to semantically related objects could improve judgments of the target object (Alter/Oppenheimer, 2009; Lee/Labroo, 2004). In reverse, a lack a fluency might deteriorate judgments. That is, new, external information is processed with more difficulty, which, in turn, adversely affects judgments of the corresponding objects (Lee, 2004; Schwarz, 2004a). The lack of exposure towards local brand names might have become more influential for judgments in the high-Facebook-use-intensity condition. Conceptual fluency effects did not emerge due to less frequent exposure to local brand names, which decreases attitudes towards these local brand names. Contrarily, content related to global brands and thus global brand names is assumed to be extensively disseminated and present on Facebook (see 2.2.1.3). Schwarz (2004a) argued that experiential information was more influential when experiences deviated from expected baseline values, that is, “the relative intensity of the experience is more important than its absolute level” (p. 342). In the light of the experimental findings, that implies that exposure to local brand names might occur less than individuals would have normally (and implicitly) expected, while individuals encounter global brand names at a level they might have implicitly expected. Hence, the (lack of) exposure to local brand names diverged more from the baseline level than the exposure to global brand names and hence related fluency effects. In consequence, reverse fluency effects for local brand names were stronger than fluency effects for global brand names, which lead to a decrease of attitudes towards local brand names, but to no effect on attitudes towards global brand names.

Study 4 compares attitudes of different strengths (but towards comparable attitude objects) to account for the second-order cultivation effects found in Study 3 and to shed light on the role of attitude strength in second-order cultivation. Furthermore, Study 4 further strengthens the validity and reliability of the cultivation effects of Facebook use detected in Study 2 and 3.

## **4.4 Study 4: Follow-up Experimental Investigation**

The aim of the follow-up experiment is to further elaborate on the persuasive influence of Facebook use on attitudes of different strengths. First, the experimental design (4.4.1), the data collection and experimental procedure (4.4.2), the sample characteristics and descriptives (4.4.3), the measures (4.4.4), and the analytical procedure (4.4.5) are presented. Second, the analytical results (4.4.6) are provided and discussed (4.4.7).

### **4.4.1 Experimental Design and Manipulation**

Both the experimental design and manipulation were identical to those in Study 3.

### **4.4.2 Data Collection and Experimental Procedure**

The follow-up experiment was conducted at a German university in June 2015. Participants were recruited via a large-scale database of university students. The database was initially created by the Chair of Applied Economics of the university and included 1,883 students (as of May 2015) who were interested in participating or already participated in economic experiments. Invitations for the present experiment were sent via email to a randomly chosen subset of these students. The invitation letter for the experiment was introduced by stressing the sponsorship by a legitimate authority, that is, the Chair of International Marketing of the European University Viadrina Frankfurt/Oder, and by concisely hinting at the research purpose, that is, to study “Facebook use, attitudes, and consumer behavior” (see 4.2.1). It was further stressed that requirements for participation were to have a German passport/identification and a Facebook account (see 4.2.2). Besides, a monetary incentive of 7 Euros for participation, the time slots of the experimental sessions individuals could choose between, and the experimenter’s contact data were announced. Finally, the scientific purpose of the study and data anonymization were assured (see 4.2.1). Dillman and colleagues (2014) emphasized the possibility of offering cash incentives to increase survey participation. Pforr and colleagues (2015) proved positive effects of incentives on survey response rates in the German context. The same is assumed for experiment participation. In psychological and consumer research, but also in experimental research related to Facebook, students usually participated in experiments in partial fulfillment of course requirements (e.g., Bizer et al.,

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2006; Shrum et al., 2005) or in exchange for extra course credit (e.g., Toma, 2013). Besides, participants were enticed and compensated by material (e.g., Williams, 2006) or cash incentives (e.g., Chong et al., 2012). Since exchange for course credit (both obligatory and additional) was not realizable, a cash benefit was opted for to increase experiment participation.

The invitations were emailed to 852 individuals included in the database. Some of these students (i.e., 91 cases) were not anymore matriculated or provided invalid email addresses. Later, a reminder was sent to the remaining 761 individuals. Finally, 79 students participated in the experiment, which implied a response rate to the invitations of 10.38%.

The experimental procedure was identical to that used in Study 3 (see 4.3.2), except that participants were individually (and not as a class) and randomly distributed to the experimental conditions (sessions).

Of the 79 subjects taking part in the experiment, two participants still had no German passport/identification (although required in the invitation) and were excluded. Furthermore, all participants that indicated to know either the fictitious (unknown) local or global brand or both or to not know either the real-world (known) local or global brand or both were not considered for further analyses (see also 4.4.4). These participants had to be excluded due to the reasoning underlying hypotheses 6 and 7 (e.g., no prior attitude knowledge/familiarity) and the cultivation effect of Facebook use on attitudes of different strengths (see 3.2). Finally, the final sample comprised 61 subjects.

#### **4.4.3 Sample Characteristics and Descriptives**

Table 26 provides a summary of the sample descriptives. The experimental sample consisted of younger subjects and more female participants in comparison to the cross-sectional sample of Study 2. However, participants were on average older than those of Study 3.

Again, representativeness of the sample is assumed. In Germany in 2015, 79% of the people aged between 16 and 29 years indicated to use Facebook in comparison to 55% of people aged between 30-44 years (Gothaer, 2015). Thus, the age range of the experiment participants reflects the most active Facebook user group in Germany, but also globally, that is, 85% of people between 16 and 34 years stated to use Facebook (in 2015) (GlobalWebIndex, 2016).

Table 26. Study 4: Sample Descriptives

	<i>Mean</i>	<i>(SD)</i>	<i>Min</i>	<i>Max</i>
Age	22.79	(2.35)	19	28
Income	609.75	(421.38)	0	2,200
	<b>Male (%)</b>		<b>Female (%)</b>	
Sex	36.07		63.93	
	<b>University Degree (%)</b>		<b>No Degree (%)</b>	
Education	21.31		78.69	

*Note.*  $N = 61$ .

#### 4.4.4 Measures

The scales to measure the perceived societal ethnic diversity, the perceived number of ethnic minority friends and colleagues, attitudes towards ethnic minorities, and ethnocentrism were identical to those utilized in Study 2 and 3, respectively. The reliability score (i.e., Cronbach's Alpha) of the ethnocentrism scale was .683, which approximates the threshold of .700 (Nunnally/Bernstein, 1994, p. 265).

For the different brand attitudes differing on localness/globalness and attitude strength, the same attitude object as in Study 3 was chosen, that is, a beer brand. The two brand names already tested for differences in relation to perceived brand globalness were selected as the unknown local brand (i.e., "*Bolsch Bräu*") and global brand (i.e., "*Bolsh Brew*"), respectively.

To identify suitable real-world, known counterparts, a pretest with 70 participants was conducted; 49 of them were German and answered all brand-related questions and were thus considered as usable cases for the subsequent analyses. Therefore, three German (i.e., local) beer brands (i.e., "*Beck's*", "*Berliner Kindl*", "*Krombacher*") and three global brands (i.e., "*Heineken*", "*Budweiser*", "*Corona*") were selected and pretested in relation to the perceived brand globalness. The corresponding questionnaire asked participants to rate each of the six brands (randomized, alternate order of local and global brands) on the scale of Steenkamp and colleagues (2003). Additionally, a single-item scale by Lovett and colleagues (2013) asked for the familiarity ("*completely unfamiliar*" / "*completely familiar*") with each of the six brands to assess if brands were comparatively familiar to the subjects. Finally, participants had to indicate whether they had a German passport to guarantee that known local and global brands were evaluated from the perspective of locals, that is, Germans.

Since the majority of variables were not normally distributed, Wilcoxon (1945) signed rank tests were employed as nonparametric alternatives to paired sample *t*-tests. The results are shown in Table 27. The brand pair with (one of) the largest differences in relation to perceived brand globalness and the lowest difference in respect to brand familiarity (in bold type in Table 27) was selected, that is, “*Berliner Kindl*” as the (real-world) known local and “*Corona*” as the (real-world) known global brand.

The attitudes towards both the unknown and known brands were measured by three seven-point semantic differentials anchored by “*bad*”/“*good*”, “*unpleasant*”/“*pleasant*”, “*dislike*”/“*like*” (Bergkvist/Rossiter, 2007; Gardner, 1985).

To test the suggested differences of attitude strength, two items adapted from Bizer and colleagues (2006) measured attitude certainty. Attitude certainty is considered one of the main indicators of attitude strength (see also 2.4). After each brand rating (i.e., brand attitude), participants were asked: “*How certain are you of your evaluation/answer?*” (answer anchored by “*not certain at all*”/“*completely certain*”) and “*How sure are you that your evaluation/answer is correct?*” (answer anchored by “*not sure at all*”/“*completely sure*”).

The Cronbach’s Alpha reliability scores for brand attitudes and attitude certainty of brand attitudes are displayed in Table 28. All reliability scores exceeded the value of .700 (Nunnally/Bernstein, 1994, p. 265).

The four question blocks concerning brand attitudes and corresponding attitude certainty assessments were randomly rotated to reduce ordering effects (Dillman et al., 2014; Fan/Yan, 2010). The question blocks further contained one question asking: “*Do you know this brand?*” (dummy-coded) to check prior brand knowledge and facilitate the distinction between unknown and known brands (see also 4.4.2).

Finally, the control variables used (i.e., gender, age, education level, income, German passport) were identical to those utilized in Study 2 and 3. Again, Facebook use was included as additional control variable to test for potential biases concerning prior first-order cultivation effects on the perceived ethnic diversity variables.

Identical to Study 2 and 3, all scales were translated into German.

Table 27. Study 4: Pretest Results

	Perceived Brand Globalness		Familiarity	
	Z-Value	p	Z-Value	p
Beck's vs. Heineken	-3.599	< .001	-2.543	.011
Beck's vs. Budweiser	-2.331	.020	-4.369	< .001
Beck's vs. Corona	-3.096	.002	-4.171	< .001
Berliner Kindl vs. Heineken	-6.042	< .001	-3.329	.001
Berliner Kindl vs. Budweiser	-6.058	< .001	-0.334	.738
<b>Berliner Kindl vs. Corona</b>	<b>-6.040</b>	<b>&lt; .001</b>	<b>-0.046</b>	<b>.963</b>
Krombacher vs. Heineken	-5.994	< .001	-2.380	.017
Krombacher vs. Budweiser	-5.720	< .001	-0.925	.355
Krombacher vs. Corona	-5.854	< .001	-1.341	.180

Note.  $N = 49$ .

Table 28. Study 4: Reliability Analyses (Brand Attitudes and Brand Attitude Certainty)

	Unknown Local Brand ("Bolsch Bräu")	Known Local Brand ("Berliner Kindl")	Unknown Global Brand ("Bolsh Brew")	Known Global Brand ("Corona")
<b>Attitude</b>				
<b><math>\alpha</math></b>	.875	.942	.961	.941
<b>Attitude Certainty</b>				
<b><math>\alpha</math></b>	.986	.837	.992	.875

#### 4.4.5 Analytical Procedure

Identical to Study 3, one-way ANOVAs using the manipulated Facebook use intensity as factor were performed in order to test hypotheses 1-3, 6, and 7.

Table 29 presents the ANOVA assumption tests. While the residuals of the ANOVAs for perceived societal ethnic diversity and attitudes towards ethnic minorities were normally distributed, the residuals of the ANOVAs for the remaining dependent variables showed deviations from normality (at a marginal significance level for attitudes towards known local and known global brands). Unequal variances in the experimental groups were only detected for the ANOVA for the perceived number of ethnic minority colleagues. Besides, both experimental groups were equally distributed in terms of demographic characteristics of the participants (i.e., age, gender, income, education level), and there were no differences in relation to subjects' daily Facebook use between the experimental conditions. Finally, all dependent variables were at least interval-scaled.

Table 29. Study 4: ANOVA Assumption Tests

ANOVAs for Dependent Variables	ANOVA Assumption Tests				N
	Normality		Equal Variances		
	Test value <sup>a</sup>	p-value	Test value <sup>b</sup>	p-value	
<b>Perceived Prevalence of Ethnic Diversity</b>					
Perceived Societal Ethnic Diversity	.075	> .200 <sup>c</sup>	< 0.001	.999	61
Perceived Number of Ethnic Minority Friends	.170	< .001	1.480	.229	61
Perceived Number of Ethnic Minority Colleagues	.134	.008	8.020	.006	61
<b>Attitude towards Ethnic Minorities</b>	.077	> .200 <sup>c</sup>	0.092	.763	61
<b>Ethnocentrism</b>	.148	.002	0.591	.445	61
<b>Attitude towards</b>					
Unknown Local Brands	.349	< .001	1.732	.193	58
Known Local Brands	.104	.097	< 0.001	.993	61
Unknown Global Brands	.325	< .000	2.736	.104	60
Known Global Brands	.106	.083	0.100	.753	61

Note. Unequal experimental group sizes for each dependent variable.

<sup>a</sup>d-value of KS-test statistic. <sup>b</sup>Value of Levene test statistic.

<sup>c</sup>Significance levels for KS tests are lower bounds of the true significance as output by SPSS.

#### 4.4.6 Results

Table 30 summarizes the ANOVA results with means, standard deviations, and *F*-test values.

Facebook use has significant positive effects on the perceived number of ethnic minority friends ( $F(1,60) = 11.019, p = .002$ ) and the perceived number of ethnic minority colleagues ( $F(1,60) = 4.216, p = .044$ ). In the high-Facebook-use-intensity condition, participants have significantly higher estimates of the percentage of ethnic minority friends ( $M_{20min} = 32.31$ ) and ethnic minority colleagues ( $M_{20min} = 31.83$ ) than in the low-Facebook-use-intensity condition ( $M_{5min} = 15.69$  and  $M_{5min} = 23.81$ , respectively). Contrary to hypothesis 6, participants have marginally significantly less favorable attitudes towards unknown global brand names ( $F(1,59) = 3.427, p = .069$ ) in the high-Facebook-use-intensity condition ( $M_{20min} = 3.74$ ) than in the low-Facebook-use-intensity condition ( $M_{5min} = 4.05$ ).

Table 30. Study 4: ANOVA Results

<b>Dependent Variables</b>	<b>Experimental Condition</b>		<b>F-Value</b>
	<b>5 min Facebook Use</b>	<b>20 min Facebook Use</b>	
	<i>Mean (SD)</i>	<i>Mean (SD)</i>	
<b>Perceived Prevalence of Ethnic Diversity</b>			
Perceived Societal Ethnic Diversity	22.75 (11.07)	26.83 (11.08)	2.062
Perceived Number of Ethnic Minority Friends	15.69 (16.68)	32.31 (22.27)	11.019**
Perceived Number of Ethnic Minority Colleagues	23.81 (17.97)	31.83 (11.44)	4.216*
<b>Attitude towards Ethnic Minorities</b>	75.03 (15.44)	76.14 (13.57)	0.088
<b>Ethnocentrism</b>	1.92 (0.66)	1.99 (0.76)	0.143
<b>Attitudes towards</b>			
Unknown Local Brands	3.97 (0.55)	3.73 (0.71)	2.102
Known Local Brands	4.94 (1.22)	4.59 (1.10)	1.388
Unknown Global Brands	4.05 (0.53)	3.74 (0.78)	3.427 <sup>+</sup>
Known Global Brands	5.44 (1.18)	5.01 (1.24)	1.880

<sup>+</sup> $p < .10$ ; \* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .

The robustness checks displayed in Table 31 (i.e., Kruskal-Wallis and Welch tests) prove the same cultivations effects.

Furthermore, Wilcoxon signed rank tests (see Table 32) reveal that participants (in total) are significantly more certain of their attitudes towards known brands. Thus, attitudes towards unknown and known brands significantly differ in attitude strengths (across experimental conditions), whereas the attitude strength (as expressed by subjects' attitude certainty) for known brands is significantly higher, which was intended by the study design. Generally, subjects (in total) have significantly more favorable attitudes towards known brands than towards unknown brands.

To sum up, hypotheses 1b and 1c are further corroborated, while hypotheses 1a, 2, 3, 6, and 7 are rejected.



Table 31. Study 4: Robustness Checks

Dependent Variables	5 min	20 min	K-W Test	Welch Test
	Mean Rank	Mean Rank	$\chi^2$	Test value
<b>Perceived Prevalence of Ethnic Diversity</b>				
Perceived Societal Ethnic Diversity	27.92	34.40	2.037	2.062
Perceived Number of Ethnic Minority Friends	23.39	39.40	12.420***	10.713**
Perceived Number of Ethnic Minority Colleagues	26.06	36.45	5.234*	4.398*
<b>Attitude towards Ethnic Minorities</b>	30.80	31.22	.009	0.089
<b>Ethnocentrism</b>	30.56	31.48	.041	0.141
<b>Attitude towards</b>				
Unknown Local Brands	31.67	27.18	1.728	2.066
Known Local Brands	33.92	27.78	1.872	1.403
Unknown Global Brands	33.56	27.22	3.417 <sup>+</sup>	3.342 <sup>+</sup>
Known Global Brands	33.95	27.74	1.889	1.871

Note. K-W Test = Kruskal-Wallis test.

<sup>+</sup> $p < .10$ ; \* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .

Table 32. Study 4: Wilcoxon Signed Rank Test Results

	Attitude Certainty		Attitude	
	Z-Value	p	Z-Value	p
Unknown Local vs. Known Local	-6.090	< .001	-4.676	< .001
Unknown Local vs. Known Global	-6.116	< .001	-5.348	< .001
Unknown Global vs. Known Local	-6.209	< .001	-4.690	< .001
Unknown Global vs. Known Global	-6.193	< .001	-5.391	< .001

#### 4.4.7 Discussion

The experimental results of Study 4 confirm the cultivation effects of Facebook use on the perceived number of ethnic minority friends and the perceived number of ethnic minority colleagues, which further corroborates the findings of Study 2 and Study 3. The cultivation effects on attitudes are not supported, except a marginally significant influence on attitudes towards unknown global brands, which contradicts hypothesis 6.

Contrarily to the findings of Study 3, Facebook use cultivates the perceptions of the close social environment, that is, the number of ethnic minority friends and colleagues, but not the perceptions of the more distant social environment, that is, the perceived societal ethnic diversity. A possible explanation for this differentiated cultivation effect might be the personal experiences subjects gained with societal ethnic diversity. In mid-2015 (when the experiment was conducted), the European refugee crisis started to culminate (Hatton, 2016) and particularly Germany witnessed a massive influx of refugees (BAMF, 2016). In the first six months of 2015, 179,037 asylum seekers applied for asylum in comparison to 202,834 asylum applications for the entire year of 2014 (BAMF, 2015). The number of asylum applications increased by 135% from 2014 (i.e., 202,834 applications) to 2015 (i.e., 476,649). The number of first-time applications even increased by 155%, and Germany had 35% of all first-time applicants in the European Union member states (Eurostat, 2016). Accordingly, the issues of asylum seekers and refugees were broadly covered in media and generally frequently discussed topics in (German) society. Consequently, individuals gained personal experiences with and impressions of migration and ethnic minorities. Therefore, the cultivating impact of Facebook (above other media) on corresponding perceptions might be limited (Bilandzic, 2006), as compared to October 2014 (when the first experiment was conducted) or October/November 2013 (when the survey was administered). However, the broad traditional media coverage, particularly, by print media and TV, could have cultivated the perceptions of societal ethnic diversity. This theorized cultivation effect by more traditional media might have reduced potential cultivation effects by Facebook. Additionally, the discrepancy between the percentage estimates of the societal ethnic diversity ( $M_{5min} = 22.75$ ,  $M_{20min} = 26.83$ ) and the real value ( $M = 20.23\%$  in 2014 as the latest available figure) shrank in comparison to Study 3. That implies that individuals might have acquired more profound knowledge related to the prevalence of ethnic minorities in the society. That might apply even more to the present (educated) student sample.

Similar to Study 3, no cultivation effects of Facebook use on attitudes towards ethnic minorities and ethnocentrism are detected. The strength and persistence of these attitudes as well as their proximity to the value of equality were already illustrated in section 4.3.7. Thus, strong attitudes related to ethnic diversity were consistently not influenced by Facebook use in both experimental investigations. Besides, a look at the mean values for attitudes towards ethnic minorities ( $M_{5min} = 75.03$ ,  $M_{20min} = 76.14$ ) and ethnocentrism ( $M_{5min} = 1.92$ ,  $M_{20min} = 1.99$ ) in the experimental conditions suggests a potential ceiling effect (Hetsroni, 2014). That

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is, the scores on the scale measuring attitudes towards ethnic minorities have already high baseline levels, which also vice versa holds true for ethnocentrism. Hence, increased Facebook use intensity might not much increase or decrease the scores of attitudes towards ethnic minorities or ethnocentrism, respectively.

The degree of attitude strength served as one possible explanation for differentiated second-order cultivation effects. Therefore, attitudes of different strengths towards similar attitude objects were employed to further investigate second-order cultivation effects in Study 4. Table 32 shows that, as intended, subjects (in total) are significantly more certain of their attitudes towards known brands than of their attitudes towards unknown brands. For the known and hence stronger brand attitudes, no cultivation effects are found. Contrarily, there is a marginally significant cultivation effect on attitudes towards unknown global brands. Concerning the impact of attitude strength, this pattern is at least approximately in line with the hypothesized relationships, that is, Facebook use more strongly affects attitudes towards unknown brands (i.e., comparatively low attitude strength) than towards known brands (i.e., comparatively high attitude strength). Consequently, attitude strength seems to play a crucial role for the size and occurrence of second-order cultivation effects. Besides, the different social distances towards known and unknown brands might further affect cultivation effects. Known brands (i.e., comparatively low social distance) subjects are familiar with might be linked to experiences subjects had with these brands. Hence, corresponding attitudes might be less susceptible to change and cultivation by mediated communication content (Bilandzic, 2006).

Considering the unknown brands (i.e., comparatively high social distance), the marginally significant cultivation effect on attitudes towards unknown global brands contradicts hypothesis 7. In fact, the observed pattern for attitudes towards unknown (local and global) brands is exactly the reverse (although weaker) of the cultivation effects on attitudes towards unknown brand names found in Study 3. Fluency effects in conjunction with exposure to brand related content might explain the opposite findings of Study 4. A comparison of the samples reveals that the sample of Study 3 included only freshmen of business studies, while the sample of Study 4 consisted of business, cultural science, and law students (with and without degree). While business students might be particularly familiar with and interested in global brands and thus like and follow them on Facebook, this familiarity and interest might be lower for law and cultural science students. As Facebook profiles mirror users' interests, backgrounds, and identities (see 2.2.1.2 and 2.2.1.3), business students might be more (less)

exposed to Facebook content related to global (local) brands and even brand-related content in general than cultural science and law students. A lack of exposure to global brands on Facebook might result in reversed (conceptual) fluency effects, that is, newly incoming information is processed with more difficulty (Lee, 2004; Schwarz, 2004a). That, in turn, negatively influences judgments towards an unknown (semantically related) global brand.

Comparable to Study 3, the lack of exposure towards unknown brands might have become more influential, though less pronounced than in Study 3, for judgments in the high-Facebook-use-intensity condition. Again, conceptual fluency did not take effect, which, in turn, decreased attitudes. However, this decreasing effect reached only marginal significance for unknown global brands and was not significant for unknown local brands. Thus, participants of Study 4 might be less exposed to content related to global brands than to content related to local brands.

A comparison of the findings of Study 3 and Study 4 further indicates that the significant (and marginally significant) first-order cultivation effects are stronger in Study 4 (if one excludes the perceived societal ethnic diversity), whereas the significant (and marginally significant) second-order cultivation effects are weaker in Study 4 than in Study 3. Taking into account the distinctive processes underlying first- and second-order cultivation effects and the different influence factors (see 2.1.2.1 and 2.1.2.2), participants of Study 4 might be less motivated than subjects of Study 3. On the one hand, high motivation and ability to process information can inhibit first-order cultivation effects, because individuals less rely on heuristics (Shrum, 2001). On the other hand, second-order cultivation effects can be strengthened, as high levels of motivation and ability to process information amplify persuasive processes for attitude formation and change (Petty/Cacioppo, 1986a, b). The freshmen of business studies of Study 3 probably participated in a scientific experiment the first time, while the participants of Study 4 frequently take part in scientific experiments (see data collection and recruitment method in section 4.4.2). Accordingly, the former were possibly more motivated than the latter, which lead to the different strengths of first- and second-order cultivation effects in both experimental investigations.

After presenting and discussing the results of the four empirical investigations, the theoretical contributions (5.1) as well as the practical and marketing implications (5.2) of the empirical findings are portrayed. Finally, limitations of the empirical investigations and related directions for future research (5.3) are illustrated.

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## 5 Conclusion

### 5.1 Theoretical Contributions

A main contribution of the present empirical studies (Studies 2-4) is to provide evidence of cultivation effects of Facebook use on perceptions and attitudes. To date, no study has demonstrated the cultivating effects of Facebook or other SNS. Thus, a new cultivation medium evermore pervading individuals and societies is detected, which would have possibly exceeded Gerbner's expectations. In 2002 (Gerbner passed away three years later), Gerbner and colleagues (2002) stated that "television has become the primary common source of socialization and everyday information...of otherwise heterogeneous populations. We have now reached an unprecedented juncture at which television brings virtually everyone into a shared national culture.... [and] provides...a daily ritual that elites share with many other publics" (p. 44). Nowadays, Facebook and SNS might supersede TV by having these characteristics and fulfilling these functions, respectively.

On the one hand, the present findings extend and generalize the findings of previous cultivation research. On the other hand, TV and Facebook (or generally SNS) as cultivating media differ in relation to content, interaction, and communication (see 2.2.1). Interactivity, reciprocity, and mutual communication characterize Facebook (boyd/Ellison, 2007; Ellison et al., 2011), whereas communication is rather one-way for the traditional mass media such as TV. That is, engagement in interpersonal communication and contact is not possible (Williams, 2006; see also 3.1).

Traditional media and Facebook further differ in respect to the social distance of content to viewers'/users' lives. Facebook and other SNS are individual media based on user-generated content (see 2.2.1.2). Users, their personal and identity-related information (Grasmuck et al., 2009; Zhao et al., 2008), their social networks and relationships (see 2.2.1.1) are integral parts of Facebook and other SNS. Hence, the content on Facebook relates to the close social environment of users' lives. Brand-related content (see 2.2.1.3), links, videos, and others pertaining to the more distant social environment supplement this content. Contrarily, the content portrayed on TV is usually perceived more distant to viewers' lives, as it is not necessarily associated with viewers' personal experiences (i.e., a lack of experiential closeness (Bilandzic, 2006)).

The empirical evidence of this dissertation (Studies 2-4) reveals cultivation effects on perceptions related to both the users' close (i.e., perceived number of ethnic minority friends and colleagues) and more distant social environment (i.e., perceived societal ethnic diversity). That implies that cultivation is not only based on one-way communication and exposure to content generated by third parties (like in the case of traditional media) but on interactive communication, mutual interaction, and highly personal, user-generated content. That adds new insights to cultivation research and indirectly relates to the long-standing "mirror" versus "mold" debate in relation to advertising (Holbrook, 1987; Pollay, 1986, 1987). In respect to Facebook and SNS, the "mold" view would imply that Facebook (SNS) shapes (i.e., molds) users' perceptions, attitudes, and values, while the "mirror" perspective would suggest that Facebook (SNS) reflects (i.e., mirrors) users' attitudes and values. Although, the present empirical investigations found that Facebook use influences ethnic diversity perceptions, users and the various forms of information they disclose build an essential part of Facebook. While the former confirms the "mold" argument, the latter corroborates the "mirror" argument. That is, Facebook might mirror individuals' attitudes and values (i.e., content users disseminate) and mold individuals' values and attitudes (i.e., as a result of frequent exposure) at the same time. That suggests an interactive, user-to-user influence pattern, which differs from traditional media like TV.

Besides, the cultivation effects on social perceptions (i.e., first-order cultivation effects) are further corroborated by experimental investigations (Studies 3 and 4), which addresses the focal critique of previous cultivation research, that is, causality proofs (see 2.1.3).

Next to perceptions, second order-cultivation effects on attitudes are examined and found (Studies 3 and 4). In contrast to previous experimental studies using content-specific manipulations (e.g., Shrum et al., 2011; see 3.2), the experimental investigations of this dissertation manipulated general media use intensity (i.e., Facebook use intensity) to account for exposure to all possible forms of content on Facebook and to avoid restrictions on media (Facebook) use behavior. Furthermore, the analyses of second-order cultivation effects were further refined by focusing on attitudes of different strengths. Generally, the experimental findings prove second-order cultivation effects on rather weak attitudes (built on the spot), while strong attitudes are not influenced. On the one hand, that contributes to the understanding of cultivation effects on attitudes of different strengths. On the other hand, that suggests a potential interaction of memory-based and online construction of comparatively

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strong attitudes (see 4.3.7). Finally, metacognitions and related fluency effects that are subsequently discussed might also induce second-order cultivation effects (on weak attitudes).

In sum, the present findings contribute to extant cultivation research both content- and process-wisely.

Second, the thesis findings add knowledge to the research related to Facebook and SNS in general by showing that Facebook use influences ethnic diversity perceptions. The enormous reach, scale, and (ethnically diverse) user basis of Facebook (see 2.2.1.1) makes it an extraordinarily powerful medium in positively shaping its users' perceptions and in fostering cultural openness. Thus, Facebook also bears a social responsibility to counteract adverse tendencies (see 5.2). The content-analytical results (Study 1) further highlight that Facebook users are more in contact with and exposed to ethnically diverse individuals (i.e., users and respective communication content) than in the real world. Thus, the present empirical investigations establish a bipartite research approach studying the ethnically diverse content on Facebook and the consequences of frequently encountering this ethnically diverse content. While this approach is common to cultivation studies (see 2.1.1.2), it is unique to Facebook research, which has separately studied content (e.g., Back et al., 2010) and outcomes of use (see Table 9). Furthermore, the findings concerning the second-order cultivation effects on brand attitudes add insights to brand-related Facebook research. Surprisingly, the influence of Facebook use on brand attitudes has not been investigated yet. The steadily increasing amount of studies related to brands on Facebook has rather focused the content side and corresponding user/consumer behavior (see Table 8).

Third, the present findings contribute to the research on ethnic diversity, ethnic minorities, and outgroups, that is, how the perceptions of ethnic diversity are affected by media consumption in the form of Facebook use. It extends previous research by showing that exposure to ethnically diverse content in conjunction with virtual contact, communication, and interaction with ethnically diverse users can positively shape perceptions of ethnic diversity. That accounts for both exposure to and contact with ethnic minorities, which Dinesen and Sønderskov (2015) distinguished. Extant empirical research rather focused on either contact (e.g., the scholarly work theoretically grounded on the intergroup contact hypothesis of Allport (1954) and the various extensions; see 2.3) or exposure to ethnic diversity and/or minorities (e.g., the literature on ethnic minorities in advertising; see 2.3). The present findings suggest a virtual exposure and contact hypothesis, which assumes that

exposure to and contact with individuals of other cultural, ethnic, and/or national background via Facebook increase the perceived prevalence of ethnic diversity. Although attitudes towards ethnic minorities and ethnocentrism (as strong attitudes) are not shaped by (rather short-term) Facebook use, these attitudes might be influenced in the long run, which can foster cultural learning and social cohesion. That is of particular importance for multiethnic societies and more crucial than ever in the light of the current migration flows and massive influx of refugees and asylum seekers (Dinesen/Sønderskov, 2015; Hatton, 2016).

Finally, the experimental results contribute to the understanding of brand name/brand attitude formation in a virtual environment. While Facebook use influences comparatively weak attitudes towards unknown brand names/brands, while attitudes towards known brands (i.e., comparatively high attitude strength) are unaffected. The negative cultivation effect of Facebook use on brand name/brand attitudes might be attributed to lack of exposure to respective branded-related on Facebook and to reverse conceptual fluency effects. Thus, metacognitions in the form of (reverse) fluency effects might induce second-order cultivation effects of Facebook use (see 4.3.7 and 4.4.7).

The next section (5.2) explains the practical and marketing implications of the thesis findings.

## **5.2 Practical and Marketing Implications**

The first set of implications has a socio-ethical dimension. Given that Facebook use influences ethnic diversity perceptions, the medium can play an important role in shaping users' awareness and understanding of ethnic diversity and migration issues that, for instance, Europe is facing these days (Hatton, 2016). There are partly lowbrow, misanthropic debates on whether asylum seekers are "genuine refugees or simply "economic migrants" from poor countries seeking a better life" (Hatton, 2016, p. 442), although Hatton (2016) empirically demonstrated that political terror and human rights abuse influenced the number asylum applications more strongly than the economic condition in the origin or transition countries. These debates frequently take place on Facebook and are even more pronounced, subjective, and distorted there. Besides, right-wing and radical right parties have succeeded and still thrive all over Europe and worldwide and shape and co-create the political landscape (Aichholzer/Zandonella, 2016; Rydgren, 2007). In his review, Rydgren (2007) stressed that anti-immigrant attitudes, refusal of ethnically diverse populations, and xenophobia



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contributed to individuals' support of (radical) right-wing parties. In the same vein, Aichholzer and Zandonella (2016) empirically proved that perceived immigrant threat predicted radical right party support (in the Austrian context). Furthermore, Mols and Jetten (2016) showed that leaders of right-wing parties distort social reality by populist narratives, that is, they portray ordinary people (i.e., current and prospective party supporters) as victims of and caught in the middle between immigrants/asylum seekers (at the bottom) and wealthy elites (at the top). These kinds of narratives can also be found on Facebook.

In the face of the social contagion and peer influence effects taking place on Facebook (see Table 6), both positive and negative content and behavior might rapidly spread in the network, which might also pertain to prejudices, stereotypes, and hate speech. Consequently, Facebook as a corporation has a social responsibility to monitor prejudiced and racist content disseminated via its networks and should work as a gatekeeper. However, the question whether Facebook should actively intervene in certain cases is closely connected to the issue of freedom of opinion and its boundaries. Moreover, the issue of problematic content diffusion and its influence on users' perceptions indirectly refers to the "mirror" versus "mold" discussion (see 5.1). From the "mirror" perspective, users' content should not be censored, as it reflects individuals' attitudes, opinions, or values (independent of their misanthropy). From the "mold" perspective, Facebook has the responsibility to monitor and, if necessary, delete dubious content and file charge of hate speech (in extreme cases). Numerous and intense users are young or under age and might be especially susceptible to certain content and peer influence (Aral/Walker, 2012).

Apart from prevention and surveillance of dubious content, Facebook and its users can promote positive perceptions of and attitudes towards ethnic diversity, ethnic minorities, outgroups, and others. That, in turn, can increase social trust, social cohesion, and tolerance, reduce resentments and social anxieties, and foster societal enlightenment. Particularly, an open-minded, enlightened society without social and economic anxieties can resist populism and right-wing parties. These parties regularly claim that economic migrants economically threaten ordinary citizens, although migrants de facto do not economically compete with the majority of these citizens, and the country's economy actually prospers (Mols/Jetten, 2016). Besides, Facebook could contribute to political participation, as Tufekci and Wilson (2012) verified for individuals' participation in the Tahrir Square protests in Egypt, one of the main incidents and venues of the Arab Spring in 2011.

The second set of implications relates to possible practical insights for marketers and companies. First, Facebook might influence perceptions over and above ethnic diversity perceptions. For instance, Facebook can be an effective and efficient tool to disseminate health communication content/message to a vast amount of users. Previous research already proved cultivation effects of TV exposure on various health-related variables (see Table 5). Besides, Strecher (2007) and Bennett and Glasgow (2009) pointed out the important role the Internet plays for disseminating public health interventions, Cavallo and colleagues (2012) judged Facebook as a “feasible platform for intervention delivery among young adults” (p. 530f.), and Gold and colleagues (2011) showed that Facebook was intensively used for sexual health promotion. Thus, Facebook use and exposure to health related messages can increase awareness and consciousness of health issues, which is particularly relevant for health marketing. Facebook as an effective tool to spread content/messages and influence users’ perceptions on an immense scale can be further interesting for social marketing or non-profit organizations.

Second, the findings concerning the second-order cultivation effects on attitudes towards brand names/brands are of value for branding, advertising, and brand-related activities on Facebook. The experimental results verified that a lack of exposure and of conceptual fluency decreased brand name/brand attitudes. Hence, marketing activities and brands on Facebook should be highly visible to avoid these adverse effects. However, friendship networks (Aral/Walker, 2012; Bakshy, Rosenn, et al., 2012), the Facebook algorithm (Kramer et al., 2014; Lazer, 2015), and self-selection (Bakshy et al., 2015) restrict users’ exposure to content on Facebook including brand-related content. One solution for companies is to create brand fan pages (see also 2.2.1.3). When users like a brand on Facebook (i.e., become a fan of the brand page), the likelihood that they encounter respective brand posts increases (Lipsman et al., 2012; Sabate et al., 2014). Furthermore, users’ self-disclosed profile data are highly predictive of their personality and other demographics (Kosinski et al., 2013; Youyou et al., 2015) and can be used to directly target these potential consumers, as Heimbach and colleagues (2015), for instance, showed in relation to product recommendations. Given that consumers with accessible global identities prefer global over local products and vice versa (Zhang/Khare, 2009), users might be directly addressed by and exposed to global or local brands on the basis of their profile data (expressing and predicting identities). Profile data can be further used to assess which content users most likely encounter, since the Facebook algorithm determines which content on the news feed appear based on users’ interests such as

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likes (Kramer et al., 2014). Thus, users liking many local (global) brands on Facebook will be probably exposed to more content related to local (global) brands. This information (if available) can help companies to advertise brands and spread brand-related content users most likely appreciate or to build user clusters (e.g., van Dam/van den Velden, 2015).

The final section of this thesis (5.3) presents limitations of the empirical investigations and respective directions for future research.

### **5.3 Limitations and Future Research**

The empirical studies have some limitations that are worth noting. These limitations should be taken into account when considering the findings and possibly addressed in future research.

First, the content analysis (Study 1) focused on the percentage of ethnic minority Facebook friends to predict or approximate exposure to ethnically diverse content. Particularly in the light of the second-order cultivation effects on attitudes towards brand names/brands, a more fine-grained analysis of the brand-related content users encounter could be conducted. Generally, the users' Facebook likes could shed light on the content users are exposed to. Facebook profile content could be further analyzed in terms of the social distance to users' personal lives, that is, whether it is highly personally relevant content or more mass medial content. That helps to understand the strength of cultivation effects on different constructs that are likewise characterized by different social distance to users' lives (see 4.2.8, 4.3.7, and 4.4.7). However, the main problem in respect to content-analytical examinations of Facebook profiles are Facebook's privacy settings and respective data availability restrictions on data gathering (Kosinski et al., 2015).

Second, a main caveat of previous cultivation studies is the proof of causality. Therefore, the correlational, cross-sectional survey (Study 2) was supplemented by two experiments (Studies 3 and 4) to test for causality and establish causal relations, respectively. However, some second-order, online cultivation judgments (i.e., stable and enduring attitudes such as attitudes towards ethnic minorities and ethnocentrism) are more difficult to influence than others (more transient attitudes such as attitudes towards brand names or attitudes towards unknown brands). A longitudinal research design with panel data could be one solution to test for the change of attitudes in dependence of Facebook use in the long run. Besides, longitudinal designs are particularly suitable to reduce common method bias, when predictor and outcome

are rather weakly correlated (Rindfleisch et al., 2008; see also 4.2.5.6), and in case of feedback loops or reinforcing spirals (i.e., media use influences beliefs, attitudes, and behavior, which, in turn, influence media use, and so forth) (Slater, 2007). The latter could occur on Facebook, that is, Facebook use shapes certain attitudes that make users' browse or seek certain content on Facebook, which, in turn, reinforces attitudes (everything considered in a long-run perspective).

Third, the empirical studies were conducted with German participants. Heinrich and colleagues (2010), for instance, critically assessed the use of samples from "WEIRD" (i.e., **W**estern, **E**ducated, **I**ndustrialized, **R**ich, and **D**emocratic) societies for psychological experiments. In respect to Facebook use, underlying motives, as well as social interactions and contacts on Facebook, there might exist country- and culture-specific differences, particularly, between individualistic and collectivistic countries (Jackson/Wang, 2013; Nadkarni/Hofman, 2012; Zhang/Leung, 2015). Hence, future research could study contingency factors of the cultivation effects, that is, culture or the nationality of the users might moderate the cultivation effect of Facebook use on perceptions and attitudes. Furthermore, the economic well-being of a country or society can also influence both the intensity of using SNS and the relationship with and attitudes towards ethnic minorities. The political situation (e.g., right-wing parties; see 5.2) can additionally shape ethnic diversity perceptions and attitudes.

As indicated in section 4.4.7, factors that affect the information processing during browsing Facebook (i.e., ability or motivation to process) might inhibit or strengthen second-order cultivation effects (see also 2.1.2.2). Thus, the analysis of these factors moderating the relation between Facebook use and judgments could advance the knowledge of second-order cultivation judgments. That also pertains to attitude strength as a potential moderating variable. Future experimental designs could manipulate attitude strengths (e.g., attitude accessibility; see 2.4 for other possible dimensions) and test how different Facebook use intensities shape attitudes of different strengths. Since users' individual network structure and (attitudinal) diversity as well as selective exposure to communication content can further influence attitude change (see 4.3.7), the analyses of these structural and content-related factors could contribute to the understanding of second-order cultivation effects of Facebook. On the one hand, attitudinal network diversity could be quantified as the users' perceptions of consensus or similarity between own and peers' attitudes/opinions (e.g., Goel et al., 2010). On

the other hand, the assessment of selective exposure to, for instance, attitude-consistent content might be best feasible with self-reports.

Finally, the examination of cultivation effects of Facebook use on various other dependent variables could be an avenue for future research. These could comprise other diversity-related variables such as gender or sexual diversity. Political, (see 5.2), health-related (e.g., Jin et al., 2015; see 5.2), or environmental attitudes might be also shaped by Facebook use, as users encounter respective content on Facebook. Given the equivocal findings concerning self-idealization tendencies on Facebook (Back et al., 2010 vs. Zhao et al., 2008), combined content and cultivation analyses could shed light on the factors and processes influencing self-esteem and life-satisfaction (see Table 9). A test if the findings of Eisend and Möller (2007) are generalizable and replicable in the Facebook context seem to be also an option for future research, as self-presentation (Nadkarni/Hofman, 2012) and self-affirmation (Toma/Hancock, 2013) underlie Facebook use.

Generally, Facebook as cultivation medium offers a wide array for future cultivation research due its diverse content and users, its global scale, and its prevalence in society and users' lives (Kosinski et al., 2015). Besides, other SNS such as Twitter or Instagram, which are based on (concise) written content and photographs, respectively, might also cultivate users' perceptions and attitudes.

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## **Statement of Originality**

### **Eidesstattliche Erklärung**

Bei der vorliegenden Dissertationsschrift mit dem Titel: „The Cultivation Effect of Social Network Site Use on Consumers' Brand Attitudes, Ethnic Diversity Perceptions and Attitudes“ handelt es sich um eine Monographie in englischer Sprache nach §12 Absatz 1 der Promotionsordnung der Wirtschaftswissenschaftlichen Fakultät der Europa-Universität Viadrina Frankfurt (Oder) in der Fassung vom 7. April 2010.

Ich versichere hiermit an Eides statt, dass ich bisher an keiner anderen Doktorprüfung teilgenommen habe.

Des Weiteren versichere ich an Eides statt, dass ich die Abhandlung selbstständig verfasst habe. Ich habe mich keiner unzulässigen fremden Hilfe bedient und keine anderen als die im Schriftenverzeichnis der Abhandlung angeführten Schriften benutzt. Die Abhandlung war bisher nicht Gegenstand einer anderen Doktorprüfung.

Ich versichere an Eides statt, dass ich nach bestem Wissen die reine Wahrheit gesagt und nichts verschwiegen habe.

Berlin, den 06.06.2016

Erik Hermann

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## Curriculum Vitae

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### Academic Background

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05/2013 – present	Research Assistant, Chair of International Marketing, European University Viadrina, Frankfurt (Oder), Germany
07/2013 – 08/2013	ICPSR Summer Program in Quantitative Methods of Social Research
04/2012 – 04/2013	Doctoral Program in Dynamic Capabilities and Relationships (Scholarship), European University Viadrina, Frankfurt (Oder), Germany & German Graduate School of Management and Law, Heilbronn, Germany
10/2009 – 09/2011	Studies of International Business Administration, European University Viadrina, Frankfurt (Oder), Germany      Degree: <b>M.Sc.</b>
09/2008 – 01/2009	International Business Administration, Universidade Nova de Lisboa, Lisbon, Portugal
10/2006 – 09/2009	Studies of International Business Administration, European University Viadrina, Frankfurt (Oder), Germany      Degree: <b>B.Sc.</b>

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### Teaching Experience

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**Undergraduate Courses:** Marketing, Marketing Planning

**Graduate Courses:** Consumer Behavior, Marketing Communication, Quantitative Methods

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### Administrative Services

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### Professional Experience

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04/2012 – 07/2012	Scientific Assistant, Chair of International Marketing, European University Viadrina Frankfurt (Oder), Germany
11/2011 – 04/2012	Project Assistant, AirBerlin PLC & Co. LuftverkehrsKG, Berlin, Germany
10/2010 – 12/2011	Scientific Assistant, Chair of International Marketing & Doctoral Program in Dynamic Capabilities and Relationships, European University Viadrina, Frankfurt (Oder), GGS, Heilbronn, Germany
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