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Communication as a Discipline

Views from Europe

Communication Research Paradigms

Five Challenges for the Future of Media-Effects Research

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The past several decades have witnessed thousands of studies into the effects of media on children and adults. The effects sizes that are found in these studies are typically small to moderate, at best. In this article, we first compare the effect sizes found in media-effects research to those found in other social and behavioral sciences, and demonstrate that small effect sizes are just as common in these other disciplines. Then, we discuss why, in contradiction to these other disciplines, small media effects often lead to opposing, or even polarized views among communication scholars. Finally, we present five challenges for future media-effects research that may increase the explanatory power of current media-effects models: 1) improved media exposure measures; 2) more programmatic research on conditional media effects; 3) more targeted, cumulative theory testing; 4) a broader recognition of transactional media effects; and 5) a reconsideration of the media-effects paradigm in the context of new media.

The past several decades have witnessed thousands of empirical studies into the cognitive, emotional, attitudinal, and behavioral effects of media on children and adults (Potter & Riddle, 2007). Moreover, since the second half of the 1990s, a growing number of meta-analyses have emerged to synthesize the results of these empirical studies (for an overview, see Preiss, Gayle, Burrel, Allen, & Bryant, 2007). The effect sizes that these meta-analyses have yielded are rather consistent. For example, meta-analyses of the effects of violent videogames on aggression have found effect sizes between r = .08 (Ferguson & Kilburn, 2009) and r = .19 (Anderson et al., 2010). Other meta-analyses have yielded effects sizes between r = .01 and r = .15 for the effects of health campaigns on health behaviors (Snyder, 2007), between r = .17 and r = .22 for the effects of sexually explicit material on aggressive behavior (Mundorf, Allen, D'Alessio, Emmers-Sommer, 2007), and between r = .20 and r = .37 for the effects of prosocial

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media content on different types of prosocial behavior (Mares & Woodard, 2007). Finally, most other meta-analyses that synthesize the media-effects literature (e.g., see the chapters in Preiss et al., 2007) have yielded effect sizes that fall within the range of what Cohen (1988) classifies as small to moderate.

Despite these rather consistent meta-analytic results, researchers in our field often disagree on whether the reported effects sizes are of theoretical and practical significance. This disagreement occurs for all media effects, but particularly for potentially negative media effects. For example, the effects of pornography on sexual aggression have repeatedly led to debates between researchers (e.g., Fisher & Grenier, 1994; Malamuth, Addison, & Koss, 2000). Likewise, the effects of computer games on aggression have recurrently sparked controversies. A recent example is the published debate in *Psychological Bulletin* between Ferguson and Kilburn (2010) on the one hand, and Bushman, Rothstein, and Anderson (2010) and Huesmann (2010) on the other. This debate pertained to the different effect sizes reported in the published meta-analyses by Anderson et al. (2010) and Ferguson and Kilburn (2009).

The disagreement in media-effects research about the meaning of effect sizes is intriguing, given that similar effect sizes as reported in media-effects research are common in several other disciplines. For example, three recent meta-analyses on the effects of parenting on child development have all yielded small to moderate effect sizes. Pugliese and Tinsley (2007) reported a mean effect size of r = .17 for the effect of parenting styles on children's physical activity. Wang, Beydoun, Li, Liu, and Moreno (2011) found an effect size of r = .17 for the influence of parents' eating behaviors (e.g., their fat intake) on their children's eating behaviors. Finally, even for such serious outcomes as adolescent delinquency, the effects sizes of parenting are weaker than commonly assumed. A meta-analysis conducted by Hoeve et al. (2009) showed that the majority of impacts of 40 parenting behaviors on adolescent delinquency were smaller than r = .20. Only two extreme parenting behaviors, hostility and neglect, exerted somewhat stronger influences on adolescent delinquency (r = .28 and r = .29). Finally, a so called meta-meta-analysis, which examined the pooled magnitude of the effects obtained in all meta-analyses published in *Psychological Bulletin* from 1995 to 2005, led to an effect size of r = .16 (Cafri, Kromrey, & Brannick, 2010).

Small to moderate effects sizes are not limited to the social sciences. The medical sciences also often report small effects sizes, notably in the hugely influential discipline of behavioral genetics. The effect sizes reported in behavioral genetics are typically even smaller and more inconsistent than the effects sizes found in communication research. For example, a large-scale meta-meta-analysis of 50 meta-analyses on the effects of genes variants on diseases like cancer, schizophrenia, and diabetes revealed an odds ratio of 1.43 (Ioannidis, Trikalinos, & Khoury, 2006), which is comparable to a correlation of about r = .13. In order to have sufficient statistical power to detect effects, these genetic studies need extremely large samples. Based on the reported odds ratios in these genetic studies, the required sample sizes to detect significant effects of genes should be around 3,000 respondents (Ioannidis et al., 2006). A similar picture emerges in another highly influential discipline, neuroscience. After 20 years of neuroscience research, due to large sample variance, it is still difficult to detect differences in brain activity between individuals. As a result, the reported effects sizes in neuroscience are typically also small or even non-significant (Huettel, Song, & McCarthy, 2009; Nieuwenhuis, Forstmann, & Wagenmakers, 2011).

Although small and moderate effects are thus also an issue in other fields and disciplines, media-effects research seems to differ from these fields and disciplines in two respects. First, for almost as long as the media-effects field has existed, it has openly acknowledged the small magnitude of its reported media effects (e.g., Klapper, 1960; Lang, 2011; McGuire, 1986; Nabi & Oliver, 2009; Shrum, 2009). On the one hand, this honest self-reflection and self-criticism should be applauded, because it may stimulate theory formation and method development. On the other hand, when a "failure to detect meaningful effects" is emphasized too much, it may damage the progress and legitimacy of the field. After all, colleagues, reviewers, and funding agencies, as well as journalists and politicians, may not necessarily see our "small" effects in the light of the comparably sized effects found in other fields and disciplines, and as a result, they may easily dismiss our research findings as irrelevant. This danger is even more troublesome if other disciplines are less open and self-critical about the magnitude of their effects sizes.

Second, the media-effects field also differs from other disciplines in that the reported magnitudes of media effects have always led to disagreement, and sometimes even to polarized views, among researchers. Even the dominant history of media-effects research is typically organized around opposing views on the magnitude of media effects (Neuman & Guggenheim, 2011). Textbooks typically present the history of the field as a succession of 1) the magic-bullet theories of powerful media effects in the years before and during the Second World War; 2) the postwar limited-effects theories of Lazarsfeld, Berelson, and Gaudet (1948) and Klapper (1960); and 3) the return to the powerful media effects in the 1970s (e.g., Noelle-Neumann, 1973). Debates about the size of media effects have occurred as long as media-effect research has existed, and they continue in the present day. Examples include the controversies between Hirsch (1980) and Gerbner, Gross, Morgan, and Signorielli (1981) in the 1980s about the effect sizes found in cultivation research; between Bennett and Iyengar (2008) and Holbert, Garrett, and Gleason (2010) about political communication effects; and between Ferguson and Kilburn (2010), Huesmann (2010), and Anderson et al. (2010) about the effects of media violence.

Disciplinary Self-Reflection

Although small effects are not exclusive to media-effects research, every discipline could benefit from some "disciplinary self-reflection," including communication studies (So, 1988). Recently, several media-effects researchers (e.g., Bryant & Miron, 2004; Lang, 2011; Nabi & Oliver, 2009; Sherry, 2004; Shrum, 2009) have argued for the need for theoretical and methodological advancements in media-effects research. For many of these authors, the reported small media effects go against common sense, because everyday experience seems to offer numerous examples of strong media effects (e.g., Lang, 2011; McGuire, 1986). We agree that it is important to keep investigating whether results showing small effects are truly small or an invalid representation of the underlying effect sizes in the population. In the remainder of this article, we discuss five methodological and theoretical challenges for future media-effects research. These challenges pertain primarily to micro-level media effects—that is, to effects that can be observed in the individual media user. Media effects are the deliberative and non-deliberative short- and long-term within-person changes in cognitions, emotions, attitudes, and behavior that result from media use. Media use, if not indicated otherwise, is defined as the intended or incidental use of media types (e.g., TV, newspapers), content (e.g., entertainment, advertising), and technologies (e.g., social media).

Challenge 1: Improvement of Media Exposure Measures

An important cause of the small and sometimes inconsistent media effects that has been identified frequently is the difficulty of measuring media exposure in a reliable and valid way (e.g., McGuire, 1986). A poor reliability of exposure measures can drastically attenuate the relationship with outcome variables, and a low validity makes it difficult to interpret any relationship (Fern & Monroe, 1996; McGuire, 1986). Few researchers would disagree that the foundation of media-effects research lies in the reliable and valid measurement of media exposure—that is, in the extent to which audience members have encountered specific media messages or content (e.g., Slater, 2004).

Despite the importance of media exposure measures to media-effects research, there is still little consensus about how media exposure should be operationalized (for similar observations, see, e.g., Fishbein & Hornik, 2008; Slater, 2004). For example, a recent study on measures of exposure to sex in the media found 107 different measures in a sample of 31 studies (Annenberg Media Exposure Research Group, 2008). Similar observations, though on less systematic bases, have been made in health communication (e.g., Romantan, Hornik, Price, Cappella, & Viswanath, 2008) and political communication (e.g., Prior, 2009). It is, therefore, no surprise that researchers have called the measurement of media exposure a "messy business" (Slater, 2004, p. 168).

The problems with measuring media exposure multiply when it comes to self-reported data. As several scholars have outlined, self-reported media exposure is inherently threatened to be inaccurate. These threats may have cognitive or motivational origins. When self-reports of media exposure are inaccurate due to *cognitive r*easons, shortcomings in information processing have led to imprecise reporting. For example, individuals may be unable to recall the details of media exposure when asked in surveys and probably use heuristics to formulate a response. When self-reports are problematic due to *motivational* reasons, differences in people's motivations to report about, or engage in, a particular topic lead to differential reporting about exposure to the topic. For example, self-reports about exposure to sensitive content, such as pornography, vary by people's tendency to give socially desirable answers (e.g., Peter & Valkenburg, 2011). Similarly, motivational factors (e.g., involvement with the topic) that predict attention to a particular message may easily be confounded with awareness and recall of the message, which, in turn, may bias self-reports of exposure (Donohew, Lorch, & Palmgreen, 1998; Slater, 2004).

The problems that surround the measurement of self-reported media exposure are exacerbated by two recent changes in people's media environments. First, new media technologies have proliferated, and second, media have become increasingly mobile. As a result, people are not only exposed to much more media content than ever before, but this exposure also happens nearly everywhere, any time, and even simultaneously when they multi-task (Vorderer & Kohring, this special section). For example, 80% of adolescents have been found to use other media while watching television (Roberts, Foehr, & Rideout, 2005). Similarly, the majority of college students engage in multiple tasks when being on the Internet; they chat while playing games, or visit social network sites while emailing (Moreno et al., 2012).

Together with the cognitive and motivational causes of inaccurate self-reports of exposure, the changed media use patterns in today's media-saturated environment have several consequences for the measurement of self-reported exposure. First, we should avoid measuring global exposure to a particular medium—that is, attempting to measure time spent with a certain medium or technology (e.g., "On a typical day, how much time do you spend watching television?"). This type of exposure measure is easy to analyze and lends itself well to comparisons across studies because it is still frequently used. However, global exposure measures have already been criticized for their poor statistical performance and low validity in the 1970s and 1980s (e.g., Clarke & Kline, 1974, Salmon, 1986). The use of such measures is also conceptually difficult to justify. There are, to our knowledge, still few individual-level media-effects theories that address the effects of global exposure to a medium or technology on certain outcomes. These theories typically focus on the effects of particular content (e.g., violence, health messages, educational content) or the structural characteristics of a medium or technology (e.g., pace; interactivity; available audiovisual cues) on outcomes of interest.

Second, we need to investigate the type of content of interest as specifically as possible, for example by assessing exposure to particular types of content (e.g., political news, sports news), genres (e.g., sitcoms, reality shows), or titles (e.g., *Vogue*, *Men's Health*). An advantage of such specific exposure measures is that they can be combined with analyses of the content in question. Even if respondents may not be able, or motivated, to report details of the content, a content analysis can fill in this gap. Brown et al. (2006), for example, successfully predicted adolescents' ages of sexual debut by combining their exposure to specific television shows, movies, and magazines with a content analysis of the sexual messages in these vehicles. Likewise, Sargent, Worth, Beach, Gerrard, and Heatherton (2008), have recently introduced the "Beach" method, which randomly samples a list of popular movies, asks respondents about their exposure to the movies, and combines these answers with a content analysis of the movies (e.g., on substance use) in order to predict risk behavior. A drawback of specific exposure measures, however, is their use in longitudinal designs when particular vehicles (e.g., video games played) change and cause problems with the over-time comparability of the exposure measure. Moreover, specific exposure measures may elicit more motivational reactions than general exposure measures, notably when exposure to socially undesirable content is assessed.

Finally, in terms of exposure to particular messages, researchers need to focus more strongly on the advantages and disadvantages of recognition measures. Recognition is usually operationalized by asking respondents whether they have seen or read a particular message. Alternatively, a respondent could be presented with a verbal description of the message. Recognition measures are preferred to recall measures, both because their coding is less time-consuming than (free) recall measures, and because they are less confounded with motivational factors, such as interest in a topic. In addition, recognition measures are more sensitive in detecting exposure to messages that are not processed elaborately (Slater, 2004). However, recognition measures can only be used when the population of messages of interest is small. Moreover, recognition measures are subject to false recognition—that is, respondents may claim to have experienced a message when, in fact, they have not been exposed to it. False recognition has both motivational causes (when people believe they should have seen the message) and cognitive causes (when people are cognitively not able to encode and report exposure to a message; Southwell & Langetau, 2008).

Overall, it seems safe to say that the progress of media-effects research will depend heavily on the improvement and further development of media exposure measures. There have been laudable initiatives to bring the issue of media exposure measures to the fore (e.g., the special issue of *Communication Methods and Measures* on the topic in 2008), but fundamental research on media exposure measures needs to develop a more programmatic character to grow beyond the somewhat dispersed state it is still in. It is important that indicators of the validity of exposure measures become standard in publications. Moreover, validation studies of existing exposure measures should get a central role in the field. Finally, it is crucial that we aim to arrive at a standardization of exposure measures, as that will facilitate the replication and comparability of research findings.

Challenge 2: More Attention to Conditional Media Effects

> Quotation 1: "Some kinds of communication on some kinds of issues, brought to the attention of some kinds of people under some kinds of conditions have some kinds of effects."

> Quotation 2: "For some children under some conditions some television is harmful. For other children under the same conditions or for the same children under other conditions it may be beneficial. For most children under most conditions, most television is probably neither particularly harmful nor particularly beneficial. This may seem unduly cautious, or full of weasel words, or, perhaps, academic gobbledygook to cover up something inherently simple . . . . We wish it were. Effects are not that simple."

Most contemporary media-effects theories are in accord with both of these famous quotations, which are repeated in well-known communication books, such as Klapper (1960) and McQuail (2010). Contemporary media-effects theories recognize that effects of media use on outcomes are conditional—that is, they do not hold equally for different individuals. Most media-effects theories, whether they focus on informational (e.g., the communication mediation model, McLeod, Kosicki, & McLeod, 2009), entertainment (e.g., the general aggression model, Anderson & Bushman, 2002; the reinforcing spiral model, Slater, 2007), or persuasive media or messages (e.g., the elaboration likelihood model, Petty & Cacioppo, 1986), acknowledge that certain conditional variables (also named moderating variables) increase or reduce the effects of media on individuals. Conditional media effects are also recognized in the critical perspective, although a different terminology is used to express this notion. In the critical perspective (e.g., Barker & Petley, 1997; Sternheimer, 2003), it has often been emphasized that media-effects research is unduly concerned with across-the-board effects. Audiences differ in their interpretations of media content (Livingstone, 1998), and these interpretations partly depend on gender, class, and age (Kim, 2004; Morley, 1980).

What makes the two aforementioned quotations remarkable is the time when they originated. The first is from Bernard Berelson, and it dates back to 1948 (p. 172). The second is the first sentence (p. 3) of the 1961 book *Television in the Lives of Our Children* by Schramm, Lyle, and Parker. These quotations are also noteworthy because they clearly show the gap between media-effects *theories* and media-effects *research* in the decades that followed. Despite the theoretical propositions in both critical and social science-based theories, too many empirical media-effects studies still focus on proving universal media effects (for similar observations, see Grimes, Anderson, & Bergen, 2008; Nabi & Oliver, 2009; Slater, Henry, Swaim, & Cardador, 2004). In many media-effects studies, individual differences still seem to be regarded as noise. In experiments, individual-difference variables are ignored because they are assumed to be cancelled out by random assignment. If they are measured at all, they are often included as covariates, rather than as factors that may interact with the experimental condition. In survey research, individual-difference variables are more often included as controls than as moderators of the effects of media use on outcome variables. Cross-sectional survey research, which is still the prevailing design in communication research, often uses regression analyses in which multiple variables are entered as controls. A theoretical justification of why these variables act as controls, rather than as moderators, is often lacking.

Ignoring conditional media effects may easily lead to invalid conclusions about the magnitude of media effects on certain subgroups of individuals. After all, it is plausible that the effects found in earlier research are small only because they are "diluted" across too many different individuals. As a result, we may easily overlook a sizeable minority of individuals for whom strong media effects may hold and media use does lead to big consequences, and who thus deserve research attention. Only by formulating clear hypotheses about which individuals are particularly susceptible to the effects of media are we able to specify the boundary conditions for media effects (for a similar observation, see Shrum, 2009). And only by investigating differences between the "susceptibles" and the "insusceptibles" can we get a better understanding of the size and nature of media effects on individuals.

Challenge 3: Need for More Targeted, Cumulative Theory Testing

Hardly any contemporary media-effects model still assumes that media exert a direct influence on a passive audience. Most present-day media-effects theories propose that the effects of media use on certain outcomes are mediated (i.e., explained) by the way in which media are processed. This proposition holds for the communication mediation model (McLeod et al., 2009), the general aggression model (Anderson & Bushman, 2002), the extended elaboration likelihood model (Slater & Rouner, 2002), and the elaboration likelihood model (Petty & Cacioppo, 1986). In addition, theories on narrative engagement all argue that the way in which media content is processed acts as the causal route from media use to media effects (e.g., transportation theory; Green, Brock, & Kaufman, 2004).

Despite these advancements in media-effect theories, there is often still a considerable gap between media-effects theories and research, although this gap is bigger for some subfields of media-effects research than for others. For example, empirical research on the effects of advertising, health communication, and political information seems to be more sophisticated than some other subfields of media-effects research. In some of these latter subfields, media-effects research has not been very programmatic, in that it has not systematically and accumulatively investigated and compared the validity of possible explanations of media effects. For example, when one overlooks the studies on the influence of media on creativity, there is, to our knowledge, not a single empirical study that has investigated and compared the potential underlying mechanisms of the media-creativity relationship (Valkenburg & Calvert, 2012; Valkenburg & van der Voort, 1995). To take another example, the theoretical parts of most studies into media effects on ADHD-like behaviors, such as impulsivity and attention problems, typically do include hypotheses to explain why media could influence such behaviors. In these theory sections, it is argued that the rapid pace or violent nature of media can affect the arousal systems of media users or their executive functioning skills (i.e., the supervisory attentional system responsible for the planning and control of activities), which, in turn, can result in impulsivity and attention problems (for a meta-analysis, see Huizinga, Nikkelen, & Valkenburg, in press). However, there is, to our knowledge, no empirical study in which the explanatory mechanisms of these hypotheses are rigorously tested and compared. Finally, even in research on the effects of media violence on aggression, the proposed underlying mechanisms are still too rarely operationalized and tested (Gunter, 2008; but for exceptions, see, e.g., Krahé et al., 2011. As a result, it is still largely unclear *which* effects of *which* kind of media violence on *which* types of aggressive behavior can be attributed to cognitive, physiological, or emotional underlying processes.

In our view, there are three explanations of why the media-effects field is still not as programmatic as it should be. First, some media-effects researchers still primarily tend to only theorize about underlying mechanisms of media effects, rather than investigate them empirically (Potter, 2011). This obstructs a cumulative process of theory testing. Second, some widely-used theories to guide media-effects research are not clear enough about the role of certain mediating and moderating variables in their models. For example, Bandura's (2009) widely-cited social cognitive theory includes many broad concepts that are related to each other in complex ways. However, this theory is so broad and encompassing that it is often difficult to distill the meanings of its concepts and their exact links to other concepts, which may hinder the empirical testing of the underlying mechanisms of the theory. It is no surprise, therefore, that research based on theories such as social cognitive theory produces rather disparate results which are difficult to compare and integrate (for a similar observation, see Pajares, Prestin, Chen, & Nabi, 2009).

A third and final hindrance to the progress of media-effect research is that, in the field of communication, theoretical articles are typically published as books or book chapters, rather than as journal articles. Book chapters are more difficult to retrace than journal articles, because they are often not reprinted after a certain period. This difficulty to obtain important theoretical papers is a serious hindrance to the theoretical progress of the field. For example, in order to prepare for this article, we needed McGuire's seminal article, "The myth of massive media impact: Savagings and salvagings," which was published in the book, *Public Communication and Behavior*, that was edited by Comstock in 1986. This chapter could not be retrieved from any Dutch library. Fortunately, thanks to the possibility to order second-hand international books via the Internet, after a delay of several weeks, we got hold of a copy of this book (which, to our surprise, originated from the library of the Annenberg School of Communication in Philadelphia).

Challenge 4: Recognizing Transactional Media Effects

The vast majority of media-effects studies still conceptualize media effects as a unidirectional influence of a given medium (i.e., the cause) on an outcome of interest (i.e., the media effect). With some notable exceptions (e.g., Früh, 1991), few studies have considered transactional media effects (i.e., the notion that outcomes of media can also cause media use). This even holds for outcomes, such as aggression, ADHD-like behaviors, and creativity, which are an integral part of one's identity and thus even more likely to predispose media use (Slater, 2007). For example, none of the recent meta-analyses on media use and aggression have included effect sizes for reciprocal relationships in their analyses, despite the accumulation of longitudinal studies in the field (see the meta-analyses of Anderson et al., 2010; Ferguson & Kilburn, 2009. In addition, of the approximately 30 empirical studies on the relationship between media use and ADHD-like behaviors in the literature, more than 95% conceptualize media use as a cause of these behaviors. Despite cumulative insights that ADHD-like behaviors strongly predispose media use, hardly any of these studies even consider reciprocal effects (for a meta-analysis, see Huizinga et al., in press). Finally, the literature on the relationship between media use and creativity almost entirely ignores creativity as an antecedent of selective media use (Valkenburg & van der Voort, 1995).

Empirical studies that ignore transactional effects are not consistent with contemporary media-effects theories. Several recent media-effects theories, such as the general aggression model (Anderson & Bushman, 2002), the reinforcing spiral model (Slater, 2007), and social cognitive theory (Bandura, 2009) propose transactional relationships between media use and outcome variables. In transactional relationships, media use and media effects are seen as parts of a reciprocal influence process in which media effects are the causes of changes in media use (e.g., Früh & Schönbach, 1982). For example, in an application of Slater's (2007) reinforcing spiral model, Slater, Henry, Swaim, and Anderson (2003) have shown that adolescents' use of violent media increases their aggressive tendencies. This increase, in turn, changes their use of violent media, which further affects their aggressive tendencies.

Transactional models (Früh, 1991; Früh & Schönbach, 1982) put forward the notion of a complementary influence process. A given influence of media use on an outcome of interest can only be meaningfully conceived of when the influence of the outcome on media use is taken into account. Thus, an effect is always also the cause of an effect, and the cause is always also the effect of a cause (Früh, 1991). Most media-effects theories divide the variables involved in the effect process into predictor and outcome variables. These variables keep their causal functions throughout this process. Although transactional models do not reject the notion of temporally ordered cause-effect relationships (Schönbach & Früh, 1984), they raise the questions of whether studies based on unidirectional cause-effect patterns can provide more than a snapshot of media-effects processes.

Recognizing transactional media-effects models has become even more opportune, given recent insights in the fields of behavioral genetics and developmental research. In both disciplines, it has been shown that many trait variables show less heritability than was previously assumed (e.g., Plomin, DeFries, McClearn, & McGuffin, 2008; Saudino, 2005). Heritability estimates for personality factors, such as extraversion and neuroticism, lie in the 40%–50% range (Plomin et al., 2008). In addition, genes account for only 20%–60% of the variability in temperament dimensions, such as shyness, emotionality, and sociability. The remaining variability is mainly due to environmental influences on an individual, such as peers, friends, parental treatment, and illnesses (Saudino, 2005). Temperament dimensions have been shown to change over time (e.g., Slater, 2003) and in response to environmental influences (including media use; Stoolmiller, Gerrard, Sargent, Worth, & Gibbons, 2010). These results from other disciplines clearly demonstrate that even variables that have long been considered as exogenous variables (i.e., variables that are not predicted by other variables) in media-effects theories can change due to the influence of any other variable in these theories.

Challenge 5: New Media Require New Uses-and-Effects Theories

One of the most important developments in the media landscape of the past two decades is the shift from *mass* communication to what Castells (2007) has named *mass self*-communication. The concept of mass communication arose during the 1920s as a response to the new opportunities to reach the audience via mass media—the press, radio, and film (McQuail, 2010). The relationship between mass media and the audience is unidirectional; the communication is from one generator of mass media content to many receivers (McQuail, this special section). Mass media effects research recognizes that the reception of media content is self-selected: Media users select media content to serve their own needs, regardless of whether those needs match the intent of the generator (e.g., Bandura, 2009; Slater, 2007). The concept of *mass self*-communication shares this notion of self-selectivity with mass communication (Castells, 2007). However, mass self-communication does also acknowledge that media content is self-generated, and that its emission is self-directed (ibid.). So, whereas mass communication research focuses only on content *reception* processes, mass self-communication research focuses on both content reception and content generation processes.

The fact that new media technologies allow for both message reception and message generation has important consequences for media-effects theories and research, because it leads to a phenomenon that we refer to as "self-generated media effects." Self-generated media effects are effects of self-generated media content on the cognitions, beliefs, attitudes, and behaviors of the content generators themselves. There are two types of self-generated media effects, direct and indirect. When self-generated media effects are direct, the creation process or the created content affects the creator him- or herself. For example, posting a comment about the upcoming general elections on a social network site may increase the sense of political efficacy and democratic participation of the generator of the post him- or herself. In *indirect* self-generated effects, the effects of the self-generated content on the cognitions, beliefs, attitudes, and behaviors of the creator occur indirectly through the feedback of others. For example, the supporting reactions of others may further stimulate the sense of political efficacy, the self-esteem, or the democratic participation of the person in the previous example who posted the comment on the social network site.

Self-generated media effects are theoretically plausible. First, the majority of bloggers report that they blog mostly for themselves (Lenhart & Fox, 2006). Second, in media-effects research, it is a longstanding wisdom that individuals select media content that is congruent with their cognitions, beliefs, and attitudes (Klapper, 1960), and that they avoid incongruent media content. It has also been shown that this self-selected, congruent media content leads to stronger effects on the media user than incongruent media content (Valkenburg & Peter, in press). It is conceivable that media content which is self-generated and originates from its generator's own cognitions, beliefs, and attitudes may impact that person him- or herself.

There is some preliminary evidence for direct and indirect self-generated media effects. As for direct self-generated media effects, Shah, Cho, Eveland, and Kwak (2005) found that online civic messaging (i.e., the creation of politics messages on the Internet) significantly influenced the civic engagement of the messengers themselves, and often did so even more than exposure to traditional news media. In terms of indirect self-generated effects, Valkenburg, Peter, and Schouten (2006) found that adolescents' individual behavior on social network sites influenced their self-esteem. Adolescents who had created an online profile efficiently used the feedback from their peers on these profiles to adjust and optimize their profiles. These optimized profiles led to even more positive feedback, and so, through their own communicative behavior on social network sites, they managed to enhance their self-esteem.

Direct self-generated media effects can be explained by self-perception theory. This social-psychological theory posits that people infer their cognitions and attitudes by retrospectively observing their own behavior (Bem, 1967, 1972). The generally accepted belief is that cognitions and attitudes precede one's behavior. Self-perception theory, in contrast, argues that individuals derive their cognitions, beliefs, and attitudes from their own prior overt behavior. When applying this theory to direct self-generated media effects, individuals' communicative behavior may be understood to influence not only the cognitions, beliefs, and attitudes of their audiences, but also those of themselves. Indirect self-generated media effects may also be explained in part by self-perception theory, but this influence process is more complex, as it also depends strongly on interpersonal communication. Indirect self-generated media effects can only be adequately investigated by integrating theories of interpersonal influence into media-effects theories.

A challenge for future research is to further explore the exact mechanisms of direct and indirect self-generated media effects, and to compare the mechanisms of both types of effects. Direct and indirect self-generated media effects have not been systematically investigated, but they deserve the full attention of future media-effects researchers. Future media-effects research should also attempt to understand whether and how direct and indirect self-generated effects occur, for whom they particularly hold, how negative self-generated effects can be discouraged (e.g., when people post comments on suicide or pro-anorexia sites), and how positive ones can be encouraged (e.g., when people post comments on websites that encourage civic participation).

Conclusion

Debates about the size and practical significance of media effects have occurred as long as the discipline has existed. We have shown that, if one compares meta-analytic results across disciplines, the effects sizes reported in media-effects research are similar to those typically found in other disciplines. However, far more important to note is that the reported media effects sizes in media-effects research are more consistent with contemporary media-effects theories than is commonly recognized. Contemporary media-effects theories all argue that media effects are conditional—that is, they are contingent on many different non-media variables, including dispositional (e.g., temperament, mood, pre-existing beliefs), social-contextual, and developmental factors (Valkenburg & Peter, in press). If one accepts this important postulate of these theories, it is logically impossible to expect large media effects in the general population. In actual fact, large effects of media use would disconfirm most contemporary media-effects theories.

It is, therefore, far more important to broaden our focus beyond "minimal, not so minimal" effects discussions. After all, this focus is too preoccupied with proving across-the-board effects of media use. Universal media effects do not exist, and if they do, they *can* only be small, because they are diluted across many heterogeneous media users. Moreover, single-shot studies, which still dominate the field, are likely to understate the size of media effects in the longer run, because most media effects, like many other social science effects, tend to cumulate over time (Abelson, 1985). It is, therefore, more opportune to increase the explanatory power of media-effects research by reducing the gap between what is predicted in media-effects theories and what is actually studied in empirical research. This could be done by conducting more programmatic research into conditional, indirect, transactional, and self-generated media effects, supported by methodological studies to further improve the reliability and validity of our media-exposure measures.

Media effects have always been at the core of debates on the identity of the discipline. "Communication research, or media studies, is about effect. It could have been otherwise—consider the study of art, for example—but it is not" (Katz, 2001, p. 9472). After 64 years (i.e., the time elapsed since Berelson's famous remark in 1948), communication research deserves to get an answer to one of the most pressing questions in the media-effects tradition: "*What* kinds of communication on *what* kinds of issues, brought to the attention of *what* kinds of people under *what* kinds of conditions have *what* kinds of effects?"

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