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# The Evolution of Media Effects Theory: Fifty Years of Cumulative Research

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## Abstract

The literature of media effects is frequently characterized as a three-stage progression initially embracing a theory of strong effects followed by a repudiation of earlier work and new model of minimal effects followed by yet another repudiation and a rediscovery of strong effects. We conclude that such a characterization is both historically inaccurate and that this misrepresentation may prove to be a significant distraction and impediment to further theoretical refinement and progress. We analyze the citation patterns of 20,736 scholarly articles in five communication journals with special attention to the 200 most frequently cited papers in an effort to provide an ‘alternative history’ of six fundamental and, we argue, theoretically cumulative media effects models for the period 1956 -2005.

# The Evolution of Media Effects Theory: Fifty Years of Cumulative Research

The notion of "media effects" represents one of the core ideas of the communication research tradition since its inception. Elihu Katz characteristically puts it most directly in positing simply that communication research "is about effect. It could have been otherwise--consider the study of art, for example--but it is not" (2001b, p. 9472). Some trace the intellectual origins of communications scholarship back hundreds or even thousands of years (Peters, 1999). But the modern field of scholarship defined by scholarly associations, key journals and academic departments is roughly a half-century old. The field has grown dramatically. The membership of the seven scholarly communication associations in the United States numbers over 10,000 with over a thousand doctoral students currently enrolled and preparing to enter the field as scholars and practitioners. Thus, at the 50-year mark, it seems appropriate to ask--how much progress have we made? Focusing on the broadly defined issue of media effects: is there evidence of accumulative theoretical progress, scientific convergence on key findings and improved methods of measurement and analysis?

Some analysts have suggested that we have witnessed a troubling lack of progress. The question of progress and disciplinary identity has been addressed in the *Journal of Communication* under the heading "Ferment in the Field" (Gerbner, 1983; Levy & Gurevitch, 1993) and in several recent presidential addresses of the International Communication Association's annual meeting (Bryant, 2004; Craig, 2005; Donsbach, 2006). One sometimes gets the impression we are still debating the same fundamental questions that inaugurated the field in mid-century. A particularly cogent analysis, focusing on the media and children, makes the case that we actually recycle strikingly similar questions about effects--almost always defined as

negative effects--addressing in turn the historical sequence of mass communication technology, from movies and comic books to television and now video games (Wartella & Reeves, 1985).

Robert Craig's widely-cited 1999 article paints a cautious picture of theoretical convergence and potential progress:

> Communication theory as an identifiable field of study does not yet exist. Rather than addressing a field of theory, we appear to be operating primarily in separate domains. Books and articles on communication theory seldom mention other work on communication theory except within narrow…specialties and schools of thought. Except within these little groups, communication theorists apparently neither agree nor disagree about much of anything. There is no canon of general theory to which they all refer. There are no common goals that unite them, no contentious issues that divide them. For the most part, they simply ignore each other. (1999, pp. 119-20)

To support his fragmentation thesis, Craig cites James Anderson's (1996) content analysis of seven prominent communication theory textbooks which identified a disconcerting abundance of some 249 distinct 'theories.' Further, Anderson found that only 22% of these theories appeared in more than one of the seven books, and only 7% were included in more than three books.

Other analyses of the literature appear to support of Craig's (1999) cautious appraisal. Riffe and Freitag (1997) found that only a quarter of the articles they studied included an "explicit theoretical framework." Kamhawi and Weaver's (2003) analysis of a representative

sample of two decades of articles from ten mass communication journals concluded that only 30% of the articles mentioned a theory explicitly and an additional 9% appeared to imply a theory. Bryant and Miron (2004) reviewed 1,806 articles from communication journals from 1956 through 2000 and found that only 576 (32%) included some theory, and of the 604 different theories addressed in these articles only 26 were cited in more than 10 of the articles.

The thesis of this paper is that this skepticism may be misdirected. The theoretical anchor points of an evolving theory of mass communication effects, we believe, are evident and frequently cited. So, why the pessimism? The core problem may be a sustained misrepresentation of the very concept of communication effects itself. We will argue that there is a widely accepted "received wisdom" about the history of the field positing an opposition of "minimal" versus "significant" effects and that this characterization is itself fundamentally misleading. We offer analysis of the citation patterns of a sample of the 200 most frequently cited articles in the field of communication effects focusing on patterns of reference to 36 seminal books and articles and provide an "alternative history" of what we have come to identify as six fundamental and influential media effects models. Rather than repudiate previous scholarship, in our view, a close reading reveals that these key articles provide an increasingly sophisticated set of social and cultural structural conditions and cognitive mechanisms that help explain when mass mediated messages do and when they do not affect the beliefs and opinions of audience members.

*The Received History of the Field*

The dominant historical narrative of communication effects research posits three stages pivoting on alternative notions of significant versus minimal effects. See, for example, Schramm (1971); Noelle-Neumann (1973); Katz (1980, 1987); Chaffee and Hochheimer (1982); Berger

and Chaffee (1987); Delia (1987); DeFleur and Ball-Rokeach(1988); Wartella (1996); Wicks (1996); Bryant and Thompson (2002); Power, Kubey and Kiousis (2002); Perse (2007) and Kepplinger (2008).

In the beginning (roughly the 1930s through the 1950s) was the “magic bullet theory” or alternatively the “hypodermic effects theory.” According to this simplistic paradigm, like a bullet or a needle, if the message reached its target its ‘effects,’ typically persuasive effects, would be immediate and evident. The notion was frequently attributed to Harold Lasswell whose work on propaganda and psychopathology posited an all-powerful government propagandist manipulating passive and atomized audience members who lacked independent sources of information (Lasswell, 1930, 1935). The theory is also associated with a notion of a mechanical transmission model of direct effects linked to early theorists of information engineering such as Claude Shannon (Shannon & Weaver, 1949). With the growth of the industrialized mass media, especially radio and later television, and the apparent success of European totalitarian propaganda, such a view was culturally and historically resonant; or as Elihu Katz has put it: “in the air” (Katz, 1960). Subsequent scholarship traced the origins of the bullet and needle concepts and revealed that they were not used by those to whom they were attributed and do not accurately characterize the theorizing about media effects of the early researchers, which was actually much more sophisticated and nuanced (Chaffee & Hochheimer, 1982; Power, Kubey, & Kiousis, 2002). The narrative is still in use, however, because it relates a memorable storyline and allows the storyteller to introduce the second stage of research in the 1950s and 60s: the “minimal effects school.”

Paul Lazarsfeld and his associates at Columbia University “opened a new era of thinking” by rejecting “the old hypothesis that the media have great power” (De Fleur & Dennis,

1981, pp. 294-297). The minimal effects terminology comes from the seminal review and summarization of research to date *The Effects of Mass Communication* published in 1960 by Lazarsfeld's student, Joseph Klapper. Key findings that only a tiny fraction of voters actually changed their vote intentions during an election campaign, that audience motivations and prior beliefs influenced the interpretation of persuasive messages, and that messages were often discussed among opinion leaders and friends leading to a mediation via 2-step flow, as the narrative is told, reinforced this minimal effects conclusion. The fact that Klapper was employed by the CBS television network and that part of his job was to testify in Washington to fend off possible regulation resulting from the potential effects of television in the domains of smoking, sexuality, and violence, added to the dramaturgy of the story.

In the third and current stage of theoretical development, according to the narrative, the unfair and dismissive minimal-effects notion becomes the red flag to the bull as a new generation of scholars seeks to justify the discipline itself and to demonstrate significant effects through refined theories, better measurement tools, and improved methodological designs. Klapper becomes the rather convenient *bête noire* as scholars demonstrate various "not so minimal effects" (Iyengar, Peters, & Kinder, 1982) or demonstrate that if the media could not tell you what to think they were "stunningly successful in telling its readers what to think about" (McCombs & Shaw, 1972). The polarity between minimal effects and big effects continues as a central thematic, sometimes in the foreground, as in McGuire's (1986) "The Myth of Massive Media Impact" and Zaller's (1996) response "The Myth of Massive Media Impact Revived," or more often as a back drop for various empirical and theoretical inquires (Iyengar & Kinder, 1986; Bennett & Manheim, 2006).

Our thesis is that, despite its pedagogical allure, the minimal-effects/significant-effects polarity is major impediment to theorizing--in effect, distorting and diminishing our understanding of real progress in theory and research that have characterized the last 50 years of scholarship. There are four elements to our argument.

First, the minimal-effects/significant-effects polarity conflates the empirical effect size of media impacts with their theoretical and practical importance. A mathematically tiny effect can accumulate over time to play a decisive role. Frequently, as in many election campaigns, a tiny fraction of the electorate becomes a pivotal swing vote. In the practical terms of electoral outcomes, the fact that the large majority of voters do not appear to be swayed by political ads and bumper stickers is simply beside the point. Numerically small and scientifically important results, in our view, require no apologies.

Second, the narrative distorts the history of communication research, and by diminishing and misrepresenting earlier scholarship, it awkwardly puts younger scholars in the position of needlessly reinventing ideas and repeating research in a manner that is less constructive and accumulative. Lasswell's (1935) ideas about the interaction of psychopathology of national identity, for example, have new resonance in a post 9/11 world. Lazarsfeld and Merton's (1948) nuanced theorizing about conformity and status conferral provide abundant grist for modern day critical theory and analysis (Katz, 1987; Simonson, 1999; Simonson & Weinmann, 2003). And even Klapper's (1960) much derided compendium and analysis offers thoughtful discussion of the conditions under which media effects tend to be the strongest and advice on how further research might clarify our understanding of those conditionalities. A close reading of Klapper reveals that he called for further research on: (a) the psychological predispositions of audience members, (b) the situated social context of message reception, (c) the broader social, societal and

cultural context of message reception, and (d) the structure of beliefs among audience members, not just the direction of beliefs. Each of these four represents a critically important condition of the communication process, and each has served as a foundation for theoretical advancement and refinement. We will demonstrate that these foundational points are well represented in the literature and correspond to four of the six fundamental media effects models we derive from our citation analysis of the literature.

Third, the minimal-effects/significant-effects polarity is a demonstrable impediment to the design and interpretation of media effects research and the evolution of an accumulative agreed upon set of findings about the conditions that impede and facilitate those effects at the individual and aggregate level. We find, still as late as 1999, Emmers-Sommer and Allen in their overview of the field concluding: “Taken together, these findings can be used to lend insight for future research directions. Overall, we can conclude that the media do, indeed, have effects” (1999, p. 492). It would appear that the even after 50 years, simply to demonstrate a statistically significant effect in the ongoing battle against the vestiges of Klapper’s evil empire is sufficient justification for celebration and publication.

There is a fourth argument which resists brief summarization. We will attempt to highlight it here and return to the issue again in later paragraphs. The minimal-effects/significant-effects polarity has become intertwined with the opposing camps in communication scholarship frequently labeled the critical versus the administrative perspective (Gitlin, 1978; Rogers, 1981; Katz, 1987; Livingstone, 2006). Likewise, and with some overlap, it is associated with the epistemological debates between cultural studies approaches and traditional empirically oriented social science (Scannell, 2007). Briefly, our argument is that the difficult questions raised here about the historical and institutional context of media research

deserve careful and sustained attention without the complicating distraction of superimposing multiple dimensions of contention about empirically estimated effects sizes. These lines of debate, as is common in the culture of the academy, have hardened and further polarized, not unlike the rivalry of team sports or even military conflict. Note, for example, that the distinguished survey researcher Jack McLeod and associates in a 1991 paper were surprised to find a fellow behavioral scientist, in this case psychologist William McGuire, rather than a cultural theorist critiquing the strong media effects position (McLeod, Kosicki, & Pan, 1991). Befitting a war zone mentality, McLeod et al. labeled it a "friendly fire attack" on their argument (p. 238). The psychology of tournament battle is fitting and productive for athletic and military contests, but not for accumulative theory building in social science.

*A Revised History*

There may be well over a hundred published textbooks, scholarly articles and reference book entries which attempt to summarize and organize the media effects field; so we entered this crowded terrain with some trepidation. For a sampling of this literature see Lazarsfeld and Berelson (1960); Schramm (1960); Berelson and Steiner (1964); Berelson and Janowitz (1966); McGuire (1969, 1985); Schramm and Roberts (1971); Chaffee (1977); Comstock et al (1978); Lang and Lang (1981); Roberts and Bachen (1981); Bryant and Zillmann (1986, 1994); Delia (1987); DeFleur and Ball-Rokeach (1988); Jeffres (1997); Katz (2001b); Perse (2001); Bryant and Thompson (2002); Bryant and Miron (2004); Preiss, Gayle, Burrell, Allen, and Bryant (2007); Kepplinger (2008); Nabi and Oliver (forthcoming).

Our strategy was to take a careful look at the literature of the field with an eye to who was citing whom. Drawing particularly on the typologies of Katz (2001a), Bryant and Miron (2004) and Nabi and Oliver (Forthcoming) we identified six historically sequential and

overarching fundamental media effects models.[1] Each of these models encompasses a number of explicitly labeled contributing 'theories' such as parasocial theory or agenda-setting theory. As is frequently the case in such scholarly traditions, the first publication or two utilizing and popularizing each theory became a routine and increasingly obligatory seminal citation for all who would follow. As a result the tracking of intellectual parentage by citation analysis is relatively straightforward. Thus for the analysis of parasocial interaction, the citation of Horton and Wohl's 1956 paper is *de rigueur*; and for agenda-setting it is McCombs and Shaw's celebrated 1972 paper in *Public Opinion Quarterly*. We iterated back and forth between our basic typology and the active literature to try to capture, as best we could, all the explicit theories and associated seminal citations that were in active usage. Passing references were set aside to keep the list manageable and reserved to those theories that had not become abandoned and ignored. Our final working typology is comprised of 6 Overarching Models, 29 active theories which are in turn defined by a total of 36 seminal books and articles (see Table 1).

The list of theories should look reassuringly familiar to most students of mass communication research. Given the historical sequence of theories, some readers might even see a partial reflection of the bullet/minimal/post-minimal three-part pattern. But there is a difference here. The emphasis is on theoretical accumulation and refinement, as assessed by actual patterns of citation, not encamped opposition over an irresolvable philosophical and ironically rather one-sided dispute about whether effects are, in essence, really big or really little.

Theories in the *Persuasion Models* cluster, the first in this historical sequence, are characterized not so much by the size of effect but by the proposition of direct and unmediated effects, typically based on persuasion and audience modeling of observed behavior. The seminal books and papers in this group span the interval 1944 to 1963. The study of political campaign

effects, propaganda campaigns, attitude change and social modeling of observed representations of behavior in the mass media especially among children characterize these traditions of research. Shannon's information theory approach focused on the transmission of information rather than persuasion and up until the mid 60s was viewed by some as a fundamental scientific basis for the social scientific as well as an engineering analysis of communication processes (Schramm, 1955; Berlo, 1960; Smith, 1966). Lasswell's "Who Says What to Whom With What Effect" and institutional/cultural level models of the function of communication for society are included here as well.

The second group, the largest cluster of 9 explicit theories, is labeled *Active Audience Models* and spans the period 1944 to 1985. Like the preceding cluster of persuasion theories, the basic hypotheses here posit direct transmission of messages to atomized individuals. These theories do not pay particular attention to the individual's position in social structure or social organization. What distinguishes this cluster is a variety of propositions about the motivations and psychological orientations of audience members--thus the 'active' audience (Bauer, 1964). In some cases these psychological orientations are likely to lessen an informational or persuasive effect (as in minimal effects and selective exposure); in other cases these orientations will reinforce and strengthen potential effects, such as in the case of parasocial and disposition theory.

The third cluster--*Social Context Models*--as the label implies, focuses more heavily on situated social contexts and how individual perceive messages to be influencing others in their social sphere. The seminal publications for this cluster span 1955-1983. The Two-Step and related multi-step flow models, for example, draw attention to the social embeddedness of sense-making as individuals rely on social cues and interpersonal conversation to interpret and

contextualize complex media messages. Because of these theoretical interests, entirely different research and sampling techniques are often required instead of or in addition to the traditional experimental and survey designs. Diffusion and Knowledge-Gap theories trace rates of penetration of new ideas, opinions, and behaviors over time and among different social strata. Spiral-of-Silence and Third-Person theory focus on perceptions of the persuasibility and beliefs of socially relevant others.

The fourth cluster is labeled *Societal and Media Models* and focuses on societal level (Hegemony and Public Sphere theory) and accumulative individual level effects over longer periods of time, such as Differential-Media-Exposure and Cultivation theory. The Hegemony, Public Sphere, and to some extent, Cultivation traditions are associated with progressive political views and a critical perspective. The Channel-Effect and Differential-Media-Exposure theories are in large part neutral or even apolitical in orientation. This cluster is loosely linked and although intellectually identifiable, it is not characterized by a high level of internal cross citation.

The fifth cluster, *Interpretive Effects Models*, includes the related traditions of Agenda-Setting. Priming and Framing theory. Although authors in these traditions sometimes take pains to distinguish their findings from a notion of minimal effects, in fact their models reflect an important extension and refinement of extant theory. In addition to assessing attitude change and learning as a result of exposure to media messages, these scholars examine how exposure may influence salience of, interpretation of, and cognitive organization of information and opinions to which individuals are exposed.

Finally, perhaps as a placeholder for things to come, there is a newly evolving theoretical tradition focusing on new technologies and interactive properties, *New Media Models*, in our terminology. At the moment we are listing a single theory here under the headings Human Computer Interaction and Computer Mediated Communication. Much of the early work here focuses on human communication in organizational settings contrasting mediated from face-to-face communication processes, so strictly speaking it represents only marginally a mass communication. Significant use of the Internet at home for interpersonal and mass communication evolved only in the late 1990s so given the successive delays of the conduct of research, publication and citation this work is just now establishing itself (Joinson, McKenna, Postmes, & Reips, 2007).

## Methods

### *Sample and Design*

Our analysis of the structure of cumulative media effects theory is based on data drawn from the Institute for Scientific Information's extensive database of social scientific citation patterns collected since 1956. The database is accessible online as the *Thompson Reuters ISI Web of Knowledg*e by subscription or through subscribing libraries. The full social science database (SSCI) contains over 3 million records of journal article citation lists from over 5,000 journals. In this study, we focus primarily on a subset of about 300 journals in politics, public opinion, social psychology, health communication, journalism, and related fields which typically cite articles and books on media effects. In addition we examined a dataset of 20,736 articles published over the 50-year period in five prominent mass communication research journals. These databases do not record the citations made in books and edited books, but when books and book chapters are cited in journal articles, the information is duly recorded. Thus, for example,

we are able to track the number of citations in articles in the social sciences over time (from 1956 to 2005) of both Bereslson, Lazarsfeld, and McFee's (1954) seminal book, *Voting*, as well as Davison's influential 1983 article in *Public Opinion Quarterly* on the 'Third Person Effect.'

Having derived the analytic typology described above and in Table 1 from the literature, we proceeded to track the growth (and sometimes decline) of citation over time of the seminal books and articles in social sciences generally and in five of the most prominent communication research journals. For the most part, the patterns of citation were very similar for the social sciences generally and the communication journals and most key publications were not cited much outside of the communication field. There were some exceptions. Claude Shannon 's (1948) work is cited heavily in library science and information theory; Campbell, Converse, Miller, and Stokes (1960) and Iyengar and associates (1982, 1987) and Gramsci and Habermas are cited frequently in Political Science and related fields. Rogers (1962 and subsequent editions) is cited broadly in the social sciences, including business and economics. Also a number of psychologically oriented articles and books, such as those by Heider, Hovland, Kelley, Festinger, Bandura, and others, are cited widely across the behavioral sciences, especially psychology.

In the Five-Journal dataset we culled the 200 most frequently cited articles that were subject to further analysis. Since we were interested in patterns over time, rather than simply take the top 200 of all time, we divided the 50-year span from 1956 to 2005 into 10 five-year intervals and sampled the 20 most frequently cited among articles published in each period. (This also helped to adjust for the fact that more recently published articles, by definition, have not yet had comparable time to accumulate a large number of citations.) Our sample of mass communication journals includes: *The Journal of Communication* (1956-2005), *Public Opinion Quarterly* (1956-

2005), *Journalism Quarterly Journalism & Mass Communication Quarterly* (1956-2005), *Communication Research* (1974-2005), *Human Communication Research* (1982-2005).

Some heavily cited articles, particularly in *Public Opinion Quarterly,* were narrowly methodological, focusing for example, on survey sampling and questionnaire design and were excluded from the top 200. We note, of course, that these journals are not representative of the full diversity of the communication field and that a different set of journals may well have revealed a different set of patterns.

We assembled and carefully read all of the top 200 articles and independently coded three levels of theoretical reference: (a) an explicit citation of one of the listed seminal works, (b) an explicit reference to a theoretical tradition in the article text for those cases where one of the listed seminal works was not cited, and (c) a clear indication that a theoretical tradition was being utilized even when the identifying label, such as third person theory or spiral of silence, was not explicitly stated. As expected, inter-coder reliability was very high on the first level, moderately high on the second level, and marginal on the third.[2] This recoding process which partially duplicates the character of the original ISI dataset has an important quality that justifies the effort in addition to notation of theoretical references not tied to citations. Because we now had a full list of which of the 29 theories were cited in each of the 200 articles we could now assess not just the frequency but the structure of citation, patterns of co-citation--key to the issue of cumulative theory building. Thus we could analyze how often when any one theory was cited or otherwise mentioned how many of the remaining other 28 theories were also cited or mentioned.[3]

*Analysis and Results*

Robert K. Merton (1968) called it “The Matthew Effect” after the biblical epigram in the Book of Matthew which makes note of the self-reinforcing cycles of inequity--the rich tend to get richer as the poor get poorer. In scientific literatures, Merton notes, a more eminent researcher is much more likely to be cited and credited than a less well-known researcher for the same basic work. Part of the phenomenon is the ritual citation of what becomes fashionably defined as seminal. Part may be the simple fact that researchers are much more likely to be aware of and cite those studies which are themselves frequently cited. The net result for most literatures, and certainly evident in communication, is a logistic curve whereby a few articles are cited frequently and most are not cited at all. Figure 1 illustrates the concentration-of-attention phenomenon among the 20,736 articles in our five-journal sample.

Fully 60% of the published articles in this sample are never cited. This pattern is widely recognized and typical of most scholarly literatures. Figure 1 is based on all possible sources of citation from all fields in the full SSCI article database including self citations by authors of their own work which might lead one to expect a somewhat less skewed distribution. The database reveals a total of 98,095 citations of the 20,095 articles that calculates out to the somewhat misleading statistic of an average number of citations per article of 4.73. A better measure, perhaps, given this distribution is the median or the mode both of which are 0 as one can see from a visual inspection of the figure.

Given this pattern of concentration, one comes to appreciate the structural significance of the top 200 most cited articles--these 200, a mere 1% of all articles in the sample, attract 38% of the total of all citations. Among the most frequently cited articles are: McCombs and Shaw (1972), “Agenda-Setting Function Of Mass Media” (560 citations); Krugman (1965), “The

Impact Of Television Advertising: Learning Without Involvement" (384 citations); Entman (1993) "Framing: Toward a clarification of a Fractured Paradigm" (281 citations); Gerbner, Gross, Morgan, and Signorielli's (1980) "The Mainstreaming Of America: Violence Profile No 11" (276 citations); and Katz (1957) "The 2-Step Flow Of Communication" (231 citations). [4]

The average number of citations per article in the top-200 sample for each five year interval is about 100 citations with some expected fall off for the most recent five-year intervals which have not yet had sufficient time to be read, utilized and cited in published work given the inevitable multi-year delays. The total number of articles published in the communication field has been steadily expanding over this time period but that growth is primarily a result of the introduction of new journals. For these five core journals the number of articles per year is roughly the same at about 400 per year, rising slightly in the middle decades and declining slightly in the number published per year in the last decade.

Given the dominant three-element historical communication research narrative of strong effects first embraced, then rejected, then rediscovered, one might expect a pattern of the rise and decline of opposing and successive schools of thought. It is demonstrably not the case (see Figure 2 derived from the full dataset.) Only the first cluster, Persuasion Models declines, and the fall off is modest.

This pattern of growth though the process of citing, building on and refining previous work continues throughout the 50-year span for each of the other clusters. Indeed, theoretical innovation and integrative theorizing of previous work is a defining characteristic of the highly cited articles. Take for example the most frequently cited article from our sample in the 1961-1965 period--Herbert Kelman's (1961) article in *Public Opinion Quarterly*, "Processes of Opinion Change"--which is cited 476 times. It represents a review of the literature, still at that

time dominated by notions of persuasion and direct propaganda-style effects, and innovatively elaborates three psychological mechanisms that are invoked in the persuasion process--compliance, identification, and internalization that Kelman finds to be evident in the literature and his own research.

The top article in the 1966-70 segment is Tichenor, Donohue, and Olien's (1970) inventive article on knowledge gaps (cited 197 times), which is itself the seminal site for that theory (number 17 on our list). Tichenor et al. offer up a provocative hypothesis about educationally based differential attentiveness to media and put forward a set of methodological techniques for measuring beliefs with survey research data over time to test it. As Kuhn (1962) might assert, this introduction of a theoretically grounded puzzle connected to a methodology to 'solve' the puzzle is the definition of how cumulative science works. Entman's (1993) *Journal of Communication* article on framing effects is not the first to introduce the concept but critiques and builds out the paradigm. It is the most frequently cited article in the 1991-95 interval and is cited 281 times during the period of our analysis. The top article in the final segment 2001-05 is the 2001 *Communication Research* article by Dhavan Shah and colleagues, cited 40 times, which conducts a secondary analysis of several commercial surveys to assess the impact of print, broadcast and Internet exposure on political engagement. It is original empirical research that bridges the Differential Media Exposure theory (systematically comparing self-reports on media use with levels of knowledge and political opinions) with the evolving theories about New Media notably the Internet. It is a model of theoretically grounded integrative research. Most of the 200 articles in our data set cited two or perhaps three specifically named theories.[5] Shah, McLeod, and Yoon (2001) cite eight.

What the sub sample allows us to examine, however, not otherwise available in the raw SSCI master dataset, is the structure of co-citation. Are the six clusters of theories intellectually coherent? One principal empirical test here is to compare the average within-cluster pattern of co-citation with the average across-cluster co-citation (is an article in one cluster more likely to cite another theory from the same cluster than any other?).

The answer, as reported in Table 2, is yes, modestly so; we can see that some clusters are much more bibliometrically coherent than others. The Interpretive Effects cluster is the clearest case of internal coherence with dramatically higher average internal compared with external correlation coefficients. The Societal and Media Models Cluster simply does not hang together--it is our conceptual grouping, and we will show shortly it has unique structural relationships with other clusters; but the scholarship included together here generally does not see itself as part of a whole. Critical scholars analyzing hegemonic structures are not particularly likely to cite McLuhan or his intellectual successors or to cite cultivation theory or vice versa. The other clusters show moderate coherence. The Shannon and Lasswell traditions overlap within the Persuasion cluster, the others within that cluster appear not to. Within the Active Audience there is evidence of clustering with the notable exception of the more psychologically oriented theories such as Attribution, Cognitive Dissonance and the Elaboration Likelihood Model. The weak patterning of clustering (with the exception of the Interpretive Effects cluster) is not surprising. Our argument has been that the intellectual linkages between these theoretical perspectives have only been fitfully acknowledged by the practitioners and largely missed by historians of the field.

A second test allows for a visual representation of where the theories cluster together in our conceptual groups. We created a plot, depicted in Figure 3, of a multiple correspondence analysis (MCA), using Stata, in order to see which of the individual theories were in common.[6]

MCA is an exploratory technique similar to a principle components factor analysis, but it allows for the analysis of multiple dichotomously coded variables. The plot shows which theories tend to co-occur; in other words, one theory appearing close to another in the figure indicates that the theories are often cited together. The plot in Figure 3 underscores the findings from Table 2. Together, the two dimensions explain the largest proportion of inertia, or variance in the 24 variables, which accounts for just under 40%. Reading Figure 3 from left to right, the theories making up the Social Context Model cluster together along the left-hand side of the x-axis; many of the theories making up the Active Audience Model cluster together in the upper-right quadrant above the Social Context theories; several of the Persuasion theories cluster together around the origin; and the three theories composing the Interpretive Effects Model create a clear cluster in the upper-right quadrant. Like in Table 2, the MCA plot does not produce a coherent cluster for the Societal and Media Models, again, because articles utilizing these theories tend not to cite each other.

But what about the pattern of linkages between the hypothesized models themselves? Here, as depicted in Figure 4, an intriguing surprise. We ran another series of clustering and plotting algorithms that display the labeled clusters in a two-dimensional space to graphically illustrate the relative strengths of association. In these plots the closer two variables are to each other the more highly correlated they are, the more distant they are indicates statistical independence. We utilized the Euclidian Distance Modeling utility in SPSS, a variant of multidimensional scaling and smallest space analysis routines. Specifically, we used ALSCAL, first standardizing our variables using z-scores to prevent distortions, and then creating Euclidean distances for our measures of association.[7]

It became evident that the lack of correlation between the Human Computer Interaction (HCI) literature and the others dominated the plotting with HCI in one corner and the others arrayed across the other corner. The New Media Models literature, of course, is the most recent literature and because it did not exist for most of the 50 year period, it could not, by definition, have been cited by any of the earlier publications (and in turn, because it deals primarily with the mediation of interpersonal communication, it has not until recently cited the media effect literatures.) So we set the sixth cluster aside to examine the pattern of co-citation for the remaining five, as illustrated below.

We puzzled over the resulting graphic a bit in hopes of interpreting the pattern and perhaps labeling the dimensions in theoretically meaningful terms. One possible interpretation as our labeling suggests, is that those theories of a psychological bent that focus on the individual unit of analysis may help to explain the Persuasion and Interpretive clusters and the others – the vertical dimension. And, in turn, the horizontal dimension may reflect the emphasis on persuasion/attitude change as opposed to more recent emphasis on interpretation and cognitive structuring of message elements. The need for theoretical integration across natural tensions of these analytic dimensions is important, of course, but not exactly a new revelation. We recognized that Jack McLeod and associates had been calling for just such an effort for several decades. These scholars label the vertical dimension micro vs. macro and the horizontal dimension attitudinal vs. cognitive (McLeod & Reeves, 1980; McLeod et al., 1991).

We also examined the methodologies used in each of the top cited articles. Of the 200 articles, 15% of them were content analyses or employed content analyses to measure one or more variables, 43% were surveys, and 18% were experiments. The use of content analysis increased in the 1970s and 1980s, probably due to cultivation and agenda setting studies, which

are commonly cited from those periods. Surveys, while remaining the most common methodology cited, have declined slightly since the 1980s, while the number of experiments cited has increased over time.

The type of data used and the type of analysis employed was also coded to see how changes occurred over time. While 8% of articles used time series data, only one article in our sample employed a time series design after the 1980s. Likewise, only 2.5% of the studies were panel designs and none appeared in the dataset after the 1980s. Four percent used aggregate data, but almost no aggregate studies appeared after the 1970s. Factor analysis and related methods hit a peak in the early 1980s and have since declined and leveled off. On the other hand, the use of mediation, moderation, path analyses, and structural equation modeling increased over time, likely in part due to advances in computing and statistical design, but perhaps also owing to a post-Klapper interest in contingent and indirect effects and processes. Interestingly, none of the articles in the dataset used hierarchical linear modeling. Finally, 30% of the articles were strictly theoretical pieces, literature overviews, and in more recent years, meta-analyses.

## Discussion

Pondering the intellectual history of a field of scholarship from time to time is an important and constructive exercise. Scholarly disputes on where the field has come from and where it should be headed is a natural outcome of such activity. We have posited here that the widely utilized allegory of media effects scholarship which pivots back and forth between an interpretation of strong and minimal effects is both historically incorrect and probably a significant impediment to the recognition of theoretical accumulation and the increasing sophistication of effects models and the social contexts of the effects process. We have suggested an alternative way to structure the field which suggests that rather than rejecting previous

theoretical structures or obsessing over a demonstration of a large effect size, evolving theory from a starting point of a simple model of persuasion and transmission (Persuasion models) has accumulatively added in turn analytic constructs of audience motivation and disposition (Active Audience models), the socially situated context of the mass communication process (Social Context models), the character of the technical channel of communication and the political and institutional context of communication (Societal and Media Models), the impact of media messages on the salience and cognitive organization of opinions and beliefs (Interpretive models) and finally a new and now fast-growing literature on the new media we label Interaction models.

Any typology which structures and labels elements of a complex scholarly literature is subject to some inevitable arbitrariness. We readily acknowledge other organizational structures may be of equal validity and perhaps greater intellectual provocation and productivity and would welcome them. A selection of other publications or another operationalization of intellectual linkage might have revealed dramatically different patterns. But we believe a case can be made that there is value in self-consciously examining the process of theoretical accumulation and eschewing the seductive siren call of irresolvable debates about how not-so-minimal media effects really are.

References

Anderson, J. A. (1996). *Communication theory: Epistemological foundations*. New York: Guilford.

Ball-Rokeach, S., & De Fleur, M. L. (1976). A dependency model of media effects. *Communications Research,* 3, 3-21.

Bandura, A., & Walters, R. (1963). *Social learning and personality development*. New York: Holt, Rinehart and Winston.

Bauer, R. A. (1964). The obstinate audience. *American Psychologist, 19*, 319-28.

Bennett, W. L., & Manheim, J. B. (2006). The one-step flow of communication. *The ANNALS of the American Academy of Political and Social Science, 608*(1), 213-232.

Berelson, B. R., Lazarsfeld, P. F., & McPhee, W. N. (1954). *Voting: A study of opinion formation in a presidential campaign*. Chicago: University of Chicago Press.

Berger, C. R., & Chaffee, S. H. (1987). The study of communication as a science. In C. R. Berger & S. H. Chaffee *Handbook of communication science (pp. 15-19)*. Newbury Park CA: Sage.

Berger, P. L., & Luckman, T. (1966). *The social construction of reality: A treatise in the sociology of knowledge.* Garden City, NY: Anchor.

Berlo, D. K. (1960). *The process of communication: An introduction to theory and practice*. New York: Holt Rinehart and Winston.

Bryant, J. (2004). Critical communication challenges for the new century. *Journal of Communication, 54*, 389-401.

Bryant, J., & Miron, D. (2004). Theory and research in mass communication. *Journal of Communication, 54*(4): 662-704.

Bryant, J., & Thompson, S. (2002). History of the scientific study of media effects. In J. Bryant & S. Thompson (Eds.), *Fundamentals of media effects* (pp. 35-64). Boston: McGraw Hill.

Bryant, J. & Thompson, S. (2002). Media effects: A historical perspective. In J. Bryant & S. Thompson (Eds.), *Fundamentals of media effects* (pp. 21-64). Boston: McGraw Hill.

Bryant, J. & Zillmann, D. (Eds.). (1986). *Perspectives on media effects*. Hillsdale, NJ: Erlbaum.

Bryant, J., & Zillmann, D. (Eds.). (1994). *Media Effects: Advances in Theory and Research*. Hillsdale, NJ: Erlbaum.

Campbell, A., Converse, P. E., Miller, W. E., & Stokes, D. E. (1960). *The American voter*. New York: Wiley.

Chaffee, S. H. (1977). Mass media effects. In D. Lerner & L. Nelson (Eds.), *Communication Research* (pp.210-241). Honolulu: University of Hawaii Press.

Chaffee, S. H., & Hochheimer, J. L. (1982). The beginnings of political communications research in the United States: Origins of the 'limited effects' model. In E. M. Rogers & F. Balle (Eds.), *The media revolution in America and in Western Europe* (pp. 267-296). Norwood, NJ: Ablex.

Clarke, P., & Fredin, E. (1978). Newspapers, television, and political reasoning. *Public Opinion Quarterly, 42,* 143-160.

Comstock, G., et al. (1978). *Television and human behavior: The research horizon, future and present.* New York: Columbia University Press.

Craig, R. T. (1999). Communication theory as a field. *Communication Theory, 9*(2), 119-161.

Craig, R. T. (2005). How we talk about how we talk: Communication theory in the public interest. *Journal of Communication, 55*(4): 659-667.

Davison, W. P. (1983). The third person effect in communication. *Public Opinion Quarterly, 47,* 1-15.

De Fleur, M. L., & Ball-Rokeach, S. (1988). *Theories of mass communication, 5th edition*. New York: Longman.

De Fleur, M. L., & Dennis, E. E. (1981). *Understanding mass communications*. Boston: Houghton Mifflin.

Delia, J. G. (1987). Communication research: A history. In C. R. Berger & S. H. Chaffee (Eds.), *Handbook of communication science* (pp. 20-98). Newbury Park CA: Sage.

Donsbach, W. (2006). The identity of communication research. *Journal of Communication, 56,* 437-448.

Emmers-Sommer, T. M., & Allen, M. (1999). Surveying the effect of media effects: A meta-analytic summary of the media effects research in Human Communication Research. *Human Communication Research, 24*(4), 478-497.

Entman, R. M. (1993). Framing: Toward clarification of a fractured paradigm. *Journal of Communication, 43*(4), 51-58.

Festinger, L. (1957). *A theory of cognitive dissonance*. Stanford: Stanford University Press.

Gerbner, G. (Ed.). (1983). Ferment in the field [Special issue] *Journal of Communications, 33*(3).

Gerbner, G., Gross, L., Jackson-Beeck, M., Jeffries-Fox, S., & Signorielli, N. (1978). Cultural indicators: Violence profile no. 9. *Journal of Communication, 28*(3), 176-206.

Gerbner, G., Gross, L., Morgan, M., & Signorielli, N. (1980). The “mainstreaming” of America: Violence Profile No. 11. *Journal of Communication, 30*(3), 10-29.

Gitlin, T. (1978). Media sociology: The dominant paradigm. *Theory and Society* 6, 205-253.

Gramsci, A. (1933). *Selections from the prison notebooks*. New York: International Publishers.

Granovetter, M. (1973). The strength of weak ties. *American Journal of Sociology* 78(6), 1360-1380.

Habermas, J. ([1962] 1989). *The structural transformation of the public sphere*. Cambridge: MIT Press.

Hayes, A. F., & Krippendorff, K. (2007). Answering the call for a standard reliability measure for coding data. *Communication Methods and Measures, 1,* 77-89.

Heider, F. (1958). *The psychology of interpersonal relations*. New York: Wiley.

Herzog, H. (1944). What do we really know about daytime serial listeners? In P. F. Lazarsfeld & F. N. Stanton (Eds.), *Radio Research, 1942-43* (pp. 3-33). New York: Duell, Sloan & Pearce.

Horton, D., & Wohl, R. R. (1956). Mass communication and para-social interaction: Observation on intimacy at a distance. *Psychiatry, 19*(3).

Hovland, C., Janis, I., & Kelley, H. H. (1953). *Communication and persuasion*. New Haven: Yale University Press.

Iyengar, S. & Kinder, D. R. (1987). *News that matters: Television and American opinion.* Chicago: University of Chicago Press.

Iyengar, S., Peters, M. D., & Kinder, D. (1982). Experimental demonstrations of the not so minimal consequences of television news programs. *American Political Science Review* 76, 848-858.

Jeffres, L. W. (1997). *Mass media effects*. Prospect Heights IL: Waveland Press.

Joinson, A., McKenna, K., Postmes, T., & Reips, U. (Eds.). (2007). *Oxford handbook of Internet psychology*. New York: Oxford University Press.

Kamhawi, R., & Weaver, D. (2003). Mass communication research trends from 1980 to 1999. *Journalism and Mass Communication Quarterly, 80*(1), 7-27.

Katz, E. (1980). On conceptualizing media effects. In T. McCormack (Ed.), *Studies in communications* (pp. 119-141). Greenwich, CT: JAI Press.

Katz, E. (1987). Communications research since Lazarsfeld. *Public Opinion Quarterly, 51*(Supplement), S25-S45.

Katz, E. (2001a). Lazarsfeld's map of media effects. *International Journal of Public Opinion Research, 13*(3), 270-279.

Katz, E. (2001b). Media effects. In N. J. Smelser & P. B. Baltes (Eds.) *International encyclopedia of the social & behavioral sciences* (pp. 9472-9479). Oxford: Elsevier.

Katz, E., Blumler, J. G., & Gurevitch, M. (1974). Uses of mass communication by the individual. In, W. P. Davison & F. T. C. Yu (Eds.), *Mass communication research: Major issues and future directions* (pp. 11-35). New York: Praeger.

Katz, E., & Lazarsfeld, P. F. (1955). *Personal influence: The part played by people in the flow of communications*. New York: Free Press.

Kelley, H. H. (1967). Attribution in social psychology. *Nebraska Symposium on Motivation, 15*, 192-238.

Kelman, H. C. (1961). Processes of opinion change. *Public Opinion Quarterly, 25*(1), 57-78.

Keppinger, H. M. (2008). Media effects. In W. Donsbach (Ed.), *The international encyclopedia of communication*. Wiley-Blackwell.

Klapper, J. (1960). *The effects of mass communications*. New York: Free Press.

Kuhn, T. (1962). *The structure of scientific revolutions*. Chicago: University of Chicago Press.

Lang, G. E., & Lang, K. (1981). Mass communication and public opinion. In M. Rosenberg and R. H. Turner (Eds.), *Social psychology (*pp. 653-682). New York: Basic Books.

Lasswell, H. (1930). *Psychopathology and politics*. Chicago: University of Chicago Press.

Lasswell, H. (1948). The structure and function of communications in society. In L. Bryson (Ed.), *The communication of ideas* (pp. 37-51). New York: Harper.

Lasswell, H. D. (1935). *World politics and personal insecurity*. New York: Free Press.

Lazarsfeld, P. F., & Berelson, B. (Eds.). (1960). *The effects of mass communication*. New York: The Free Press.

Lazarsfeld, P. F., Berelson, B., & Gaudet, H. (1944). *The people's choice: How the voter makes up his mind in a presidential campaign.* New York: Columbia University Press.

Lazarsfeld, P. F., & Merton, R. K. (1948). Mass communication, popular taste, and organized social action. In L. Bryson (Ed.), *The communication of ideas* (pp. 95-118). New York: Harper.

Levy, M., & Gurevitch, M. (Eds.). (1993). *The future of the field: Between fragmentation and cohesion*. [Special Issues] *Journal of Communication, 43*(3&4).

Littlejohn, S. W., & Foss, K. A. (2005). *Theories of human communication*. Belmont, CA: Wadsworth Publishing Company.

Livingstone, S. (2006). The influence of personal influence on the study of audiences. *The ANNALS of the American Academy of Political and Social Science, 608*(1), 233-250.

McCombs, M. E., & Shaw, D. L. (1972). The agenda setting function of the mass media. *Public Opinion Quarterly, 36*, 176-87.

McGuire, W. J. (1969). The Nature of attitudes and attitude change. In G. Lindzey & E. Aronson (Eds.), *The handbook of social psychology, 2nd ed.* (pp. 136-314). Reading: Addison Wesley.

McGuire, W. J. (1985). Attitudes and attitude change. In G. Lindzey & E. Aronson (Eds.), *The handbook of social psychology* (pp. 233-346). New York: Random House.

McGuire, W. J. (1986). The myth of massive media impact: Savagings and salvaging. In G. Comstock (Ed.), *Public communication and behavior* (pp. 173-257). Orlando: Academic Press.

McLeod, J., Kosicki, G. M., & Pan, Z. (1991). On understanding and misunderstanding media effects. In J. Curran & M. Gurevitch (Eds.), *Mass media and society* (pp. 235-266). London: Edward Arnold.

McLeod, J. M., & Reeves, B. (1980). On the nature of mass media effects. In S. B. Withey & R. P. Abeles (Eds.), *Television and social behavior* (pp. 17-54). Hillsdale: Erlbaum.

McLuhan, M. (1964). *Understanding media*. New York: American Library.

Merton, R. K. (1968). The Matthew Effect in science. *Science* 159(3810), 56-63.

Nabi, R. L., & Oliver, M. B. (Forthcoming). Mass media effects. In C. R. Berger, M. Roloff, & D. Roskos-Ewoldsen (Eds.), *Handbook of communication science*. Thousand Oaks: Sage.

Noelle-Neumann, E. (1973). Return to the concept of powerful mass media. *Studies of Broadcasting, 9,* 67-112.

Noelle-Neumann, E. (1974). The spiral of silence: A theory of public opinion. *Journal of Communication, 24*, 43-51.

Perse, E. M. (2001). *Media effects and society*. Mahwah, NJ: Lawrence Erlbaum.

Peters, J. D. (1999). *Speaking into the air: A history of the idea of communication*. Chicago: University of Chicago Press.

Petty, R. E., & Cacioppo, J. T. (1986). *Communication and persuasion: Central and peripheral routes to attitude change*. New York: Springer.

Power, P., Kubey, R., & Kiousis, S. (2002). Audience activity and passivity: An historical taxonomy. *Communication Yearbook, 26*(1), 116-159.

Preiss, R. W., Gayle, B. M., Burrell, N., Allen, M., & Bryant, J. (Eds.). (2007). *Mass media effects research: Advances through meta-analysis*. Mahwah NJ: Erlbaum.

Putnam, R. D. (1995). Bowling alone: America's declining social capital. *Journal of Democracy, 6,* 65-78.

Riffe, D., & Freitag, A. (1998). A content analysis of content analyses. *Journalism and Mass Communication Quarterly, 74,* 873-82.

Roberts, D. F., & Bachen, C. M. (1981). Mass communication effects. *Annual Review of Psychology, 32,* 307-356.

Rogers, E. (1981). The empirical and critical schools of communications research. In M. Burgoon (Ed.), *Communication yearbook 5*. New Brunswick NJ: Transaction Press.

Rogers, E. M. (1962). *Diffusion of innovations*. New York: Free Press.

Scannell, P. (2007). *Media and communication*. Thousand Oaks: Sage.

Schramm, W. (1955). Information theory and mass communication. *Journalism Quarterly, 32,* 131-146.

Schramm, W., & Roberts, D. F., Eds. (1971). *The process and effects of mass communication*. Urbana: University of Illinois Press.

Sears, D., & Freedman, J. L. (1967). Selective exposure to information: A critical review. *Public Opinion Quarterly, 31*(2), 194-213.

Shah, D. V., McLeod, J. M., & Yoon, S. (2001). Communication, context, and community: An exploration of print, broadcast, and Internet influences. *Communication Research, 28*(4), 464-506.

Shannon, C. E., & Weaver, W. (1949). *The mathematical theory of communication*. Urbana: University of Illinois.

Simonson, P. (1999). Mediated sources of public confidence: Lazarsfeld and Merton revisited. *Journal of Communication, 49*(2), 109-122.

Simonson, P., & Weimann, G. (2003). Critical research at Columbia: Lazarsfeld and Merton's mass communication. Popular taste and organized social action. In E. Katz, J. D. Peters, T. Liebes, & A. Orloff (Eds.), *Canonic texts in media research: Are there any? Should there be? How about these?* (pp. 12-38). Cambridge UK: Polity Press.

Smith, A. G., Ed. (1966). *Communication and culture: Readings in the codes of human interaction*. New York: Holt, Rinehart and Winston.

Tajfel, H. (1982). *Social identity and intergroup relations*. New York: Cambridge University Press.

Tankard, J. W., & Ryan, M. (1974). News source perceptions of accuracy of science coverage. *Journalism Quarterly, 51*(2), 219-225.

Tichenor, P. J., Donohue, G. A., & Olien, C. A. (1970). Mass media flow and differential growth in knowledge. *Public Opinion Quarterly, 34*, 149-170.

Walther, J. B. (1996). Computer-mediated communication: Impersonal, interpersonal, and hyperpersonal interaction. *Communication Research, 23,* 3-43.

Wartella, E. (1996). The history reconsidered. In E. E. Dennis & E. Wartella (Eds.), *American communication research: The remembered history* (pp. 169-180). Mahwah NJ: Erlbaum.

Wartella, E., & Reeves, B. (1985). Historical trends in research on children and the media: 1900-1960. *Journal of Communication, 35*(2), 118-133.

Wicks, R. H. (1996). Joseph Klapper and the *Effects of Mass Communication*: A retrospective. *Journal of Broadcasting and Electronic Media, 40,* 563-569.

Zaller, J. (1996). The myth of massive media impact revived: New support for a discredited idea. In D. Mutz, P. M. Sniderman & R. A. Brody (Eds.), P*olitical persuasion and attitude change* (pp. 17-78). Ann Arbor: University of Michigan Press.

Zillmann, D., Milavsky, B., & Katcher, A. H. (1972). Excitation transfer from physical exercise to subsequent aggressive behavior. *Journal of Experimental Social Psychology, 8*(3), 247.

## Footnotes

[1] This typology evolved from a collaborative process of the authors reading and discussing the sample of 200 most frequently cited articles in search of common problematics and thematics. It was basically an iterative process of clustering and re-clustering and then labeling similar papers and then seeking out common theoretically seminal citations. Having derived the basic typology we discovered that it looked strikingly similar to several others in the literature as noted which we took to be a good sign. Accordingly we stake no claim to originality or exclusivity. An entirely different way of clustering this literature could be of value and provide other insights into the character of theoretical aggregation and various impediments to aggregation.

[2] Intercoder reliability was assessed for Krippendorff's alpha for each of the 29 theories at the Explicit citation (1), reference (2), and implicit (indication of the theory) (3), levels. For each of the variables, alpha was determined with SPSS following Hayes and Krippendorff (2007). The mean of the alphas for set one is M=.79, SD=.28, set 2 is M=.22, SD=.29, and set 3 is M=.17, SD=.27. Because the alphas for set 3 are low, we did not include them in the analysis; however, we combined set 1 and 2 together since the presence of a theory in our sample was frequently low, and recalculated the alphas. This resulted in M=.74 and SD=.31. Using a .75 cutoff for reliability, the following variables produced reliable coding: dependency theory, two-step flow, diffusion, knowledge gap, spiral of silence, third person, social networks, channel effects, cultivation, agenda setting, and computer mediated communication.

[3] A content analysis of qualitative literature is currently underway using a sample of the top 20 most frequently cited articles from three of the top mass communication journals in the critical

and qualitative tradition: *Media Culture & Society, Cultural Studies, and Critical Studies in Mass Communication.* These journals are relatively new (the earliest beginning in 1980), so the sampling technique involved selecting the top 20 most frequently cited articles, for a total of 60 articles. The coding scheme was developed by looking at several textbooks and syllabi for the most important theoretical traditions in the field (e.g., public sphere theory, hegemony, etc.) and then developing a list of seminal citations by both referring to textbooks and iteratively looking for the most frequent citations within the sample itself.

[4] A full table of the 200 articles and their frequency of citation is available at wrneuman.com.

[5] Twenty-three of the articles had none of the variables present. We looked more closely at these articles to see why they were coded zero for all the variables. Three main reasons they did not fall into the coding scheme became evident: first, some of the articles fell into different fields or utilized theories from fields other than communications; second, several of the articles were based on other types of communication that did not fall within the purview of the study, such as interpersonal or organizational communication; third, a few of the articles were descriptive in nature and did not employ any of the theories in the coding scheme. More specifically, 10 articles were related to other fields, mostly political science and social psychology, 9 articles were other types of communication, and 4 articles were descriptive. An example of the latter is an article by Tankard and Ryan (1974) which involved interviewing scientists for the accuracy of science stories in the news.

[6] Four of the theories were dropped at the outset because they rarely appeared in the dataset, therefore having very low variance. Human Computer Interaction was also dropped, in keeping with the other analyses.

[7] We saw excellent fit measures, based on Kruskal's stress (formula 1) and $R^2$; however, the fit measures were probably inflated (i.e., low stress and high $R^2$) because, with five variables, there were few variables in relation to the two dimensions. On the other hand, achieving appropriate results only requires more variables than dimensions, a criterion our analysis met, and thus we have confidence in our solution, despite lacking fit measures.

Table 1

*The Evolution of Media Effects Theory: 6 Fundamental Media Effects Clusters of 29 Theories*

**I. Persuasion Models 1944-63**

1. Voting research (Lazarsfeld et al 1944/Campbell et al 1960)
2. Shannon linear model (Shannon & Weaver 1948)
3. Lasswell linear model (Lasswell 1948)
4. Hovland persuasion model/attitude change (Hovland et al 1953/McGuire 1968)
5. Social learning (Bandura & Walters) 1963

**II. Active Audience Models 1944-85**

6. Attribution theory (Heider 1944/Kelley 1967)
7. Uses & gratifications (Herzog 1944/Katz et al. 1974)
8. Parasocial theory (Horton & Wohl 1956)
9. Cognitive dissonance/Social Identity (Festinger 1957/Tajfel 1982)
10. Minimal effects (Klapper 1960)
11. Selective exposure (Sears & Freedman 1967)
12. Disposition theory (Zillmann et al. 1972)
13. Media dependency (Ball-Rokeach 1976)
14. Elaboration likelihood model (Petty & Cacioppo 1986)

**III. Social Context Models 1955-83**

15. Two-step flow (Katz & Lazarsfeld 1955)
16. Diffusion theory (Rogers 1962)
17. Knowledge gap theory (Tichenor et al. 1970)
18. Social networks/Social capital (Granovetter 1973/Putnam 1995)
19. Spiral of silence (Noelle-Neumann 1974)
20. Third person theory (Davison 1983)

**IV. Societal & Media Models 1933-1978**

21. Media hegemony/Public Sphere (Gramsci 1933/Habermas 1962)
22. Channel effects (McLuhan 1964)
23. Social construction of reality (Berger & Luckman 1966)
24. Differential media exposure (Clarke & Fredin 1978)
25. Cultivation theory (Gerbner et al 1978)

**V. Interpretive Effects Models 1972-1987**

26. Agenda setting (McCombs & Shaw 1972)
27. Priming (Iyengar et al 1982)
28. Framing theory (Iyengar et al 1987)

**VI. New Media Models 1996**

29. Human Computer Interaction/Computer-Mediated-Communication (Walther 1996)

*Note.* The six clusters and 29 contributing research theories are defined by 36 seminal books and articles, 1933-1996 (seminal publications are listed in parentheses).

Table 2

*Patterns of Within Cluster Co-Citation*

| **Theoretical Cluster** | **Average Internal Correlation** | **Average External Correlation** | | **Media Effects Theory** | **Average Internal Correlation** | **Average External Correlation** |
|---|---|---|---|---|---|---|
| | *(Phi)* | *(Phi)* | | | *(Phi)* | *(Phi)* |
| Persuasion Models (1944-63) | 0.03 | -0.01 | 1 | Voting Tradition | -0.01 | -0.02 |
| | | | 2 | Shannon Linear Model | 0.09 | -0.01 |
| | | | 3 | Lasswell Linear Model | 0.10 | -0.02 |
| | | | 4 | Hovland Persuasion | 0.01 | 0.02 |
| | | | 5 | Social Learning | -0.05 | -0.01 |
| Active Audience Models (1944-85) | 0.04 | 0.01 | 6 | Attribution Theory | -0.02 | -0.01 |
| | | | 7 | Uses & Gratification | 0.10 | 0.05 |
| | | | 8 | Parasocial Theory | 0.07 | 0.01 |
| | | | 9 | Cognitive Dissonance | 0.01 | -0.02 |
| | | | 10 | Minimal Effects | 0.08 | 0.03 |
| | | | 11 | Selective Exposure | 0.07 | 0.01 |
| | | | 12 | Disposition Theory | 0.00 | -0.01 |
| | | | 13 | Media Dependency | 0.05 | 0.05 |
| | | | 14 | Elaboration Likelihood | -0.01 | 0.01 |
| Social Context Models (1955-1983) | 0.09 | 0.01 | 15 | Two Step Flow | 0.15 | 0.02 |
| | | | 16 | Diffusion Theory | 0.18 | 0.02 |
| | | | 17 | Knowledge Gap | 0.06 | 0.00 |
| | | | 18 | Social Networks | 0.09 | 0.02 |
| | | | 19 | Spiral of Silence | 0.05 | 0.00 |
| | | | 20 | Third Person Effect | 0.03 | 0.00 |
| Societal & Media Models (1933-1978) | 0.02 | 0.02 | 21 | Hegem/Public Sphere | 0.02 | 0.03 |
| | | | 22 | Channel Effects | 0.00 | 0.01 |
| | | | 23 | Differential Media Exp | 0.05 | 0.02 |
| | | | 24 | Social Cons Reality | 0.01 | 0.04 |
| | | | 25 | Cultivation Theory | 0.01 | -0.02 |
| Interpretive Effects Models (1972-1987) | 0.40 | 0.00 | 26 | Agenda Setting | 0.36 | 0.01 |
| | | | 27 | Priming | 0.45 | 0.01 |
| | | | 28 | Framing | 0.40 | -0.01 |
| Interaction Models (1996) | na | na | 29 | HCI | na | na |

Figures

Figure 1

*Distribution of Number of Citations per Article from Highest to Lowest among Communication Research Articles 1956-2005*

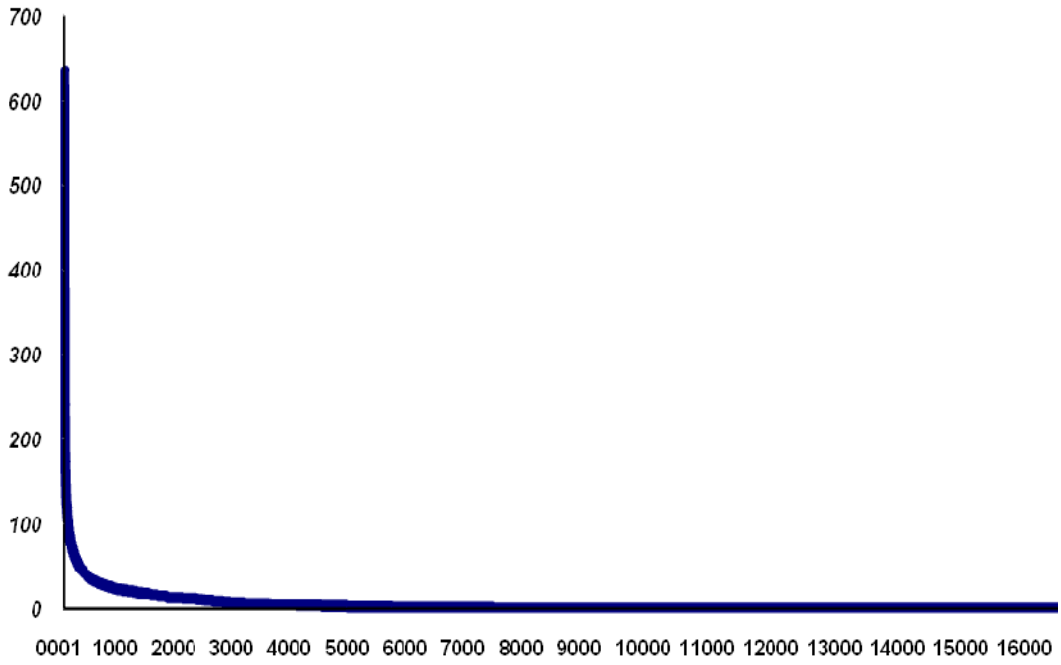
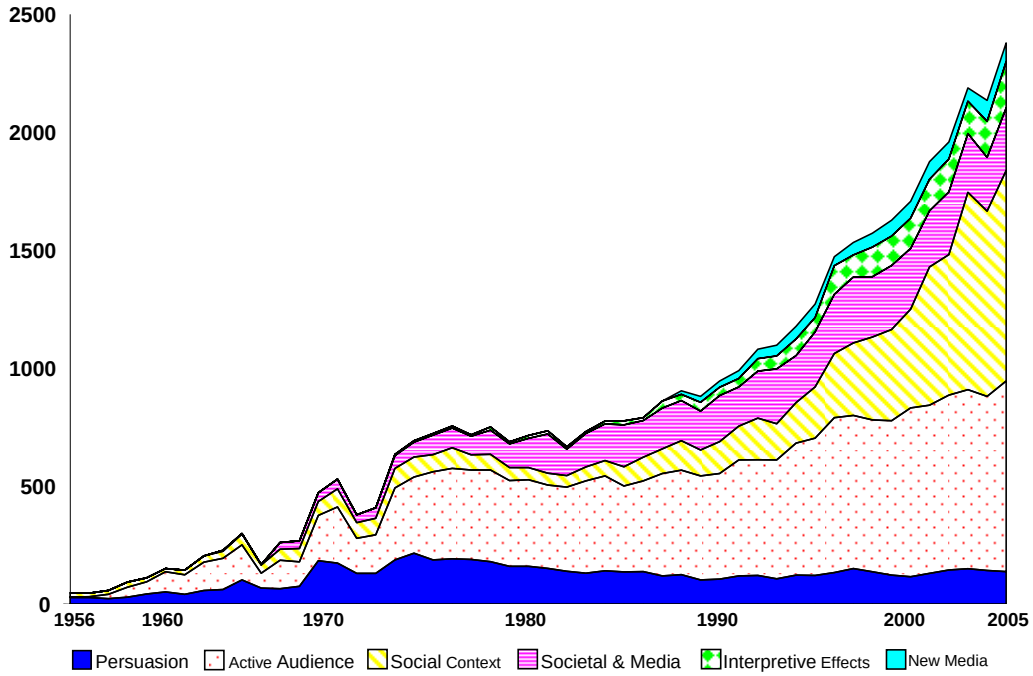


Figure 2

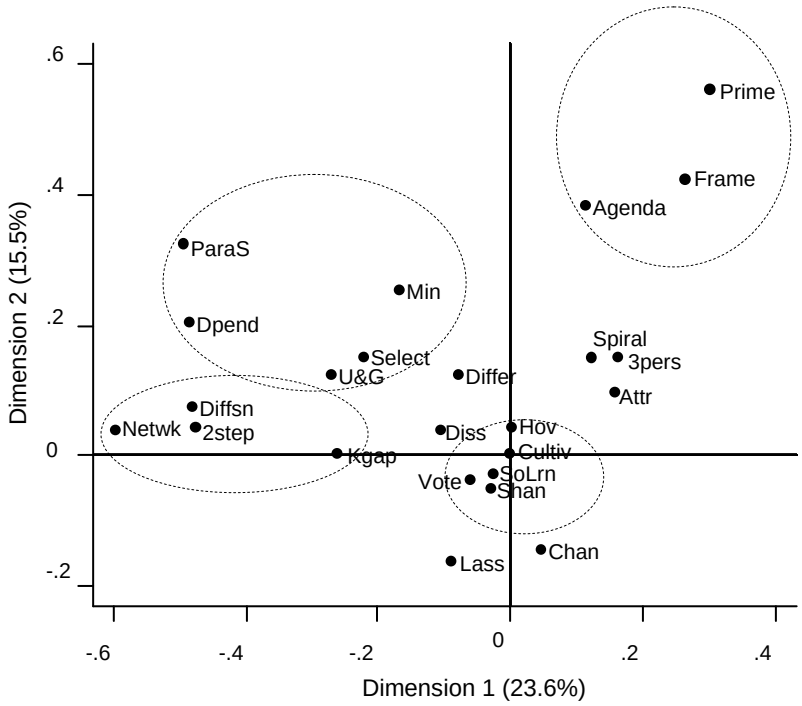
*Accumulative Growth of Media Effects Models in Communication Literature (Average Number of Citations per Year of 36 Seminal Articles)*




*Note*. Source: Full ISI Social Science Citation Dataset.

Figure 3

*Multiple Correspondence Analysis Coordinate Plot*




*Note.* Coordinates are in principal normalization. Clusters are represented by dotted lines.

Figure 4

*Theoretical Traditions in Communication Effects Research*