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Dynamics in Mass Communication Effects Research

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How do mass communications affect citizens' opinions? The answer to this question – perhaps the defining subject in the field of communication studies – has vacillated over several decades of research between minimal and maximal effects. Recent technological and social transformations may usher a new era of communications that requires updating of our observations and conclusions (Bennett and Iyengar, 2008). Our goal here is to take stock of our knowledge and, equally important in this period of transition, to offer a unifying framework for studying communications effects that will help to guide future research.[1]

THE TRANSFORMATION OF EFFECTS RESEARCH

By many accounts, McCombs and Shaw's (1972) agenda setting study constitutes the seminal contribution showing that mass communications have 'strong' or 'indirect', rather than minimal effects. McCombs and Shaw's (1972) study took place during the 1968 presidential campaign; they asked 100 undecided voters in Chapel Hill, North Carolina: 'What are you *most* concerned about these days? That is, regardless of what politicians say, what are the two or three *main* things which you think the government *should* concentrate on doing something about?' They then compared voter responses to the content of newspapers, magazines and television broadcasts.[2] They found 'a very strong relationship between the emphasis placed on different campaign issues by the media … and the judgments of voters as to the salience and importance of various campaign topics' (1972: 181). McCombs and Shaw concluded that 'mass media set the agenda for each political campaign, influencing the salience of attitudes toward the political issues' (1972: 177).

This study spawned a research agenda on how political and media elites influence mass opinion. Much of this research compared the opinions of individuals who reported varying levels of exposure to mass communications (e.g., news broadcasts). Observed differences in opinion between these groups constituted evidence of a mass communication effect. Our confidence in these results depends on our ability to rule out several alternative explanations. One alternative hypothesis is that individuals who watch news are different from individuals who choose not to. News watchers are, for example, generally more interested in following politics. Not only do they watch more news, they are also more likely to talk politics with others and to participate at higher rates. Therefore, any differences between those who watch news and those who abstain might be the consequence of political discussion or attending political events and not exposure to mass communications.

Attempts to statistically control for variation in inter-personal discussion, participation and other factors can improve estimates of media

effects but they cannot rule out the possibility the relationship between exposure to mass communication and opinion results from selection bias. Putnam explains, 'Without controlled experiments, we can't be certain which causes which. Virtually all non-experimental studies of the media find it hard to distinguish between "selection effects" (people with a certain trait seek out a particular medium) and "media effects" (people develop that trait by being exposed to that medium)' (2000: 218).

Another no less serious problem is that surveys that ask people to report the frequency with which they read or watch particular media tend to be extremely unreliable with people generally claiming higher levels of exposure than can be verified independently. This would not be a serious problem if biases were constant across demographic categories, but some groups (e.g., young people) over-report significantly more than others.

Experimental research addresses many of the methodological problems inherent in observational studies. The experimental design gives us confidence the observed effects result from the treatment and are not caused by selection bias or unobserved factors that are correlated with news exposure. Random assignment of individuals to treatment groups assures us that the groups are, on average, equal at the start of the experiment so that differences that emerge following exposure to the treatment can be attributed to the effect of the treatment. Moreover, the experimenter controls what individuals are exposed to, so there is no dependence on self-reports. For these reasons – the ability through randomization and control to resolve causal ambiguity and exposure problems – experimentation and the mass media were 'made for each other' (Nelson et al., 2011: 202).

No research study was more instrumental in popularizing the use of experimentation in media studies than Iyengar and Kinder's (1987) *News that Matters.* Their classic experiment on agenda setting randomly assigned individuals to watch alternative versions of a news broadcast that had been manipulated to emphasize one current issue or another (e.g., a story on energy or a story on defense policy). Following the treatment, participants were asked their opinion of the most important problems facing the country. Their answers depended on the content of the news broadcast they had watched; those who were exposed to a story about energy problems were more likely to give priority to the energy issue whereas those who had viewed a story on national defense were more likely to focus on defense. The experiment demonstrated the media's power to set the public agenda.

Iyengar and Kinder further extended media effects research by introducing the concept of priming.[3] 'By calling attention to some matters while ignoring others, television news influences the standards by which governments, presidents, policies, and candidates for public office are judged. Priming refers to changes in the standards that people use to make political evaluations' (Iyengar and Kinder, 1987: 63). For example, individuals exposed to news stories about defense policy tend to give greater weight to the president's actions on defense policy in their overall assessment of the president (or some other candidate). If they believe the president has done a good job protecting the country, they will express higher levels of overall approval. In contrast, individuals who have been primed by stories about energy policy will be more likely to base their overall presidential evaluations on his handling of energy policy.

Iyengar (1991) builds on work by Iyengar and Kinder (1987) by importing the concept of 'framing' to mass communication research. He focused on whether news stories that used either an episodic frame (e.g., a story of an individual on welfare) or a thematic frame (e.g., a story analyzing the distribution of benefits in the welfare system) affected viewers' attributions of responsibility for a problem (e.g., their explanation for why people are on welfare). Others apply framing to describe how an issue can be alternatively construed to influence public preferences; for example, one can frame a hate group rally as a free speech or public safety issue, or campaign finance as an issue of free speech or democratic corruption, with significant consequences for levels of public support.

McCombs and Shaw's (1972) study stimulated a large research agenda, which grew exponentially following the publication of Iyengar and Kinder's (1987) book – scholars began implementing laboratory, survey and field experiments on agenda setting, priming and framing across an enormous range of issues. A search of 13 prominent disciplinary journals, since 1994, reveals 308 articles that mention one or more of the concepts in the article's title and/or abstract.[4] Of these, about 43% focus on the effects of mass communications (e.g., as opposed to charting trends in media coverage), and approximately 61% of those employ experiments.[5]

Few contributions to the study of mass communication have been as important and impactful as Iyengar and Kinder (1987) and Iyengar (1991). Yet, from our perspective, the course of research since these works has been plagued by two fundamental problems.[6] First, the introduction of various supposedly distinct types of communication effects, including agenda setting, priming and framing, has been the source of substantial *conceptual ambiguity* contributing to a fragmented

discipline where scholars become overly specialized on one particular type of effect (Iyengar, 2010).[7]

Second, scholars have worried appropriately about the generalizability of experimental conclusions. Of notable concern are laboratory experiments that rely on non-representative samples (often students) (Jacoby, 2000; Kinder, 2007).[8] Kam et al. (2007: 421) explain that many political scientists employ 'the simplistic heuristic of 'a student sample lacks external generalizability' (e.g., Gerber and Green, 2008: 358). Unfortunately, this focus has, inadvertently, led to a neglect of other aspects of generalizability, particularly when it comes to context and timing. In other words, external validity envelops multiple dimensions including the measures, stimuli, sample, context and timing. A growing body of evidence suggests that the dynamics – while depending on certain individual characteristics, such as prior opinion and knowledge – do not inherently differ between student and non-student samples (for general discussion see Druckman and Kam, 2011). We argue that a more important concern revolves around *context* and *time* – nearly all electoral and policy debates involve competition between sides, over time, yet extant work has only recently begun to consider the impact of competition and over-time processes.

In sum, we view three major areas in need of clarification: (1) the relationship between distinct concepts; (2) the impact of competitive contexts and (3) the impact of time. In what follows, we offer our perspectives on each of these topics, with the goal of providing a unified foundation on which other researchers can build.

COORDINATING ON A COMMON CONCEPTUAL LANGUAGE

We situate our discussion of how to define mass communication processes with what we see as the ultimate variable of interest: citizens' opinions. We represent an individual's opinion with a basic expectancy value model of an attitude (e.g., Ajzen and Fishbein, 1980; Nelson et al. 1997). In this model, an attitude toward an object consists of the weighted sum of a set of evaluative beliefs about that object. Specifically, $Attitude = \sum v_i * w_i$, where v_i is the evaluation of the object on attribute i and w_i is the salience weight ($\sum w_i = 1$) associated with that attribute. For example, one's overall attitude, A, toward a new housing development might consist of a mix of negative and positive evaluations, v_i, of the project on different dimensions i. An individual may believe that the project will *favor* economic growth by creating jobs ($i = 1$) but *harm* the environment by impinging on existing green spaces ($i = 2$). Assuming this individual places a positive value on both the economy and the environment, then v_1 is positive and v_2 is negative, and his attitude toward the project will depend on the relative magnitudes of v_1 and v_2 discounted by the relative weights (w_1 and w_2) assigned respectively to each attribute (Nelson and Oxley, 1999).

The following examples illustrate how this conceptualization of an attitude applies to any object of evaluation. First, a voter's preference between two candidates may vary according to whether the voter evaluates them on economic or foreign policy issues (Enelow and Hinich, 1984). In the 2008 US presidential election, a voter might have preferred John McCain to Barack Obama when evaluating them on their foreign policy positions, but preferred Obama to McCain when comparing their economic platforms. Second, an individual's attitude toward welfare recipients may depend on the extent he believes their plight is explained by their personal failures or by social and economic disadvantages (Iyengar, 1991). Third, one's tolerance for allowing a proposed hate group rally may hinge on the value one places on defending free speech versus maintaining public safety.[9] Ultimately, the attitude or preference in each of these situations depends on the valences and weights given to the competing considerations.

Individuals typically base their evaluations on a subset of dimensions, rather than on the universe of possible considerations. In the simplest case, they focus on a single dimension ($w_i = 1$) such as foreign policy or economic affairs in evaluating a candidate, free speech or public safety when considering a hate group rally request or lives saved or lives lost in assessing medical programs. Even when they incorporate more than one dimension, cognitive limitations and economies of thought may cause most individuals to rely on no more than a few considerations (e.g., Simon, 1955). The dimensions underlying one's attitude are *available* (i.e., an individual comprehends the meaning and significance of the dimension), *accessible* (i.e., the consideration *subconsciously* enters the individual's working memory) and *applicable* or appropriate (i.e., the individual *consciously* views the dimension as a relevant or important basis of opinion) (Althaus and Kim, 2006; Chong, 1996; Chong and Druckman, 2007a; Price and Tewksbury, 1997; Winter, 2008: 30).

Two points are relevant. First, accessibility increases with chronic use of a consideration over time *or* from temporary contextual cues – including repeated exposure to communications. Second, individuals assess the applicability of a dimension only when motivated by incentives

(e.g., a desire to make the correct decision) or by contextual factors such as the presence of directly conflicting or competing information (that prompts applicability assessments) (Chong and Druckman, 2007a,b,c).

This model of attitude formation can be used to compare alternative conceptions of communication effects – framing, priming, agenda setting and persuasion. With framing, we might refer to the dimension or dimensions, the 'i's', that affect an individual's evaluation as an individual's *frame in thought*. For example, an individual who believes economic considerations trump all other concerns in making decisions about the proposed housing development has an 'economic' frame in thought on that issue. Or, if free speech dominates all other considerations in deciding a hate group's right to rally, the individual's frame would be free speech. Nothing (but economy of thinking) precludes an individual from employing a more complex frame in thought that mixes multiple frames, such as consideration of free speech, public safety and the community's image in contemplating whether a hate group should be allowed to hold a rally.[10]

The frames on which an individual bases his or her attitude have their origin in past experiences, ongoing world events, inter-personal discussions, and so on. Of particular relevance, given our focus, is the impact of communications from politicians and the media. Such elites employ a variety of approaches to purposefully influence the public's opinions. The most obvious strategy they employ is using rhetoric to influence how citizens construe political issues and events. A speaker emphasizes one interpretation of an issue to encourage the public to evaluate the issue along that dimension; for example, a news outlet states that a hate group's planned rally is 'a free speech issue', or a politician describes welfare in terms of its humanitarian effects rather than its impact on taxes. When such *frames in communication* influence an individual's frame in thought, it is called a *framing effect*. In many applications, frames are thought to involve alternative descriptions of an *issue* or an *event* (e.g., Entman, 2004: 5).

'Priming' also fits straightforwardly into our model. As explained, 'priming' in communication research refers to cases where mass communication emphasis on particular issues or images affect politician evaluations; that is, the object of evaluation is typically a *person*. The expectancy value model applies if we simply assume each consideration constitutes a separate issue or image dimension used to evaluate the politician (Druckman and Holmes, 2004). When a mass communication places attention on an issue, that issue will receive greater weight through increased accessibility and, possibly, applicability. In this case, then, priming is the same as framing and the two terms can be used interchangeably. Early mass communication work presumed that priming of candidate evaluations worked strictly via accessibility, whereas issue or event framing was often seen as working through more conscious applicability assessments. Yet, the evidence for this distinction is lacking (e.g., Miller and Krosnick, 2000), as is any evidence showing different processes at work in person as opposed to issue or event evaluations. Until such evidence can be produced, there is no reason to distinguish priming and framing in mass communication.

The model also encompasses agenda setting, which, as explained, occurs when a speaker's (e.g., a news outlet or politician) emphasis on an issue or problem leads its audience to view the issue or problem as relatively important (e.g., McCombs, 2004). For example, when a news outlet's campaign coverage focuses on the economy, viewers come to believe the economy is the most important campaign issue. In terms of the expectancy-value model – the focus (i.e., dependent variable) with agenda setting involves assessments of the salience component of the attitude (rather than the overall evaluation of the object). The previous example can be construed as the news outlet framing the campaign in terms of the economy, and the researcher simply gauging the specific salience weights (w_i) as the dependent variable.[11]

A final concept is persuasion. Nelson and Oxley (1999) define persuasion as involving a change in the evaluation component, v_i of an attitude in response to a communication (in contrast to the other concepts which involve the weight component, w_i [also see Johnston et al., 1992: 212]). For example, in assessing a new housing project, framing takes place if a communication causes economic considerations to become more important relative to environmental considerations. Persuasion occurs if the communication alters one's evaluation of the proposal on one of those dimensions (e.g., by modifying one's beliefs about the project's economic consequences). In practice, persuasion and framing/priming/agenda setting strategies often go hand in hand, as campaign communications for a candidate simultaneously steer voters to focus on certain issues in the campaign while also emphasizing the candidate's strong records on those issues.

In sum, we view framing, priming and agenda setting as equivalent processes that involve alterations of the weight component of an attitude through changes in availability, accessibility and/or applicability. Our preference – and our practice in what follows – is to use the overarching term of 'framing', in part, because priming refers to a related but distinct procedure in psychology, and agenda setting is widely used in political science

to refer to institutional agendas (e.g., in Congress; see Riker, 1986). We recognize that our argument about conceptual equivalency contrasts with common portrayals (e.g., Scheufele, 1999; McCombs, 2004). Yet, until definitive evidence reveals meditational or moderating differences, the concepts should be treated as the same, meaning research on each should be merged and redundancy avoided.[12]

INTRODUCING COMPETITION

While analysts have long recognized the potential importance of elite competition in affecting opinion formation (e.g., Entman, 1993: 55; Riker, 1996: 33; Schattschneider, 1960), only recently have they explicitly explored competitive mass communication effects. Sniderman and Theriault (2004) offered one of the first empirical forays, demonstrating, with two experimental surveys, that when competing frames are presented together (e.g., both free speech and public safety considerations are raised in regard to a hate group rally), they reduce the influence of one-sided frames. Competing frames make alternative positions equally accessible, which increases the likelihood people will be able to identify and choose the side that is consistent with their ideological values (also see Brewer and Gross, 2005; Hansen, 2007).

In some of our own work, we have built on Sniderman and Theriault (2004) by examining the variable impact of different types of competition. 'Competition' is most generally understood as the presence of frames aimed at promoting different sides of an issue, namely a 'pro' side and a 'con' side. Frames therefore have distinct positional *directions* (Chong and Druckman, 2007a,b,c). For example, the free speech frame promotes the right of individuals to organize a rally ('a pro frame') while the public safety frame provides a rationale for preventing the rally ('a con frame').

We further identify two dimensions of competition. One dimension concerns the *repetition* or *frequency* of each side's frame(s). Continuing with the example, the free speech frame (and/or other 'pro frames') may be presented once, twice, 10 times, etc., while the public safety frame (and/or other 'con frames') could be presented the same or any other number of times. Studies of communication effects can be classified by the relative frequency with which participants are exposed to each side's messages: (1) *asymmetric one-sided* studies in which individuals receive a frame (or multiple frames) representing only one side of the issue (e.g., the free speech frame one or more times); (2) *dual* (or symmetric) studies in which individuals receive opposing frames from each side of the issue in equal quantity (e.g., the free speech and public safety frames once apiece) and (3) *asymmetric two-sided* studies in which individuals receive opposing frames in unequal quantities (e.g., the free speech frame twice and the public safety frame once). Asymmetric one-sided studies are therefore 'non-competitive' because individuals are exposed to only one side of a controversy, whereas dual and asymmetric two-sided designs model different 'competitive' environments.

The other dimension of competition is the *strength* of the frames – this gets at the likely effectiveness of the frame in actually influencing public opinion. In reference to our earlier psychological model (perceived), strength refers to the extent a frame emphasizes relatively available and applicable considerations. While strength presumably lies on a continuum, we simplify by referring to 'weak' frames that are typically seen as unpersuasive and 'strong' frames that are compelling. For example, most people likely regard 'maintaining public safety' as a stronger frame for prohibiting a hate group rally than 'preventing litter on the streets'. A study can employ strong frames exclusively, weak frames exclusively, or a mixture of strong and weak frames.

Table 24.1 crosses our dimensions of competition to create a typology of mass communication environments. (We will shortly discuss the cell entries.) Taken together, variations in the relative frequencies and strengths of frames combine to yield eight possible competitive contexts (a ninth cell is not applicable). The number of possible mixes of communications within each of these cells, in terms of frequency of repetition and relative strengths, is infinite (e.g., consider the asymmetric dual sided strong design can include 1 pro-2 con, 2 pro-3 con, 1 pro-18 con and so on). That said, in other published work, we explored 16 possible mixes – at least one that falls into each cell – in two laboratory experiments (one on the issue of urban growth and the other on a proposed hate group rally) (Chong and Druckman, 2007b). We find that, in competitive contexts, frame strength plays the most decisive role; a frame's relative strength matters more than its repetition (regardless of the side of the argument endorsed by the frame). Even when the weak frame is heard multiple times against a single exposure to the strong frame, the strong frame wins. Moreover, weak frames, when competing against opposing strong frames, sometimes backfire, pushing respondents in the direction that is opposite to its intended effect.

The importance of frame strength also emerges in Druckman's (2010) study of support for a

Table 24.1 Competitive communications

	Competitive situations		
	Asymmetric one-sided (exposure to just one message)	*Dual (exposure to both messages in equal quantities)*	*Asymmetric two-sided (exposure to both messages in unequal quantities)*
Strong messages	• Economic benefits • Social costs	• Economic benefits – social costs	• None in experiment. (*Example:* Economic benefits – social costs – economic benefits)
Weak messages	• Corruption • Corruption-morality	• Corruption-entertainment	• None in experiment. (*Example:* Corruption – morality – entertainment)
Strong and weak messages	• n/a	• Social costs-entertainment • Corruption – economic benefits	• Corruption – economic benefits – morality

publicly funded casino. Based on pre-test data that asked individuals to rate the effectiveness of distinct frames, Druckman identified two strong frames: a pro-economic benefits frame (revenue from the casino will support educational programs), and a con-social costs frame (casinos lead to addictive behavior). He also found three weak frames: a pro-entertainment frame, a con-corruption frame and a con-morality frame. He then exposed a distinct set of participants to nine combinations of these frames in the context of an election day exit poll in Illinois, at the conclusion of the 2006 Illinois gubernatorial campaign (on 7 November) ($N = 309$). The exact mixes, and where they fall in terms of our conceptual framework, appear in the cells of Table 24.1.

A summary of the results appears in Figure 24.1, which illustrates the shift in average opinion, by frame exposures, relative to a control group that received no frames. In every case, the strong frame moved opinion and the weak frame did not. For example, the final condition in Figure 24.1 shows that a single exposure to the strong economic benefits frame substantially moved opinion (by 41%) even in the face of two weak opposing frames. As in the urban growth and hate rally experiments, strength proved more important than repetition.

These results beg the question of what lies beyond a frame's strength. Why are some frames perceived as strong and others weak? Even the large persuasion literature offers little insight: 'Unhappily, this research evidence is not as illuminating as one might suppose … It is not yet known what it is about the "strong arguments" … that makes them persuasive' (O'Keefe, 2002: 147, 156). The little research thus far does not paint a particularly flattering portrayal of strength perceptions. For example, Arceneaux finds that 'individuals are more likely to be persuaded by political arguments that evoke cognitive biases' (2009: 1). Specifically, he reports that messages that highlight averting losses or out-group threats resonate to a greater extent than do other, ostensibly analogous arguments. Druckman and Bolsen (2011) report that adding factual information to messages does nothing to enhance their strength. They focus on opinions about new technologies, such as carbon nanotubes (CNTs). Druckman and Bolsen expose experimental participants to different mixes of frames in support of and opposed to the technology. For example, a supportive frame for CNTs states 'Most agree that the most important implication of CNTs concerns how they will affect energy cost and availability'. An example of an opposed frame is 'Most agree that the most important implication of CNTs concerns their unknown long-run implications for human health'. Druckman and Bolsen report that each of these two frames shifts opinions in the expected directions. More importantly, when factual information is added to one or both frames (in other conditions) – such as citing a specific study about energy costs (e.g., a study shows CNTS will double the efficiency of solar cells in the coming years), that information does nothing to add to the

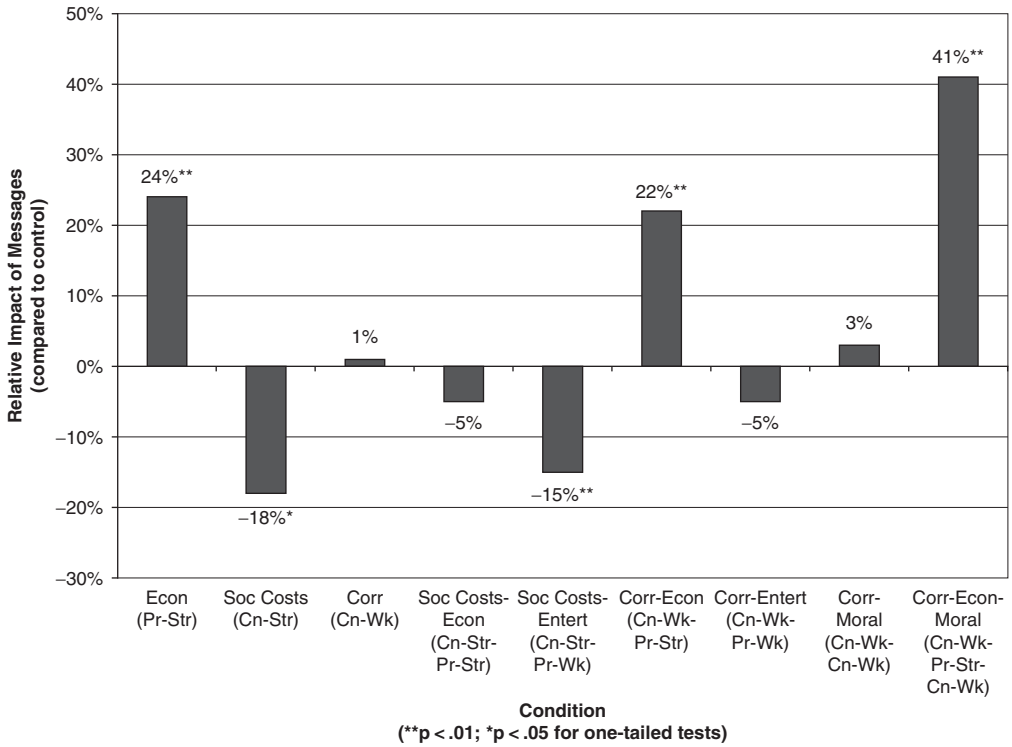

Figure 24.1 Likelihood of Casino support

power of the frame. In short, frames with specific factual evidence are no stronger (in their effects) than analogous frames that include no such evidence. This is troubling insofar as one believes scientific evidence should be accorded greater credibility.

Other work on frame strength suggests it increases in frames that highlight specific emotions (Petersen, 2007), include multiple, frequently appearing, arguments (Baumgartner et al., 2008) and/or have been used in the past (Edy, 2006). The initial studies on frame strength make clear that one should not confound 'strength' with 'normative desirability'. What exactly is normatively desirable lies outside the purview of this essay, but is a topic that demands careful consideration.

INTRODUCING TIME

As experimental designs become more realistic in taking account of political competition, they need also examine the role that time plays in modifying communication effects. Given the dynamic nature of political campaigns, it is surprising the vast majority of communications research are one-shot studies that examine how respondents react in the immediate aftermath of a treatment, such as exposure to a news editorial on a political issue. In reality, individuals are likely to be exposed to a stream of messages as competing sides make their case to the public, and the effect of a specific message is likely to depend on when it is received in the sequence of communications, and whether the effect is measured immediately or later in the campaign. Therefore, the results of an experiment should be interpreted within this longer-term temporal framework even if the experimental design is a one-shot study; otherwise, we risk misinterpreting the significance of the observed effects.

Participants do not come to experiments tabula rasa, nor are the effects of experiments likely to be permanent. When an experimental participant receives a message about a controversial political issue, the message is viewed through ideological and partisan predispositions and received against messages encountered previously (outside of the context of the experiment). Researchers routinely

control for the respondent's prior values in examining the impact of the treatment, but they rarely have the ability to control for past exposure to information on the issue.

At the other end of the temporal continuum, researchers have rarely monitored the post-treatment trajectory of opinion. The limited available evidence of the longevity of communication effects suggests the opinion change induced by information, experiences or persuasive messages can be fleeting. In the few experimental studies of communication effects that retest opinions, the effects induced by the treatment vanished after several days (e.g., de Vreese, 2004; Druckman and Nelson, 2003; Mutz and Reeves, 2005; Tewksbury et al., 2000; cf. Iyengar and Kinder, 1987: 24–6).

These dynamics are consistent with several observational studies and field experiments showing that movements of public opinion in response to political events are often short lived as citizens give less weight to events as they recede into the past (e.g., Gerber et al., 2007; Hibbs, 2008). However, a more mixed picture of opinion change emerges in Shaw's (1999) comprehensive analysis of the effect of newsworthy campaign events on presidential candidate preferences. Shaw found variable rates of opinion change and decay over a brief 10-day interval following an event. Some events (e.g., retrospective and prospective messages) had minimal effects on public opinion while many other events (e.g., value appeals by the candidates, vice presidential debates, actions to increase party unity) had significant but temporary effects, with public opinion quickly spiking up and down in the days following the event. Only national conventions, presidential debates and scandals and blunders involving the candidates appeared to have a more sustained effect on preferences.

As the authors of these and other studies surmise, the rate of opinion decay likely varies across issues and individuals (also see Matthes, 2008; Albertson and Lawrence, 2009). In Shaw's study, transitory effects were more apparent on issues that tended to get limited rather than extended and repeated coverage in the media. Minimal but enduring effects are consistent with what political psychologists refer to as 'online processing' of information while transitory but relatively large effects (spikes in opinion change) seem to reflect 'memory-based' opinion processes. We elaborate on these concepts below in discussing a dynamic theory of opinion change over time.

A Conceptual Scheme for Analyzing Communication Effects Over Time

In this section, we present a general conceptual framework that describes the dynamics of opinion change at any stage of a campaign in relation to the timing of experimental observations of opinion. If we define time *t* as the period in which we first expose the respondent to a treatment followed immediately by a measure of opinion, this allows us to divide the campaign at *t* to create a pre-*t* period and a post-*t* period. We further subdivide these periods according to whether additional communications (relevant to the topic of study) were received in the pre-*t* and post-*t* periods.

The four states in Table 24.2 represent all possible sequences of exposure to communications from the start of the campaign to time *t*, and from *t* to the end of the campaign (setting aside no exposure altogether). Individuals in cell 1 have not received any communications about the issue prior to *t*, whereas those in cell 2 have received information about the issue prior to the latest message at *t*. Individuals who receive no further communications on the issue in the post treatment period fall in cell 3, while those who are exposed to additional messages are in cell 4. Therefore, any individual's exposure to mass communications over the duration of the campaign can be represented by a combination of two cells drawn across the two periods. For example, an individual who received no message before *t* and multiple messages after *t* would fall in cells 1 (pre-*t*) and 4 (post-*t*). (Individuals who receive no messages throughout the course of the campaign are the

Table 24.2 Time and communication effects

		Exposure to messages	
		No messages	*Mix of messages*
Time	*Before time t treatment*	(1) Prior beliefs and values moderate effects.	(2) Pre-treatment exposure to messages moderates effects.
	After time t treatment	(3) Effects endure or decay over time.	(4) Post-treatment exposure to messages modifies effects.

residual group outside of this scheme; in an experiment, these individuals would be in the control group.)

Most studies of communication effects have been single treatment tests without regard for whether participants fall in cell 1 or cell 2. Individuals who begin the study in the state described by cell 1 are reasonably blank slates because they have learned nothing about the issue. Their reactions to the message, however, will still be affected by the values they hold, which is why researchers routinely control for values that are relevant to the issue when estimating the effect of the message (e.g., Brewer, 2001; Chong and Druckman, 2007a,b; Shen and Edwards, 2005).

Researchers however have generally ignored the potential impact of prior exposure to relevant messages (cell 2 in Table 24.2). Individuals in cell 2 who were exposed previously to discussions of the test issue might react differently to the treatment than those encountering the issue for the first time. In particular, their opinion on the issue at the start of the study may already reflect the influence of the argument being tested, thus making them immune to further persuasion by that message. However, this means only the argument was ineffective in the study, not in reality (Slothuus, 2008). As Gaines et al. explain, 'there is inevitably some possibility that respondents enter the experiment having already participated in a similar experiment, albeit one occurring in the real world' (2007: 13, 17).

Few studies have examined the opinion processes represented in cells 3 and 4. Cell 3 describes a post-treatment trajectory in which individuals do not receive any additional exposure to communications. In this case, we are interested in the durability of effects – to the end of the campaign or policy debate – in the absence of further stimulation. The original effects may vanish on their own or, alternatively, they may persist or become even stronger. In any event, these post-treatment updates may cause us to reassess the significance of the original findings. Most of the observational and experimental studies we cited earlier identify significant decay of effects of events and information over time.

Finally, cell 4 describes individuals who receive additional messages about the issue following treatment at time *t*. There has been mainly speculation, but little empirical work, on the effects of communication under different conditions of democratic competition.[13] In research on framing effects, for example, all work involving multiple frames has been conducted in a single period (e.g., Chong and Druckman, 2007b; Druckman, 2010; Hansen, 2007; Sniderman and Theriault, 2004), with participants encountering all frames in one session rather than over time. When a series of messages representing opposing positions is received over time, the effect of individual messages depends on rates of learning and decay of opinion under the pressure of competition.

Dynamic Theory of Opinion Change

To accommodate the dynamics of opinion change over time, we expand on the theory of competitive frames discussed in Chong and Druckman (2007a,b) to explain the magnitude of communication effects when individuals receive different mixes of messages in a single session. According to this theory, effects depend on the interaction of three factors: (1) the strength of the messages; (2) rates of exposure to (i.e., competition between) the arguments of opposing sides and (3) individual differences in attitudes, knowledge and motivation that affect how messages are processed.

Introducing time raises the general issue of whether messages have the same influence regardless of when they are received. For example, strong frames prevail over weak frames when they are received simultaneously (e.g., free speech trumps litter in the street), but will this pattern hold when they are received at different times? By the same token, dual frames of equal strength offset when received simultaneously, but will competition moderate opinion if the opposing messages are received sequentially over time? The answer to such questions depends on our assumptions about rates of learning and decay of opinion over time. If the effect of exposure to individual frames is independent of time – that is, there is no learning or decay of effects over time – then opinion depends only on the combination of messages received, not on their sequence or the interval between messages. However, if learning and decay of opinion vary systematically across individuals, then time may qualify conclusions drawn about the influence of strength and competition when messages are received simultaneously.

We expect significant individual differences in how people process the information they receive from a series of messages about an issue. The major distinction we hypothesize is between individuals who engage in either online or memory-based processing of information (Hastie and Park, 1986; for a review, see Druckman and Lupia, 2000).[14] As mentioned above, those who employ online processing of information routinely integrate considerations conveyed in a message about an object into an overall evaluation. This summary evaluation of the object is stored in memory, while the original considerations that contributed to this tally may be forgotten. When asked subsequently to reveal their attitudes toward the object,

individuals do so by retrieving and reporting their online tally, as opposed to recalling the specific pieces of information that contributed to this summary evaluation (Wyer and Srull, 1989).

Memory-based information processors, by contrast, store considerations about the object in memory and draw upon those they can remember when asked their opinion about the object. Imperfect recollection of those considerations will lead to responses that are heavily dependent on the considerations that are available at the time of the survey. 'When a judgment is required, individuals retrieve as much of this information from memory as they can, evaluate the individual pieces of information, and then synthesize these "mini-assessments" into a global evaluation based on that retrieved information . . . [They are] dependent on recalled information' (Bizer et al., 2006: 646).

Processing mode creates variation in the opinions expressed at any moment (e.g., Lodge et al., 1989; McGraw and Dolan, 2007; McGraw et al., 1990), but less frequently noted is its effect on the durability of opinions. Attitudes formed online are stronger (Bizer et al., 2006), presumably making them more stable and influential (Bizer et al., 2006: 647; Krosnick and Petty, 1995; Tormala and Petty, 2001).

Those who engage in online processing of information therefore should respond differently to post-treatment events than those who use memory-based processing. First, individuals who process information online should exhibit more attitude stability than memory-based processors between time t and $t + 1$ if no additional messages are encountered in the post-treatment period. At $t + 1$, online processors will simply summon the online evaluation of the issue they formed and stored in memory at time t (we presume, here, the time t evaluation was affected by the messages at time 1). Memory-based processors, on the other hand, are unable to elicit an online tally, but instead have to draw upon their imperfect recollection of the messages they were exposed to earlier in forming an opinion on the spot (see Albertson and Lawrence, 2009; Matthes, 2008).

If additional messages are encountered in the post-treatment period, online processors will update the attitudes they formed at time t, but their evaluation of the latest messages will be colored by their prior attitudes (which, as noted, tend to be strong). The impact of the latest message received at time $t + 1$ will be inversely related to the strength of the attitude formed at time t. In general, online processors should be less likely to be influenced by communications at any point in time because they hold stronger attitudes than memory-based processors (see Druckman and Nelson, 2003; McGraw and Dolan, 2007; Tormala and Petty, 2001). Moreover, online processors who are exposed to a sequence of messages over time should become increasingly resistant to effects because each exposure provides more information, stimulates further evaluation and strengthens attitudes toward the object. Memory-based processors, in contrast, rely on their recall, which favors information that was received recently.

Empirical Studies of Over-time Effects

One of the few explicit tests of a pre-treatment effect comes from a separate analysis of the data from Druckman's (2010) aforementioned casino study. Recall the study was implemented in the context of the Illinois gubernatorial campaign.[15] At the start of that campaign, the publicly funded casino and its budgetary impact had the potential to be a central issue. However, the emergence of major political corruption charges (on September 9) transformed the campaign, and ended up overwhelming all other issues. In Figure 24.2, we chart campaign coverage based on a content analysis of the *Chicago Tribune*.[16] The figure shows the coverage of the casino and the troubled budget dramatically shrank as corruption coverage grew to the point of receiving nearly half of all campaign coverage.

We expect this early coverage of the casino, with its focus on the casino's positive budgetary implications,[17] to affect the opinions of attentive online processors. These voters may have formed their casino initial opinions early in the campaign and then maintained/accessed these attitudes when later asked about the casino (in the exit poll). If this is the case, the economic frame in the survey experiment may *not* affect attentive online processors since their opinions have already been influenced by the frame (i.e., been pre-treated). They also might, on average, be more supportive of the casino since the economy frame is a strong-pro frame.

To test this, we define attentive voters in our sample as those who fall above the median in the amount they report reading the front page and/or metro section of a local paper, on average (see Druckman, 2004).[18] To distinguish online processors from memory-based processors, we use the well-established 'need to evaluate' (NE) individual difference measure (e.g., Jarvis and Petty, 1996; McGraw and Dolan, 2007: 311–2; Tormala and Petty, 2001). We labeled those who scored below the median as 'memory-based' processors and those above the median as 'online processors'. Attentive online processors were those voters above the median on both variables ($N = 98$).

Figure 24.3 displays the percentage shift in support for the casino, relative to the no-frame

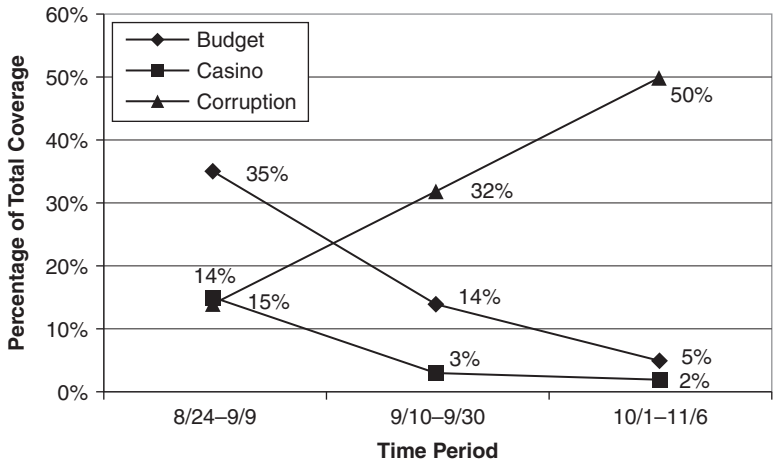

Figure 24.2 Issue emphasis

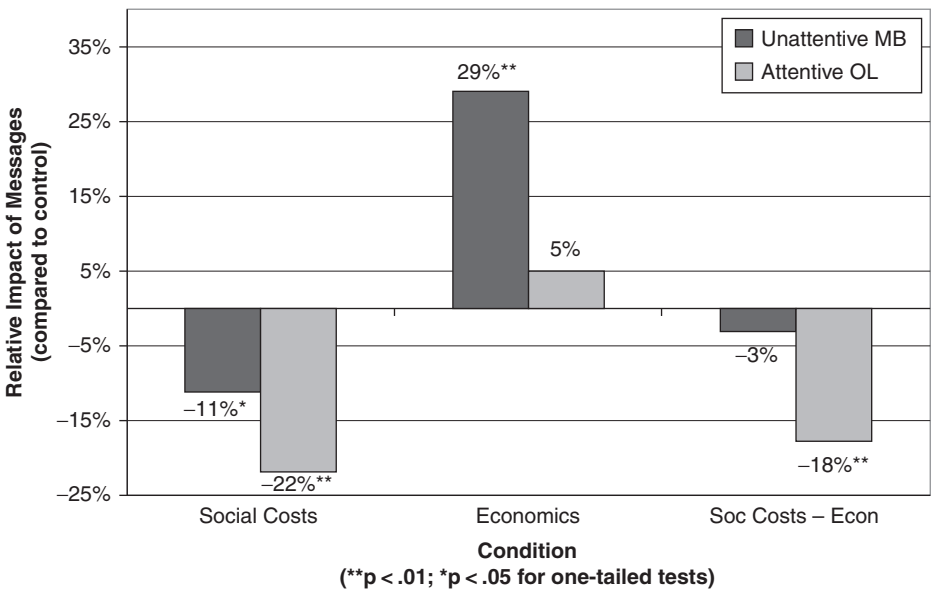

Figure 24.3 Likelihood of Casino support (pre-treatment effects)

control group, for the distinct groups of voters who were exposed to the social costs, economics and both social-costs and economic frames, respectively. We focus on these frame conditions since our interest lies in the impact of the strong-pro economic frame, which is the flip side of the strong-con social costs frame.[19] The results support our expectation that attentive online processors experienced a pre-treatment effects – relative to the control, they were unaffected in the economic frame condition and significantly affected by the social costs frame when it was paired with the economic frame. This suggests that attentive online voters in the no frame control group were pre-exposed to and affected by the economic frame and thus, further exposure to that frame did not

further move opinion (e.g., yet another exposure had no effect). In contrast, the experimental economic frame significantly influenced non-attentive and/or memory-based voters who were not pre-treated.[20] We also find the attentive online processors were, on average, more supportive of the publicly funded casino with 30% of them supporting the casino compared to 21% of others.[21]

These results point to the importance of considering time and processing mode when exploring opinion formation. The effect of early exposure sustains for online processors, but not memory-based processors. From a methodological perspective, the findings suggest that the failure to find an effect in an experiment does not necessarily indicate that the communication did not have an effect – in fact, it may be just the opposite.

The pre-treatment results imply that communication effects display greater inertia or longevity among online processors. Druckman et al. (2010) explore this in an experiment where participants watched a political debate involving two house candidates from a district different from their own. Experimental participants strongly preferred one of the candidates' issue positions (e.g., they agreed with his stance on Iraq), and the other on images (e.g., they viewed him more as a strong leader).[22] We refer to these candidates, respectively, as the 'issue candidate' and the 'image candidate'.

In the experiment, prior to watching the candidates' debate, the participants (randomly) received a news article about the campaign that emphasized *either* the importance of issues or images (i.e., an issue or image frame) (see Druckman et al., 2010, for design details). After viewing the debate, participants reported their likelihood of voting for the candidates on a seven-point scale with higher scores moving toward a preference for the 'issue' candidate. Participants then responded to this same question two-weeks later, thereby allowing for an examination of over-time communication effects. We differentiate online processors from memory-based processes by employing a median split of the aforementioned need to evaluate variable.

Figure 24.4 charts the average percentage increase in the likelihood of voting for the issue candidate for those exposed to the issue frame compared to those exposed to the image frame (i.e., on the 1–7 scale, we report the percentage difference in opinion between the two groups), for all respondents, memory-based processors and online processors, at the first session and the second session. The percentages can be seen as a measure of the substantive impact of receiving one (issue) frame instead of the other (image). The figure accentuates the dramatic differences at the two points in time. At the first session, respondents (both online and memory-based processors) exhibit a roughly statistically significant 15% difference in opinions due to the frame received. However, at the second session, the framing effect sustains for online processors (and increases to 21%), while nearly disappearing for memory-based processors (to 5%). These results are consistent with our theory that communication effects endure for those who engage in online processing but fade for memory-based processors (also see Chong and Druckman, 2010). They also provide an important qualification to previous studies suggesting constant rates of decline across the population.

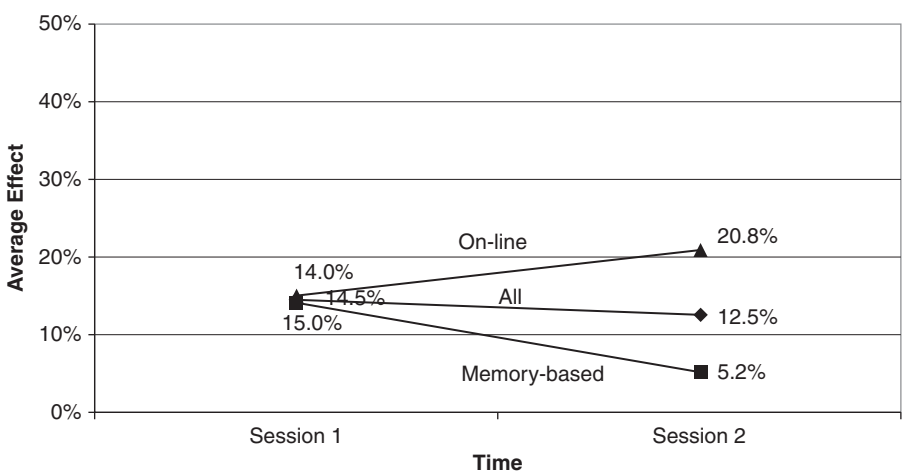

Figure 24.4 Communication effects over time

The results from the two experiments we presented are a preliminary indication of the importance of studying over-time processes. There are of course many avenues for future research including studying the flow of communications over-time (with multiple exposures), and pinpointing the role of motivated reasoning in over-time processes.

CONCLUSION: MAKING CONNECTIONS

Micro–Macro Relationships

Experimental results at the individual level demonstrate significant communication effects followed by rapid decay. The volatility of opinion exhibited in micro communications research appears to contrast with the general stability of aggregate public opinion on political issues. Although numerous factors may contribute to the ostensible micro–macro discrepancy, we suspect variation in opinion stability across studies can be traced to systematic differences in the issues examined and the types of information processing engendered by these issues. Aggregate studies focus on opinion stability and change on long-term issues (e.g., Gallup's most important problem surveys) that, by definition, have been salient for an extended duration. Wood and Vedlitz observe that: 'systemwide definitions of most issues remain relatively constant through time' (2007: 553), the implication being the prominence and understanding of such issues rarely changes (see Baumgartner et al., 2009: 175–8). It also may be characteristic of such issues, owing to their enduring salience, that they elicit more online processing of communications. As a result, individuals tend to maintain their opinions over-time. They discount new information and are less susceptible to framing effects (Lecheler et al., 2009), because online processors are more likely to engage in motivated reasoning or biased processing of new information (e.g., Druckman and Bolsen, 2011).

Many of the individual studies that report decay, in contrast, focus on attitudes toward relatively novel and specific issues that enjoy heightened salience for a short time period such as attitudes about a particular ballot proposition (Albertson and Lawrence, 2009), a competitive election involving a new candidate (e.g., Gerber et al., 2007) or regulation of hog farms (Tewksbury et al., 2000). Prior opinions are more likely to be weak or non-existent on such questions and, therefore, more amenable to influence by persuasive communications. Significant short-term effects have also been observed on more abstract and impersonal subjects, such as people's trust in institutions (e.g., de Vreese, 2004; Mutz and Reeves, 2005), that may be more likely to induce memory-based processing (see McGraw and Dolan, 2007). In short, we speculate that varying levels of stability in macro- and micro-level studies of opinion may stem, in part, from differences in the issues explored and accompanying differences in how people process information about those issues.

Normative Implications of Communications Effects

Finally, what are the normative implications of elite influence, particularly the ability of opinion leaders to influence public opinion through framing strategies? Early research on elite influence suggested political elites can arbitrarily manipulate popular preferences to serve their own interests. It is this perspective, with all the negative connotations it entails for democratic processes, that led researchers to search for mechanisms that constrain influence (e.g., source credibility, deliberation, competition) and provide individuals with defenses against framing. More recently, researchers have come to recognize that framing and related communication effects are intrinsic to the formation of attitudes. Public opinion formation *always* involves the selective acceptance and rejection of competing frames containing information about candidates and issues. Discussion and debate over the appropriate frames for conceptualizing an issue leads to common (albeit often competing) perceptions and judgments about the consequences of a policy (Chong, 1996). Whether the public opinion that emerges from this process is an independent force in the democratic process is a question separate from whether framing has occurred, because surely it has.

Framing effects are a liability if individuals never acquire a basis for discriminating among frames and remain constantly vulnerable to changing representations of issues. Alternatively, individuals who reject other perspectives out of hand suffer from closedmindedness. Opinion stability also can stem from motivated reasoning where individuals oppose information that is inconsistent with their prior opinions even if using that information might improve the quality of their opinions (e.g., by making their opinions more consistent with their values) (e.g., Druckman and Bolsen, 2011). In short, at one problematic extreme we have citizens without sufficiently strong attitudes and cognitive defenses to resist elite manipulation, while at the other we have citizens whose attitudes are held so rigidly that they seek only to reinforce their existing views.

It is not apparent which portrait of the public is less desirable.

This suggests that, in the ideal, we desire citizens who are selective in following arguments that lead them to base their opinions on 'desirable' criteria. The problem is that no consensus has been reached about what this ideal should be and, in fact, little attention has been given to this issue (a notable attempt to define it is Lau and Redlawsk [2006]; for detailed discussion see Druckman et al. [2009]). Moreover, attempts that are made sometimes contradict one another; for example, for some, information short-cuts are treated as improvements in the quality of decisions (e.g., compared to opinions based on minimal information [Popkin, 1994]) and thus desirable, while others view reliance on cues as leading to poor decisions by most normative standards (e.g., Kinder [1998]; also, compare Iyengar and Kinder [1987] and Lenz [2009] on priming).

These reflections on framing and priming lead us to conclude that normative assessments of communication effects must evaluate details of process and substance in specific instances as opposed to making wholesale judgments. In terms of process, it is important to be realistic in one's normative standards for the public. It seems desirable that we expect citizens to fall somewhere between conscious selection of information in forming opinions and engaging in fully rational consideration of all conceivable considerations. At the same time, citizens are presumably best off if they engage in minimal motivated reasoning which can render conscious selection highly biased. Meeting these processing goals will depend, likely to a greater extent than citizens' abilities, on whether the political context stimulates suitable motivation and opportunity (e.g., by ensuring sufficient competition). Deliberative processes can be engineered to ensure exposure to balanced information and arguments and to create a context that is conducive to evaluating arguments representing competing positions.

In terms of substance, identifying the basis on which citizens should form their preferences is challenging, lest theorists end up making unrealistic, ill-defined and elitist demands on citizens. As Lupia explains, 'those who write about voter competence might recognize the differences between their interests and the interest of the people whom they study. Measures of competence that correspond more closely to the kinds of decisions voters actually face can yield social benefit' (2006: 219).

Our perspective leads us to focus on the nature of the frames on which individuals base their opinions. We introduced the distinction between strong and weak frames, with the exclusive focus being on the citizens' perceptions of strength. One could apply an analogous distinction between normatively desirable and undesirable frames. Desirable frames presumably have some logical basis and are correlated with an objective reality – for example, to return to the example of the proposed housing development we began with, those who frame their support in terms of future economic benefits should be willing to alter their judgments if no valid studies can support claims that the project will have an impact on local employment.

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Parts of this essay come from Chong and Druckman (2007c, 2011a,b) and Druckman (2010, 2011).

NOTES

1 We focus exclusively on the *effects* of mass communications and not on the construction of those communications such as agenda-building of framing-building (Scheufele, 1999; also see Chong and Druckman, 2011a,b).

2 They included measures of content from four local papers, *The New York Times*, *Time*, *Newsweek* and evening news broadcasts from NBC and CBS.

3 Iyengar and Kinder were drawing on priming work in social cognition, which is likely a distinct psychological process (see Druckman et al., 2009).

4 For a list of the journals included, contact the authors.

5 There also have been numerous review articles that detail the evolution of this work (e.g., Tai, 2009).

6 Neither problem is attributable to Iyengar and Kinder (1987) or Iyengar (1991), but rather reflect whatever dynamics drove the development of the subsequent research trajectory.

7 We could expand the list of related (and possibly identical) concepts to include 'learning', 'scripts', 'schemas', 'heresthetics' and so on.

8 Iyengar and Kinder (1987) largely use non-student participants, however, and also compliment their experiments with observational survey evidence.

9 Without loss of generality, *i* can be thought of as a dimension (Riker, 1996), a consideration (Zaller, 1992), a value (Sniderman, 1993) or a belief (Ajzen and Fishbein, 1980).

10 We focus exclusively on what scholars call 'emphasis' frames, 'issue' frames or 'value' frames, rather than equivalency frames (for discussion, see Druckman, 2011).

11 Many other agenda setting studies explore the effect of coverage on individuals' perceptions of the most important problems facing the country (rather than during a campaign). In this case, the news outlet can be construed as framing the country's problems.

12 Along similar lines, the extent to which persuasion and the other concepts differ remains unclear.

13 One partial exception is Mitchell and Mondak's (2007) paper on candidate evaluation.

14 See Redlawsk (2001) for a hybrid model.

15 Also see Slothuus (2008).

16 Details on the content analysis and other analysis details are available from the authors.

17 The vast majority of discussions of the casino emphasized its positive budgetary implications (i.e., it used an economy frame).

18 It turns out those above the median read a paper at least five days a week.

19 We were concerned that all respondents may have been pre-treated by the corruption frame, given the immense focus on the campaign on corruption (see Figure 24.2). For this reasons, we merged the control group with the corruption only frame group, and the economic only frame group with the economic-corruption frame group.

20 It is not clear why the social costs frame alone had a notably large impact on attentive online processors.

21 We characterized anyone as reporting a score of 5, 6 or 7 as being 'supportive' and we generated the percentages from a regression controlling for other variables. The difference in support is significant.

22 This was confirmed in both pre-tests and in the data from the experiment.

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