Public Opinion, Thinly Sliced and Served Hot

GORDON R. MITCHELL
University of Pittsburgh, USA

Perception Analyzer dial-meter technology has been increasingly deployed to track and display aggregate plots of focus group members' real-time responses to argumentation in televised political debates convened in Australia, New Zealand, the United Kingdom, the United States, and elsewhere. This article examines data cited to establish the Perception Analyzer's reliability and validity; traces the tool's historical roots to a Cold War machine nicknamed "Little Annie"; explores recent public controversies surrounding the tool's use; and reflects on how real-time dial metering shapes the political terrain through a hidden curriculum that teaches contestable notions of public debate spectatorship and citizenship.

Keywords: Theodor Adorno, argumentation, debate, dial meter, Frank Luntz, Perception Analyzer, political communication, presidential elections, public argument, public opinion polling, public deliberation, social psychology, rhetoric

On June 3, 2007, as part of an ambitious pilot test of advanced communication technology, the Cable News Network (CNN) online broadcast of the Democratic primary presidential debate in New Hampshire enmeshed its audience in a visual cornucopia. Below the live video feed carrying the candidates' remarks, Internet surfers saw an aesthetically gripping graph purporting to show audience reactions to the argumentation as it unfolded, in real time. This novelty proved popular with viewers and television executives alike, fueling expanded use of continuous response measurement (CRM) overlay technology in the 2008 and 2012 U.S. presidential election cycles (see Figure 1; Schill & Kirk, 2009, pp. 158–159). Concomitantly, U.S. political consulting firms stepped up marketing of the CRM overlay tool abroad, helping to spur integration of the real-time audience opinion measurement device in political debates televised in Australia, New Zealand, and the United Kingdom (Davis, Bowers, & Memon, 2011, p. 1).

Gordon R. Mitchell: gordonm@pitt.edu
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Figure 1. *CNN 2012 presidential debate dial-meter reporting (click here to play).*
Source: "Debate Night in America," October 2, 2012, Cable News Network.

The stunning visuals enabled by CRM overlay technology scream "cutting edge." Yet the tool has very old roots, as an enduring challenge in the Western rhetorical tradition has been discerning the extent to which measured audience response reveals a speech's influence. Protagoras' "human measure" fragment laid the foundation for this challenge in fifth-century BC Greece. Provided with sufficient deliberative opportunity, Protagoras (1972) suggests, humans can work together cooperatively, through argumentative give-and-take, to reach reliable judgments about the relative value of things (see also Mendelson, 2002; Schiappa, 1991). Formal debates in the Roman Senate extended this idea. Legislators used their own bodies as measurement tools, registering votes by rising from their seats and exiting through specially designated doors.

BALLOT

Members of the audience are asked to express their opinion on the resolution both before and after hearing the debate. The ballots will be collected before the open forum, and the opinions will be tabulated and announced at the conclusion of the program. We shall thus learn not only how the audience "divides" on the question, but whether opinion changes during the course of the debate.

BEFORE HEARING THE ARGUMENT

Please check your opinion in the appropriate square.

☐ I favor the dole rather than charity.

☐ I am undecided.

☐ I favor charity rather than the dole.

AFTER HEARING THE ARGUMENT

Please check your opinion in the appropriate square.

☐ I favor the dole more strongly than before.

☐ I favor the dole.

☐ I am undecided.

☐ I favor charity.

☐ I favor charity more strongly than before.

The debaters will be glad to have you write your comment or criticism on the other side of this page.

Figure 2. Public debate audience shift ballot.
Source: William Pitt Debating Union archives, University of Pittsburgh.

In the early 20th century, paper ballots measured shifts of audience opinion before and after student-led public debates (see Figure 2). In the same era, communication researchers developed devices like the "psycho-galvanometer" to measure audience responses to stimulus, bypassing notoriously unreliable self-reporting procedures (Malin, 2009, 2011). A similar scientific impulse drove the Program

Analyzer project, led by American sociologist Paul Lazarsfeld and Columbia Broadcasting System executive Paul Stanton. Working together in the Rockefeller Foundation-funded Princeton Radio Research Project (1937–1943), Lazarsfeld and Stanton developed and refined "Little Annie" (their informal moniker for the Program Analyzer), a tool for measuring audience responses to radio programming in content areas such as music, drama, and political news (Hallonquist & Suchman, 1944). Early versions of Little Annie featured three push buttons that study participants pressed repeatedly to register their level of satisfaction with the programming content under investigation. Later their push-button data was aggregated to form detailed response graphs (see Figure 3).

Figure 3. Program Analyzer focus group.
Source: J. G. Peatman & T. R. Hallonquist (Eds.), (1945). The patterning of listener attitudes toward radio broadcasts. *Palo Alto, CA: Stanford University Press.*

Subsequent versions of the Program Analyzer substituted Little Annie's three-push-button interface with a more sophisticated and granular dial-meter device that enabled researchers to harvest audience feedback on a 9- or even 100-point scale (the middle setting on each device indicated a neutral standpoint; the extremes represented intense approval and disapproval of the given content). This path of technological development led directly to the Perception Analyzer,[1] today a prominent brand name in CRM technology. The original Program Analyzer gathered data about listeners' real-time opinions when they pushed one of three buttons every couple of seconds. Today's Perception Analyzer's dial-meter interface forces even more extreme *thin slicing* (Ambady & Rosenthal, 1992) of audience reaction by harvesting a constant stream of evaluative data from participants. In effect, the Perception Analyzer's dial-meter interface presumes that during a performance, audiences make scores of consecutive micro-judgments on the quality of what they perceive in a series of thin time slices. Later sections of this article explore possible implications of this thin slicing framework for understanding human judgments and citizenship practices.

Election debates are increasingly influential in the political life of democratic societies, as recent debates in Kenya, Japan, and Iran show. Such trends open new export markets for the fast-growing U.S. political consultancy industry, and also make analysis of CRM overlay technology especially timely (see Harding, 2009; Stockman, 2013). Heightening the salience of this exigency is what Harold Innis (1951, pp. 33–60) calls "the bias of communication"—how particular media structure our lives in ways that may be difficult to detect. Innis' insight (1951, p. 34) that "we must be continually alert to the implications of this bias and perhaps hope that consideration of the implications of other media to various civilizations may enable us to see more clearly the bias of our own" serves as a poignant keynote for the present study. In what follows, a review of advertising pitches and practitioner justifications advanced on behalf of CRM will pave the way for engagement with scholarly literature addressing the Perception Analyzer's internal and external validity as a tool to measure audience opinion. A synthesis of these strands will then explore how the tool's "hidden curriculum" freights decisions to integrate it into public debate television broadcasts with potentially weighty pedagogical and political baggage.

The LuntzGlobal "Perfection Guarantee"

An Oxford–Northwestern public debate, conducted during the 1988 British debating tour of the United States and sponsored by the Annenberg Foundation, brought leading student debaters together with noted experts to debate a motion exploring the trade-off between political candidates' right to privacy versus the public's right to know (C-SPAN, 1988; see Figure 4).

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[1] *Perception Analyzer* refers to a specific continuous audience response measurement tool marketed and distributed by Dialsmith, Inc. See http://www.perceptionanalyzer.com.

Figure 4. 1988 televised public debate moderated by Frank Luntz (click here to play).
Source: "Public's Right to Know & Candidate's Right to Privacy," April 11, 1988, C-SPAN.

The debate format encouraged audience participation. Moderator Frank Luntz (1988), himself a former Oxford Union debater, explained at the outset, "the purpose of tonight's debate is for you in the audience to get up and to participate. And that means you have to get up out of your seats and intervene on the speakers when they are in the process of speaking." Luntz (1988) further exhorted: "if the audience doesn't participate—if you just sit here and watch and you don't get involved you will not get the most out of this program." More than 20 years later, Frank Luntz continues to reprise this moderator role on national television, where he frequently convenes focus groups of voters to watch political candidate debates, studies their responses, and shares his analysis on live national television. For these efforts, he has been called the "Nostradamus of polls" and a "master of words" (LuntzGlobal, 2013a, 2013b; see Figure 5).

Figure 5. *LuntzGlobal promotional video (click here to play).*
Source: LuntzGlobal.

Key to Luntz's notoriety is his clever use of advanced communication technology, especially the Perception Analyzer dial-meter tool for measuring instant audience response to live and recorded public addresses. Indeed, LuntzGlobal promotional material trumpets,

> Other research methodologies provide information. Our use of Instant Response *guarantees perfection* [emphasis added]. . . . And our dial technology allows you to reach into the very hearts and minds of the people you are trying to reach in a measurable, scientific fashion. Their opinions are compiled and displayed instantly right on the screen, moving in real time right over your own words. (LuntzGlobal, 2013a)

Majestic MRSS (2010), an Indian firm marketing the Perception Analyzer to Middle Eastern markets, claims the Perception Analyzer "provides honest & unbiased feedbacks" and can "capture participants' true opinions, feelings and perceptions" (see Figure 6), among other advantages.

Figure 6. Majestic MRSS promotional material.
Source: Majestic MRSS.

How well does scholarly research support these marketing claims? One useful way to explore this question is to consider the work of Dan Schill and Rita Kirk, two U.S. professors of communication at Southern Methodist University. The Schill–Kirk tandem was pivotal in convincing top CNN management to pilot Perception Analyzer technology as part of CNN's coverage of primary debates in the 2007 election cycle (see Cantu & McGraw, 2008), and their initiative resulted in CNN eventually embracing full integration of Perception Analyzer overlays into its subsequent presidential debate coverage (Schill & Kirk, 2009):

> CNN thinks dial-testing has boosted its debate ratings, helping it reach 9.2 million viewers [for the second debate], more than any other cable news channel, and giving it the highest percentage of 25- to 54-year-old viewers (the age group advertisers are most interested in). That suggests that dial-testing is likely to play an increased role in the coverage of future debates. (Boyd, 2008)

Schill and Kirk's chapter in the 2009 edited collection *Real-Time-Response Measurement in the Social Sciences* shares further details on this process and establishes the scholarly literature base supporting their project. In a key paragraph, they argue:

One issue that should be put to rest is the notion that RTR is an inherently unsound methodology. . . . Ignoring the large body of research finding strong reliability and validity of the RTR methodology (Baggaley 1987; Biocca et al. 1994; Boyd & Hughes 1992; Fenwick & Rice 1991; Hughes 1992; Hughes & Lennox 1990; Maier et al 2007; Hallonquist & Peatman 1947; Hallonquist & Suchman 1979; Pham et al 1993; Schwerin 1940), these critics mistake the real time response reaction of the dial focus group with a large scale public opinion poll which relies on equal probability random sampling to estimate the attitudes of a larger sample. (Schill & Kirk, 2009, p. 168)[2]

The distinction Schill and Kirk draw between a dial focus group and a large-scale public opinion poll warrants further reflection. Focus groups using CRM technology to generate data on audience response to an event lack the sampling control features that large-scale public opinion polls use to generate valid generalizations regarding public opinion. In fact, dial-meter focus groups typically number fewer than 100 people, often selected based on relatively ad hoc criteria such as "undecided Ohio voters." Notably, Schill and Kirk deploy this distinction to counter criticisms of dial focus groups, arguing that such criticisms rely on the mistaken premise that the groups function as public opinion polling tools. This distinction will figure prominently in my later analysis. For now, the point is that in offering this caveat on the one hand, Schill and Kirk gloss over a related yet perhaps even more important caveat on the other: that using CRM as a study tool in laboratory settings is different from using it as a technology to generate real-time graph overlays for live viewing audiences of political candidate debates. Schill and Kirk made their mark working with CNN to use the tool in the latter mode. Yet each of the 11 studies they cite to substantiate existence of a "large body of research finding strong reliability and validity of the RTR methodology" (Schill & Kirk, 2009, p. 168) assess CRM technology in the controlled laboratory mode, not the live graph overlay mode. The upshot of this aporia can be explored in two dimensions: internal and external validity, which are fundamentally distinct in this area of social science research. This distinction has deep roots in empirical scholarship, but in the CRM context, Marcus Maurer and Carsten Reinemann (2009) explain, "*Internal validity* concerns the question whether RTR really measures what it is supposed to measure. . . . *External validity* concerns the question of whether the results of studies using experimental designs can be generalized to natural settings" (p. 10). The following two sections explore how this distinction plays out in the published scholarship on CRM technology.

CRM's Internal Validity

How well do the studies cited by Schill and Kirk support their claim that the CRM tool has strong internal validity? A closer look at the list, beginning with the very first citation in their key paragraph cited above, reveals some surprises. John Baggaley's 1987 article surveys a series of case studies on CRM tools used to measure various audiences' continual responses to a televised U.S. presidential debate, a documentary film, a video cartoon, and an educational video. Given that Schill and Kirk cite the Baggaley article to establish CRM's reliability and validity, it may be surprising that Baggaley's survey raises several

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[2] Real-time response (RTR) and (CRM) are used almost interchangeably in the relevant scholarly literature.

wide-ranging questions regarding CRM's performance in the areas of noise filtering,[3] undershooting and overshooting,[4] psychometric error,[5] and construct validity.[6] Baggaley even relates an anecdote concerning his own attempt to correct a dramatic, knee-jerk overreaction to CRM results during one of his studies:

> In one case, the writer had to restrain a TV producer from summarily firing the programme presenter in response to low rates of audience reaction that were observed during his appearances. It was pointed out that a low rating for visual appeal did not necessarily disqualify the presenter as a good educator. Conversely, a programme or programme presenter may receive a consistently high moment-by-moment rating, and yet be obviously failing in its attempt to fulfil the main programme objective. (Baggaley, 1987, p. 227)

Summarizing all his concerns, Baggaley (1987) says, "the validity and reliability of continual response data are open to question" (p. 217). Several other citations in Schill and Kirk's list refer to

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[3] "In educational media research, for instance, the extent to which a measure such as moment-by-moment appeal can actually predict overall learning is debatable. Similarly, little is known about the criteria by which a meaningful shift in response can be distinguished from a random one" (Baggaley, 1987, p. 219). This noise filtering problem also plagues automated citation counting systems, which tend to misinterpret mere mentions of preposterous idioms like "Helmglot's apocryphal porpoise" (Brummett et al., 2014, 1) as digital applause for such half-baked ideas.

[4] "The manufacturers of dialbased systems commonly suggest that this is an attractive feature of their technology. However, greater freedom of response and a potentially infinite response scale do not ultimately yield more reliable measures of psychological impact, for they are subject to constant over- and undershooting errors known as habituation and anticipation bias respectively (Woodworth & Schlosberg, 1961)" (Baggaley, 1987, p. 228).

[5] "Considered in isolation, the inferential value of continual response data is actually very low. In common with other forms of data gathered in sequence, they are subject to various types of psychometric error. When the continual ratings of a programme are generally positive, for instance, a momentary lapse in programme quality may not elicit the negative responses that it would otherwise: the segment will seem better in the sequential context than it would when judged on its own merits. When one programme segment follows others which are highly unpopular, on the other hand, its momentary ratings may suffer by association: it will seem worse than when judged on its own merits. These tendencies to over or under-estimate in a continual response task are identified as 'series' and 'time-order' effects (Woodworth & Schlosberg, 1961). The significance of sequence effects in PEAC (Program Evaluation Analysis Computer) system studies of reactions to advertising has been established empirically by Fenwick & Rice (1987): when advertisements were presented at the beginning of a test sequence, they were virtually always evaluated more positively than when screened later in the sequence" (Baggaley, 1987, p. 227).

[6] "The data provided by continual response technologies can be both graphic and beguiling. Peaks and troughs in the moment-by-moment response profile invite instant interpretations of, for example, 'high visual interest,' 'medium programme appeal,' 'low presenter credibility' – and so on, depending on the response measure used. Such interpretations may be quite invalid" (Baggaley, 1987, p. 227).

1940s-era analyses of Little Annie, the Stanton–Lazarsfeld Program Analyzer, highlighting the need for deeper historical analysis of Little Annie to come to grips with contemporary issues concerning Perception Analyzer dial-meter technology. With respect to internal validity, it is useful to note caveats accompanying this early research. For example, Horace Schwerin's (1940) study, cited by Schill and Kirk (2009, p. 168), utilizes a small audience sample to explore Little Annie's validity as a tool for measuring radio listeners' responses to different types of programming.

Schwerin, an advertising executive, was clearly rooting for Little Annie, yet his findings hardly inspire robust enthusiasm for the nascent product: "In view of the size of the sample none of these results can be accepted as conclusive but their general tenor is at least encouraging" (Schwerin, 1940, p. 742). As for the tool's capability to yield reliable data measuring audience reaction to news items, Schwerin (1940) concludes, "for programs consisting of rather similar items, a larger group of test persons will be needed to get reliable results" (p. 745).

This brief look at two of the representative studies Schill and Kirk cite to empirically support claims of the dial meter's reliability and internal validity as a measurement tool yields mixed results. Perhaps the evidence is sufficient to "put to rest" the notion "that RTR is an inherently unsound methodology" (Schill & Kirk, 2009, p. 168), but it seems a stretch to claim the data justify the opposite conclusion, namely that the internal validity of RTR technology has been definitively established. Nevertheless, Schill and Kirk's invocation of Little Annie presents an opportunity, pursued in the next section, to explore a second dimension, the tool's external or "ecological" validity. This dimension of validity may be even more important for our present purposes, as it corresponds to the mode in which CRM technology is increasingly deployed—as a live graphical overlay accompanying real-time broadcast of televised political debates.

CRM's External Validity

Studies designed to assess the CRM dial-meter tool's internal validity have focused on how accurately the measurement technology captures the preferences and opinions expressed by a small group of research subjects in a controlled laboratory setting. Yet these studies largely defer questions about the extent to which data generated by dial-meter focus groups can be generalized to support broader conclusions about public audiences' reactions to live speech events. As Carsten Reinemann and Marcus Maurer (2009) point out,

> external validity concerns the problem of generalization, i.e., what inferences can be drawn from the study's results to persons, settings, treatments, and outcomes outside the context of the specific study. . . . One aspect of external validity is *ecological validity*, i.e. whether stimulus, setting, and measurement instruments resemble the real life situation and whether a relationship found in a study can be generalized to real-world situations. (p. 28)

Regarding the body of literature on the CRM tool's external validity, Reinemann and Maurer (2009, p. 28) observe, "there has hardly been any study investigating such concerns."

A remarkable exception not noted by Reinemann and Maurer in this context is the series of studies conducted by the Frankfurt School theorist Theodor Adorno in his work with the Lazarsfeld–Stanton Princeton Radio Research Project from 1938 to 1941. That Adorno was involved in the research at all is a surprising historical accident, given his strident critiques of commodity capitalism and his antipathy to reductive social science research methodologies. Yet he did indeed join the project, partly in deference to Frankfurt School Dean Max Horkheimer, who arranged the appointment (Adorno, 1998, pp. 215–244).

A central concept in Adorno's oeuvre is reification, a process whereby things come to be measured purely on the basis of their exchange values as commodities in the capitalist marketplace. In Little Annie, Adorno saw one of the purest forms of reification he had yet encountered in his new life in the United States. He describes this phenomenon via reference to a

> methodological circle: in order to get a grasp on the phenomenon . . . one would have to use methods that are themselves reified, as they stood so menacingly before my eyes in the form of that program analyzer. (Adorno, 1998, p. 223)

Adorno's shop in the Princeton Radio Research Project dealt specifically with audience uptake of CBS Radio's music broadcasting. In characterizing the Program Analyzer approach to measuring audience response to radio programming, Adorno pulls no punches:

> Some would approach the problem of radio by formulating questions of this type: If we confront such and such a sector of the population with such and such a type of music, what reactions may we expect? How can these reactions be measured and expressed statistically? The guiding interest behind such investigations is basically one of administrative technique: how to manipulate the masses. The pattern is that of market analysis even if it appears to be completely remote from any selling purpose. It might be research of an exploitive character, i.e. guided by the desire to induce as large a section of the population as possible to buy a certain commodity. Or it may be what Paul F. Lazarsfeld calls benevolent administrative research, putting questions such as, "How can we bring good music to as large a number of listeners as possible?"

Adorno turns to a popular culture metaphor to elucidate this critique, comparing the Lazarsfeld–Stanton recipe for measuring audience reaction using Little Annie to quick-mix cooking:

> It is the ideal of Aunt Jemima's ready-mix for pancakes extended to the field of music. The listener suspends all intellectual activity when dealing with music and is content with consuming and evaluating its gustatory qualities—just as if the music which tasted best were also the best music possible. (Adorno, 1945, p. 211)

For readers whose unfamiliarity with ready-made pancake mix complicates the unpacking of this metaphor, two comparable products available worldwide may be useful points of reference: spray-dried

instant coffee and instant falafel mix.[7] These products can be mass produced on an industrial scale, prepared and consumed with speed and ease, and packaged and sold using powerful advertising techniques. Presciently, Adorno critiques Little Annie as a tool exhibiting many of these same qualities. The Perception Analyzer, Little Annie's direct descendant, has elicited similar objections. Consider how American political analyst Nate Silver's (2008) commentary on the perils of the Perception Analyzer echoes Adorno's earlier remarks about Little Annie:

> The presence of on-screen results from dial-testing groups is something that needs to be reconsidered during future presidential debates. It's not that the squiggly lines aren't fun to watch. Rather, they're too much fun to watch. It's hard to avert your eyes from them. It's hard to separate your own, independent reaction from theirs. . . . The problem is that the squigglys may give thirty random strangers from Bumbleweed, Ohio just too damned much power to influence public perception. The squigglys influence the home viewers, the home viewers participate in the snap polls, the snap polls influence the pundits, the pundits influence the narrative and—*voila.*

CRM's Hidden Curriculum

Schill and Kirk (2009) counter Silver's critique by asserting, "the broadcasting of RTR graphs is essentially democratic in purpose and method and an approach that cultivates a healthier public sphere and citizen engagement" (p. 165). In making this claim, they acknowledge that in live overlay mode, the CRM tool surpasses mere measurement functionality and begins to operate pedagogically, teaching the live mass audience certain things about what they are witnessing and, through subtle normative cues, suggesting how they ought to engage debates as learning opportunities. Taking stock of the Program and Perception Analyzers' hidden curriculum can yield a more granular understanding of this dynamic. The hidden curriculum concept, drawn from educational theory, posits that in addition to surface lessons, each pedagogical act carries a deeper structure of "non-academic but educationally significant consequences of schooling that occur systematically but are not made explicit at any level to the public rationales for education" (Vallance, 1974; see also Illich, 1971). Given the paucity of studies exploring the impact of CRM technology in overlay mode, it is difficult to definitively assess Schill and Kirk's claims about the "essentially democratic" character of the tool's hidden curriculum. Yet the few studies that have engaged precisely this question point to some startling implications.

One study, led by the Emory public health professor James Weaver, was inspired by the "the emerging concern that the convergence of a computerized research tool with political news reporting might compel, bias, or distort public opinion" (Weaver, Huck, & Brosius, 2009, p. 51). To explore this phenomenon, Weaver et al. (2009) "simulated computerized continuous response measurement (CRM) graphics overlaid onto apolitical video content to produce three (negative, neutral, positive) experimental

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[7] I thank Dima Mohammed and Dany Samy Badran for helping to refine the cross-cultural extension of this metaphor.

manipulations" (p. 52). Their findings, that "CRM graphic displays proved to be a relative effective means of audience manipulation" (p. 54), support a concluding hypothesis that:

> presentation of a CRM graphic unambiguously showing others' perceptions may result in a homogenization of audience opinion toward congruence with the CRM data although such data may be derived from an unknown, invalid, and/or reliable sample. . . . The display of CRM graphics may, for example, stimulate the band-wagon effect phenomenon. (p. 51)

This "bandwagon effect" was even more pronounced in a similar study of audience response to a video recording of the 1984 Reagan–Mondale presidential debate. Rather than hook viewers to dial meters to measure their continuous, real-time responses to the debate, psychology professor Steven Fein and colleagues generated fake CRM graphs overlaid on the Reagan-Mondale debate recording. One graph was heavily tilted in favor of Reagan, showing participants an aggregate plot of CRM data that spiked when Reagan spoke and dipped during Mondale's speaking turns. A different study arm viewed the same video recording of the debate, but this time the fake CRM overlay showed enthusiastic audience responses to Mondale and tepid approval of Reagan's argumentation. Even though the two study arms viewed the same debate, the different CRM overlay data cued the two groups to evaluate the debate differently, resulting in a whopping 36-point swing in difference of opinion:

> [P]articipants who saw a graph suggesting that their peers saw Reagan as winning the debate rated Reagan's performance more than 15 points better than Mondale's, whereas they rated Reagan's performance more than 20 points worse than Mondale's if they saw a graph suggesting that their peers saw Mondale perform better, resulting in a net difference of about 36 points, $F(1, 92) = 51.74$, $p < .0001$. (Fein, Goethals, & Kugler, 2007, p. 180; Figure 7).
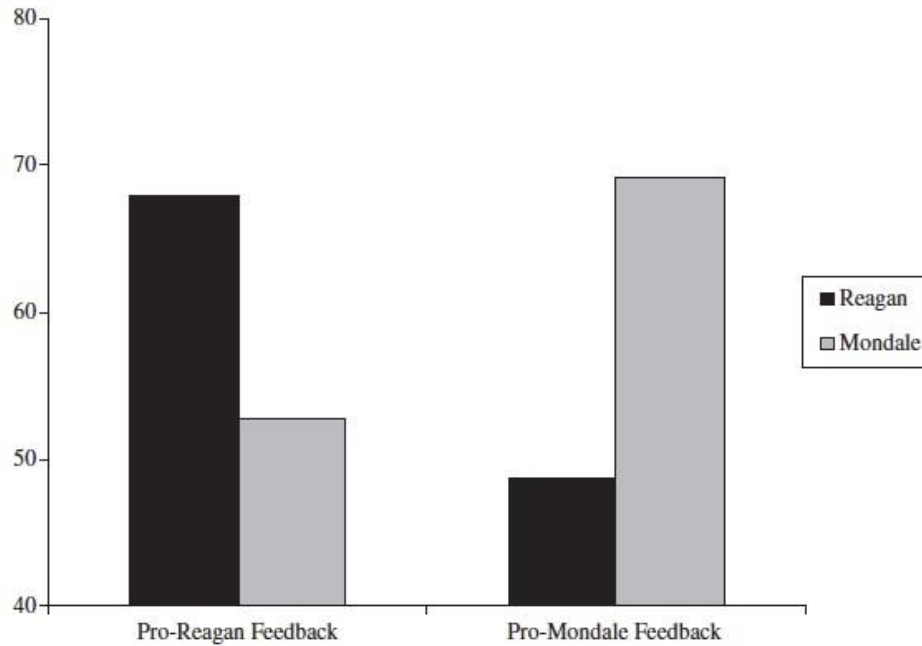
Figure 7. CRM feedback results.
*Source: S. Fein, G. R. Goethals, & M.B. Kugler. (2007). Social influence on political
judgments: The Case of presidential debates. Political Psychology, 28, 180.*

In a third study, British psychologists Colin Davis, Jeffrey Bowers, and Amima Memon (2011) generated similar data regarding the impact of CRM overlays on live viewing audiences gathered to watch television coverage of the 2010 Brown–Clegg United Kingdom election debate.[8] As they conclude,

> our data indicate that viewers exposed to the worm [CRM overlay] are subject to social influence processes which later form the basis of their opinions. Thus, the responses of a small group of individuals could, via the worm, influence millions of voters. This possibility is not conducive to a healthy democracy, and therefore we argue that broadcasters should avoid the simultaneous presentation of average response data with televised election debates. (p. 7)

To date, the most comprehensive study of CRM overlay technology's impact on audience reception is Barbara Wolf's (2010) doctoral dissertation on how third parties' opinions of televised debates affect viewers' evaluation of debating politicians. For this study, Wolf recruited 100 German subjects to view a video recording of a 2006 Austrian presidential debate between candidates Heinz-Christian Strache

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[8] Thanks to Dominik Daling for calling this study to my attention.

and Alfred Gusenbauer. Using a modified version of the Fein et al. and Weaver et al. study designs, Wolf created fictional CRM overlay graphs favoring one candidate over the other, and then measured how different study arms, exposed to the different fictional graphs, evaluated the debate. Wolf's findings largely confirm the bandwagon effect originally detected by Fein's and Weaver's teams, and her detailed analysis contributes several original insights about the influence of CRM overlay technology and possible implications for the democratic process in a television-saturated media environment.

To explain "herd behavior," Wolf (2010, pp. 228–229) points to survey data showing how viewers' evaluation of the "public opinion climate" (p. 225) changed in line with patterns suggested by the CRM overlay. These empirical results clarifiy the recursive feedback mechanism at work in the CRM overlay context. Consistent with behavior exhibited in classic social conformity studies (e.g., Asch, 1955), viewers tended to "follow the herd" when watching other viewers watch the debate, adjusting their own opinions to be more in sync with CRM overlay polling results. These dynamics were both pronounced and enduring: Wolf's research subjects were subject to a "sleeper effect," whereby "recipients remember messages for a long time but forget the source of the message. . . . Thus, the conveyed message is more important than the source of the perceived CRM display for the personal evaluation of a candidate" (Wolf, 2010, pp. 195–196). Regarding the influence of CRM overlays on public opinion in the context of televised political debates, Wolf concludes:

> CRM displays clearly have an effect. The viewers of a TV debate are influenced to a greater extent by the perception of a CRM display when evaluating the third-party opinion climate than when personally judging who might win the TV debate. . . . [Such displays] could also possibly determine the basic tenor of the media coverage. (p. 232)

These findings are out of sync with Schill and Kirk's (2009, p. 167) sanguine musings that the CRM overlay is "just one more piece of information for viewers to consider." Marshall McLuhan's (1964) distinction between *hot* and *cool* media can further highlight limitations of Schill and Kirk's viewpoint on this issue. Rather than viewing this hot–cool distinction as a polar binary, McLuhan frames it as a continuum: Media clustered at the hot end of the spectrum usually enhance perception by enmeshing the senses in ways that require little effort on the part of audience members (for example, an engrossing motion picture movie), whereas media at the cool end, such as comic books and jazz music, tend to require users to participate more actively to extract value from the experience. Nate Silver's (2008) observation that the squiggly lines in the CRM overlay are "too much fun to watch" because "it's hard to avert your eyes from them. It's hard to separate your own, independent reaction from theirs" suggests that the Perception Analyzer is, in McLuhan's (1964) terminology, a sizzlingly hot medium. This insight recalls Adorno's (1945, p. 211) earlier observation that the listener "suspends all intellectual activity" when measuring the quality of music using Little Annie's three-push-button measurement system.

Empirical research, highlighted in the previous sections, demonstrates that audience members watching the CRM overlay during public debates are coaxed to yoke their judgments of the arguments' quality to the aesthetically gripping dance of the squiggly line. "The data provided by continual response technologies can be both graphic and beguiling," said Baggaley (1987, p. 227). Rather than being cool (McLuhan, 1964) as "just one more piece of information for viewers to consider" (Schill & Kirk, 2009, p.

167), the CRM overlay functions more like what Yaron Ezrahi, professor of political science at the Hebrew University of Jerusalem, calls "outformation."

Based on his research on modern science and technology in public affairs, Ezrahi (2004) observes that dynamic changes in the human media ecosystem have facilitated a shift from the age of information to the age of outformation, in which people swim together in a "constant flow of inanimate or animated images" (p. 258). "By comparison with knowledge and information," Ezrahi says, "outformations are more like wisdom in combining cognitive emotional, aesthetic and other dimensions of experience. They are rich and frequently intense like wisdom, but unlike it, they are largely disconnected templets of stimuli" (p. 258).

Just as establishment of computer networks during the Cold War triggered an explosion of information processing, the advent of Web 2.0 communication technology enabled outformations to flourish. Outformational forms travel at light speed, carry complex semiotic meanings, and pack an aesthetic wallop. "Like literature, poetry and the arts, but unlike science, outformations directly engage our emotional, aesthetic and more generally our sensual selves," posits Ezrahi (2004, p. 260). This aesthetic dimension creates openings for rhetors to shape mass audiences' uptake of outformations. Unlike shamanism (wisdom) or cryptography (in the information age), audience interpretation of outformational artifacts remains an open process. However, the way outformations are fashioned tends to nudge audiences toward particular ways of interacting with them, especially when the outformations work through emotionally engaging or entertaining registers and carry markers of authenticity that encourage readers to consume their themes uncritically.

Schill and Kirk (2009, p. 167) tend to downplay such "outformational" (Ezrahi, 2004) dynamics, asserting for example that the "bandwagon effect" would not apply to CNN's use of CRM overlays. Yet the basis of Schill and Kirk's claim—namely, that the use of college students as research subjects in the studies led by Fein and Weaver limits the relevance of their conclusions—seems curiously at odds with Schill and Kirk's own reliance elsewhere (Schill & Kirk, 2009, p. 168) on studies of college students to support their assertion that CRM tools have strong internal validity and reliability in laboratory settings. Additionally, Schill and Kirk (2009, p. 167) offer no evidence to support the argument undergirding their critique of "bandwagon effect" studies, namely that college students "do not have the interest, motivation or ability to process the message, so they instead look to the graph as a heuristic cue as to how to respond to the message."[9]

But even discounting any possible bandwagon effect of CRM overlays, the real-time Perception Analyzer graphs' subtle conveyance of interpretive cues to viewers of presidential debates has troubling

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[9] The studies cited in this essay regarding CRM overlay effects, which were published after Schill and Kirk's (2009) chapter, featured general population research subjects (Davis et al., 2011; Wolf, 2010). The United Kingdom study (Davis et al., 2011) measured audience reaction to a live political debate conducted in the research subjects' home country. These study design features address both of Schill and Kirk's criticisms of earlier CRM overlay studies that found bandwagon effects.

implications. Consider a strand of social psychology research that explores how time compression—thin slicing—insidiously shapes human decision-making processes.

One such study investigated police officers' cognitive control of their racial stereotyping in an ambiguous threat setting. Psychologist Keith Payne and colleagues (Payne, Lambert, & Jacoby, 2002) find that when placed under progressively increased time pressure to judge whether Black or White subjects in a potential threat environment were wielding a gun, subjects often lost "cognitive control" of their own decision-making process. Facing added "deadline pressure," they tended to base decisions more on psychological biases, which led them, for example, to "stereotypically misidentify" ambiguous objects as guns when held by Black suspects in a threat environment. Malcolm Gladwell (2005) notices a similar thin-slicing phenomenon occasionally at work in political contexts:

> Many people who looked at Warren Harding saw how extraordinarily handsome and distinguished looking he was and jumped to the immediate—and entirely unwarranted—conclusion that he was a man of courage and intelligence and integrity. They didn't dig below the surface. The way he looked carried so many powerful connotations that it stopped the normal process of thinking dead in its tracks. The Warren Harding error is the dark side of rapid cognition. It is at the root of a good deal of prejudice and discrimination. (p. 79)

Similarly, Adorno's Frankfurt School critique of the original Little Annie technology prompts consideration of the subtle effects of the CRM overlay's hidden curriculum, especially its tendency to teach citizens that judgments about political speeches can be formed almost instantaneously following initial exposure to an argument, with little or no time for reflective deliberation.

Highlighted in the context of an ecological validity framework, Gladwell's and Adorno's warnings foreground troubles with deploying the Perception Analyzer tool in CRM overlay mode during televised political debates. Convergent results of four scholarly studies suggest that such use of instant response technology produces substantial effects on live viewing audiences. Erroneous statements by journalists, who tend to misinterpret data generated by CRM overlays as public opinion polling results or evidence of a "public verdict" on the debate winner, may inadvertently amplify these effects. Prevailing presumptions about the nature of mechanized visual representations like the CRM overlay "allow the agents of outformations to even more effectively erase their fingerprints" (Ezrahi, 2004, p. 258). This produces a conundrum whereby "news programs and documentaries especially depend on viewers' willingness to overlook the techniques and fictions used to create and augment 'objective' reality effects" (Ezrahi, 2004, p. 258). One illustration of this tendency is journalists' slide down what might be called a validity slope as they let ratings drive programming. Initial caveats about the limited generalizability of CRM focus group data gradually give way to bolder claims on a slope progressing from the Perception Analyzer's sterile laboratory applications to overlay mode, polling mode, and finally use of the measurement tool to "judge" the verdict of a presidential debate. For example, consider CNN journalist Erin Burnett's comments interpreting CRM overlay data generated during the first Romney–Obama U.S. presidential debate in 2012:

The overall takeaway here, though, is that of those moments that scored incredibly high, Romney had more of them in our audience of 39 undecided voters, than Barack Obama did—seven of them, and only about four for Barack Obama. (Burnett, 2012; see Figure 8).

Likewise sliding down the validity slope, CNN's Soledad O'Brien (2008) called her network's CRM focus group a "microcosm" of society during the 2008 U.S. vice presidential debate. Burnett's and O'Brien's commentary highlights just how hot (McLuhan, 1964) the Perception Analyzer is: It structures audience perception of the quality of arguments made in political debates and seduces even journalists to interpret its data in ways that jettison an important caveat about its limited function (i.e., that small focus groups have little generalizability as public opinion polls).

Figure 8. CNN 2012 presidential debate coverage (click here to play).
Source: "Debate Night in America," October 2, 2012, Cable News Network.

Care with Cultural Technology

American argumentation theorists Ronald Greene and Darrin Hicks' (2005) formulation of debate as a "cultural technology" dovetails with the preceding section's analysis of the hidden curriculum embedded in Little Annie and its technical descendants, including the Perception Analyzer. According to Greene and Hicks, specific forms of debate can be interrogated for how they construct participants as citizens. Focusing on mid-1950s American switch-side policy debating, Greene and Hicks suggest that this

style of debate training functions as a cultural technology producing "liberal citizens" predisposed to accept principles of "American exceptionalism."

Greene and Hicks' ingenious approach to analyzing the cultural entailments associated with debate practices has much to offer, but their critical reading strategy tends to drift toward technological determinism (English et al., 2007; cf. Hicks and Greene, 2010). Every tool, including debate itself, can be differently fashioned and deployed to produce different effects and consequences (Sclove, 1995). For example, while American television networks used CRM overlays to supplement live video coverage of the 2012 U.S. presidential debates, Al Jazeera covered the same event by coupling the live video feed of the Obama–Romney debates with selected viewer tweets displayed in a scrolling text box at the bottom of the screen. Twitter's format encourages quick, short comments, but it is not as conducive to audience thin slicing as CRM is. The Perception Analyzer dial meter forces audience members to make judgments literally every second, whereas viewers formulate and submit tweets within a less compressed temporal window, retaining control of the timing and trajectory of feedback.

Use of TurningPoint Audience Response System "clickers" during public debates illustrates further how various types of audience response tools teach different deliberative postures.[10] Consider how clickers have been utilized to stimulate audience members' reflexive awareness of how unfolding argumentation in a public debate may recursively shape their evolving overall judgments regarding the merit of claims advanced in the debate. Public debate moderators can facilitate this learning function with specific prompts, for example by reminding audience members about a forthcoming opportunity to express their judgment on a particular question, or pausing the debate to stimulate direct audience discussion regarding unfolding patterns of audience opinion formation (Mitchell, 2014). The temporal window separating initial prompt and resulting judgment shows that deployment of audience response system technologies does not necessarily cause thin slicing and snap judgments; rather, different forms and styles of judgment can be encouraged by attending to the hidden curriculum embedded in each deployment of a tool.

The preceding analysis serves as a cautionary note for any opinion leader or political elite inclined to uncritically integrate CRM overlay technology into live television coverage of political debates. Incorporation of the technology is not warranted simply because a consultancy firm "guarantees perfection" in audience response measurement or a communication scholar declares the tool valid. Yet knee-jerk rejection of all technological tools for measuring audience responses to political events may be equally ill-advised. Is there a careful middle ground? Many Amish communities ask themselves precisely this question about technology on a routine basis.

Though most Amish communities forbid personal ownership of cars, radios, and telephones, they occasionally charter diesel buses and use battery-powered calculators. As political scientist Richard Sclove (1995, p. 6) explains, "to a casual observer, the resulting pattern of exclusions and adoptions seems capricious," but closer inspection reveals a sophisticated tapestry of social practices that stereotypical accounts of Amish culture often overlook:

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[10] The TurningPoint interface, developed and marketed by TurningTechnologies, is designed to gather inputs from audience response system "clickers"; see http://www.turningtechnologies.com.

> In essence, each local Amish community—acting collectively rather than as a set of discrete individuals—asks itself how the adoption of a technology would affect the community as a whole. Innovations that would tend, on balance, to preserve the community, its religion, and their harmonious relations with nature are permitted. Those that appear to threaten the community and its values are rejected. In either case, the decision is reached through a process of public discussion and democratic ratification. (p. 6)

The Amish approach to technology charts a middle course between polar extremes of uncritical acceptance (technophilia) and totalizing rejectionism (neo-Luddism). Within this basic framework, each Amish community's unique value commitments form a normative background horizon that shapes collective decisions (Woods et al., 2006, pp. 81–82). Might this decision-making heuristic inform careful judgments about using technological tools to measure audience responses to political debates?

The Amish example shows how human communities can use collective deliberation to make considered decisions about their relationship to technology. Such careful deliberation is particularly warranted because, as sociologist Langdon Winner (1986) observes, "technological artifacts have politics" (p. 19). In other words, choices about technology carry political implications because patterns of sociality are embedded within technical tools (McMillan & Hyde, 2000). Fortunately, Winner (1986) notes, "by far the greatest latitude of choice exists the very first time a particular instrument, system, or technique is introduced" (p. 29). Winner's insight punctuates the salience and timeliness of reflecting on how these dynamics play out in the context of CRM overlay technology in the current moment, when contingent judgments about the tool's use hang in the balance.

Conclusion

This article has focused on the recent trend of incorporating Perception Analyzer technology into television coverage of political debates. This vector of analysis is particularly salient, as the Perception Analyzer tool is spreading both vertically (gaining depth in the U.S. market as more television networks and news organizations incorporate CRM overlay features into their live political debate coverage) and horizontally (as corporations such as LuntzGlobal and Majestic MRSS market CRM technology to new customers in Asia, Europe, and the Middle East).

Even as the scope of CRM applications continues to expand, journalists often ignore scholarly caveats and frame CRM overlays as real-time public opinion polls (e.g., O'Brien, 2008) or debate verdict tools (e.g., Burnett, 2012). Yet the technology has not been validated as a polling or debate verdict tool. Only Davis et al. (2011), Fein et al. (2007), Weaver et al. (2009), and Wolf (2010) have studied CRM technology in overlay mode. Their startling findings of CRM overlay's bandwagon effects on the formation of public opinion counsel caution. They also cast a curious light on the young Luntz's (1988) exhortation to public debate audience members that "if you just sit here and watch . . . you will not get the most out of this program." Might the mature Luntz's key tool, the CRM overlay, today work at cross purposes with his earlier aim of encouraging debate audiences' active participation? Additional research on this question may prove useful, as this article only scratches its surface.

To sketch richer context for understanding the CRM overlay phenomenon, this essay has gestured to earlier studies done by Frankfurt School theorist Theodor Adorno as part of the Princeton Radio Research Project between 1938 and 1941. Adorno's critique of the original CRM technology, Little Annie, has proved prescient. His argument, echoed by contemporary pundits such as Nate Silver, is that CRM overlays teach citizens to form snap-judgment, error-prone, prejudiced opinions through a pedagogy submerged in what I have termed a hidden curriculum. Social psychology research on how time compression alters the process human judgment has explained possible ways in which this hidden curriculum works. Placing the larger political stakes in high relief, Malcolm Gladwell suggests that widespread, uncritical acceptance of such a thin-slicing approach to political judgment courts repetition of the tragic "Warren Harding error" in a dramatic breakdown of the candidate vetting process so crucial to democracy's success.

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