

**Advancing Support for Child Mental Health Policies:  
Early Results from Strategic Frame Analysis™ Experimental Research**

**A FrameWorks Research Report**

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September 2009

## TABLE OF CONTENTS

INTRODUCTION .....	6
FRAMING SOCIAL ISSUES .....	8
<b>The Core Story of Child Development</b> .....	9
Health and Early Child Development .....	10
Moderating Factors.....	11
RESEARCH METHODS.....	12
The Treatments.....	12
Data Collection and Outcome Measures .....	13
Statistical Model Specification and Estimation .....	15
THE FINDINGS .....	15
<b>Study 1: The Frame Effects of the Core Story on CMH Policy Preferences</b> .....	16
Evaluating the Impact of Values .....	16
Evaluating the Impact of Principles .....	17
Evaluating the Impact of Simplifying Models .....	18
Identifying Key Moderating Variables .....	19
Evaluating the Impact of Gender on Frame Effects.....	20
Evaluating the Impact of Political Disposition on Frame Effects.....	20
Evaluating the Impact of News Attentiveness on Frame Effects.....	21
Summary of Results on Study 1: Overall Frame Effects Analysis and Moderating Factors .....	22
<b>Study 2: The Policy Impacts of Incorporating Health as an Explicit Part of the Frame</b> .....	23
Summary of Results on Study 2: The Incorporation of Health in the Frame.....	28
CONCLUSIONS FROM THIS EXPERIMENTAL RESEARCH .....	28
<b>APPENDIX A: VALUES, SIMPLIFYING MODELS AND PRINCIPLES</b> .....	30
18. <b>Control Group.</b> (This group received nothing except exposure to the policy batteries. ....	34
<b>APPENDIX B: MODELS ESTIMATION TECHNIQUES</b> .....	35
<b>APPENDIX D: SELECTED DEMOGRAPHICS OF THE SAMPLE</b> .....	37
About the Institute .....	38

**LIST OF EXHIBITS**

Figure 1. Child Mental Health Battery..... 14

Figure 2. Treatment Effects of Selected Frame Elements by Gender..... 20

Figure 3. Treatment Effects of Selected Frame Elements by Political Disposition ..... 21

Figure 4. Treatment Effects of Selected Frame Elements by News Attentiveness ..... 22

Figure 5. Treatment Effects of Selected Frame Elements Related to Health in the Mental Health Battery..... 24

Figure 6. Health-Related Treatments Versus All Others in the Mental Health Battery..... 25

Figure 7. Correlations Coefficients Between Health and Mental Policies, by Frame Element..... 27

Table 1. Values Frame Effects..... 16

Table 2. Principles Frame Effects..... 18

Table 3. Simplifying Models Frame Effects..... 19

Table 4. Health-Related Frame Effects ..... 24

Table 5. Policy Battery Correlations - Control Group ..... 26

Table 6. Selected Demographic and Political Interest Characteristics of the Sample ..... 37

## EXECUTIVE SUMMARY

The research presented here was sponsored by the Center on the Developing Child at Harvard University. The report is the latest iteration of quantitative work in a multi-year, multi-discipline study of how communications choices in framing child mental health influence public attitudes and preferences. The report represents the first in a series of papers detailing the results of experimental research that explores the effects of alternative ways of talking about early childhood development and the impacts of these “frames” on public support for early child mental health policies.

The findings in this paper come from an experimental survey designed to inform communications about a wide range of child development issues; one of these topics was early child mental health. The purpose of this paper is to present findings specifically related to early child mental health policies, examine the implications of those findings with respect to current communications practice on the issue, and conclude with information about communications strategies that appear promising in increasing support for children’s mental health policies.

In particular, we focus here on the experimental tests of frame elements that emerged as promising in earlier rounds of qualitative work on this project — more specifically, on frame elements that demonstrated some potential in moving the public conversation about early child development in more constructive and policy-productive directions. Here we test the impact of these frame elements (as independent variables) against *public support for policies* (as dependent variables) that address children’s mental health issues.

In summary, we find that:

- In our examination of the frame effects of five Values tested against child mental health policies, we find that broad values (American Prosperity and Ingenuity, for example) have a greater impact on public support for child mental health policies than those that are more narrowly focused (the plight of vulnerable children or building a healthy society, for example). In the experimental survey, the value of Prosperity was explained as an investment in early childhood development which served as an engine for the sustainable growth of the nation. Ingenuity focused on generating innovation to solve problems in early childhood development, elaborating the notion that Ingenuity is a dominant characteristic in our society, and that its results are broadly shared across society.
- On the issue of early child development more generally, Simplifying Models — defined briefly as highly concrete metaphors that capture some critical aspect of an abstract mechanism or scientific process — have helped improve public understanding of the

science of early child development in ways that made policy solutions easier to envision and support. We therefore tested three simplifying models (Toxic Stress, Brain Architecture, Pay Now/Pay Later) developed to address early child development to see if they would also be effective in raising public support for child mental health policies. Of these three Simplifying Models, we find considerable evidence that Toxic Stress increases support for child mental health policies. We speculate that Toxic Stress is particularly useful on this issue because it explains how the developmental process can be interrupted. In doing so, Toxic Stress illuminates the processes or experiences that might derail mental health functioning and helps the public see how policy intervention might mitigate such problems. We speculate that once the challenges to children's mental health have been illuminated and concretized, people are thus more likely to support a host of related public policy options.

- The Principles developed to communicate about early child development had minimal impact on mental health policies. While these Principles, largely translated from expert understanding and explanation, may be helpful in discussions among child development experts and advocates, our data show that they have a limited influence on public thinking about child mental health policies. We speculate that this may be because the expert discourse from which most of these principles are derived draws on a completely different set of assumptions and knowledge base than those available to the public with respect to child mental health.
- In terms of moderating factors, we find that men and people who are particularly news attentive were more sensitive to the Toxic Stress frame and thus more likely to offer support for child mental health policies when exposed to it.
- None of the frame elements that explicitly include health information as part of the frame showed statistically significant changes in policy support compared to the control condition. That is, adding health information to the frame had no discernable impact on public support for child mental health policies. We therefore conclude that communications are more likely to be effective using broad Values (like Prosperity and Ingenuity) or Simplifying Models (i.e., Toxic Stress) than a health-specific frame or frame element.
- Moreover, we find the relationship between child mental health policies and health care policies weaker than the links relating any of the other areas of policy examined in the study. We conclude that frames with additional health information do not strengthen the relationship between health and mental health policies. As a result, our results show that explicitly linking “health” and “mental health” is not an effective framing strategy for elevating policy support for child mental health.

## INTRODUCTION

The last two decades have brought an avalanche of exciting, cutting-edge research on the development of the brain. Among other things, scientists who conduct brain research are now beginning to share research findings that more definitively demonstrate the relationship between experiences in the early years of childhood (even as early as the prenatal experience) and their consequences on long-term adult mental and physical health. As early as 2003, FrameWorks began to work with the National Scientific Council to identify a “core story” of development. By core story we meant the enumeration of the fundamental scientific principles that one must understand in order to achieve a rough appreciation for the process of early child development.<sup>i</sup> Comparing the core story established by the experts with the public “folk” understanding of child development revealed specific “holes” or “gaps” in how the public reasons and approaches the issue. Based on this analysis, we identified, developed and tested frame elements that have proven to redirect public thinking about early child development in more productive directions.<sup>ii</sup>

A growing effort by researchers and advocates in the field revolves around the role of mental health in a child’s overall health and development. Child mental health represents one of the more difficult topics for the public to conceptualize and hold in its consciousness as a broad public concern. Our qualitative research suggests that this is in part because the general public has a difficult time conceptualizing the notion that children experience “mental health.” People, not surprisingly, are profoundly skeptical of attempts to diagnose mental health problems in children (especially in very young children); more likely to see mental illness as determined by genetic predisposition divorced from any external life experiences; and regard diagnosis and treatment as inherently private issues that operate in the domain of families rather than public policy.<sup>iii</sup> As a result, it is difficult for child development experts to create a constructive public conversation about the efficacy of policy innovations that promote mental health in young children.

The poor state of public dialogue around this issue cannot be attributed solely to the public’s narrow conceptions of the nexus between mental health and children’s development, however. The new (and still emerging) scientific research on this issue has not been easily or productively translated for public consumption and deliberation. That is, child mental health is one of the clearest examples where the scientific knowledge base has not been effectively translated for public understanding and engagement. A recent FrameWorks study on media coverage of child mental health confirms this view. For example, popular media rarely offers stories on “child mental health” and, when it does, those stories tend to define mental health: fairly negatively and mostly episodically (primarily through anecdotes of extremely disruptive behavior); narrowly (without a broader context for understanding what good mental health in children might entail or how it might be promoted); and in terms of “mental illness” rather than “health” in children.<sup>iv</sup> Perhaps most troubling is its reliance on stories about the failings of the child mental health

system in managing and treating mental problems that emerge in young children.<sup>v</sup> Presented in this fashion, the media coverage does little to elevate the public conversation; rather, it reifies an overwhelming sense of the issue's intractability and makes it more difficult for the public to envision the efficacy of expanding any public role. To make matters worse, science journalism has been hit hard by the economic downturns of late and, in the effort to stay financially solvent, many media outlets have been forced to downsize the staff and the space they once dedicated to science journalism — depleting one of the few resources for science translation in the mainstream public terrain.<sup>vi</sup> The outcome is likely to be that when child mental health stories appear in the news, the “science” that could be brought to bear on them is absent.

The fact that there have been ample scientific advancements in the treatment of mental health problems in children in recent years makes the public's relative ignorance of these advancements particularly problematic and unfortunate. Our reading of this situation is that this is a communications problem — one that requires careful translation of the science of early child development — rather than a lack of interest or insight on the part of the public.

To date, there have been few, if any, empirical examinations of the extent that frame effects impact public support for child mental health policies. Although the core story of early child development (as developed by FrameWorks) does not specifically address the discrete communications challenges of child mental health, it offers a useful starting point from which to illuminate some of the processes (especially those related to the healthy functioning of the brain) that can help the public support policies that promote child mental health.

The goal of this report is to examine two basic questions:

1. does exposure to key frame elements of the core story of early child development heighten public support for child mental health policies?
2. does promoting health as an integral part of children's overall development increase support for child mental health policies?

We answer these questions using results from a web-based survey of 4,200 registered voters in the United States using an interactive venue administered by the Political Communications Laboratory at Stanford University (under the direction of Dr. Shanto Iyengar) and YouGov/Polimetrix (under the direction of Dr. Douglas Rivers). The experiments included a treatment panel of stimuli (or potential reframes) compared to a control group on a series of mental health policy preferences administered in an online experimental survey to over 4,500 respondents.

## FRAMING SOCIAL ISSUES

The concept of “frames” is very much in vogue these days. Pundits, journalists, public relations experts, advocates and scholars routinely use “frame” to describe how their worlds are understood.

A decade of FrameWorks research confirms a growing body of scholarship from the social and cognitive sciences strongly suggesting that how social issues are framed has a significant impact on how the public understands cause and effect, what role they attribute to public and private actors, and what effective solutions might entail.<sup>vii</sup>

FrameWorks researchers have established several important frame elements that structure how people attach meaning to incoming information — three of which are particularly important and are discussed in this paper. The first and broadest level from which people enter into public discourse is at the level of *Values*. That is, Values offer big ideas that serve to help people align an issue with a prior orientation. For instance, how people think about a policy such as unemployment benefits may be a function of how much one believes in the role of individual responsibility in determining one’s life chances.

The second key frame element is the role that principles play in public understanding. On this line of reasoning, *Principles* serve to explain a fundamental scientific rule or proposition. For example, the principle of jet propulsion is explained by Newton’s third law of motion: “For every action, there is an equal and opposite reaction.” In other words, if you push on something, it will push back. Thus, all airplanes need to fly is something pushing against them. In essence, they push against the air by moving great quantities of it to the back. The compressor blades suck the air in, mix it with fuel, and then blow it out the back.

The third important frame element is *Simplifying Models*. These are conceptual tools that work to concretize and clarify complex scientific explanations of how a phenomenon works. So, the complex idea of global warming is expressed as a “heat-trapping blanket”; the workings of the human heart are described as being “like a pump”; and hit-or-miss employer-mandated healthcare coverage is a “patchwork effect.”

In short, our analytic method involves testing for frame effects at three different levels — values, principles and simplifying models. In the next section of the paper we discuss our methods of developing, testing and analyzing frame effects data for these three types of frame elements.

## **The Core Story of Child Development**

In a series of monographs, FrameWorks researchers and affiliated Council members have evolved a “core story” of early child development. It comprises a wide array of values, principles and simplifying models. This study seeks to refine and extend our analysis of the core story in several ways. First, although our early analyses demonstrated that exposure to the value of prosperity had a significant and positive effect on support for a range of child policies, the jury was still out on the impact of exposure to other values thought to hold relevance for thinking about early child development. For instance, there has been a great deal of discussion in the field about the notion of the “vulnerable child” as a viable means to open the public dialogue about at-risk children. There is little empirical evidence, however, about whether the underlying value — fairness — has the capacity to lift public support. To this point, this study expands the range of values to include several others thought to be relevant to early child policy (details to follow) and tests their effects on support for a series of child mental health policies.

Likewise, previous FrameWorks research demonstrated that exposure to several principles associated with the core story had a positive effect on public support for early child policies. For example, exposure to the principle “you can’t do one without the other” (i.e., cognitive, emotional and social capacities are intertwined, and both physical and mental health are highly interrelated over the life course) was associated with higher levels of support for a number of early child interventions. In this report we add to this list by examining three additional principles derived from the work of the National Forum on Early Childhood Program Evaluation and apply them to public preferences related to child mental health.

At the level of simplifying models, FrameWorks’ research found that exposure to two models — “Brain Architecture” and “Pay Now, Pay Later” — had positive effects on a number of early child development policy batteries. We include both models in the current research on child mental health and add an additional candidate that has been forwarded as representing part of the core story but has not been tested to date: “Toxic Stress.” This model concretizes the more complex notion that stressors in the early years of life (e.g., intense poverty, maternal depression) have a toxic and damaging effect on the developing brain, which in turn may lead to behavioral problems that increase the probability of physical and mental illness in children. Together, these three models will provide another test of the efficacy of the core story in aiding public support for child mental health policies.

In sum, we will assess the impact of the core story of early child development — as conveyed with Values, Principles and Simplifying Models — on support for child mental health policy. In short, is it necessary to develop communications tailored specifically to child mental health, or will the core ECD story suffice?

## Health and Early Child Development

Brain researchers and child development experts have made major strides in producing evidence that connects mental health with overall health and development outcomes for children. Moreover, the political salience of child health care makes any connection between health and mental health more attractive to mental health advocates. The question from a framing perspective is twofold: (1) are the cultural models and entailments that the public brings to mind when thinking about health issues an impediment or an aid to illuminating systems-level thinking; and (2) if there is some complementarity between these domains, how can both issues be positioned in the frame for maximum impact?

With regard to the first question, a fair amount of FrameWorks research suggests that the public brings strong individualist models in their thinking about health issues.<sup>viii</sup> So, the extent to which health can be helpful in getting the public to envision policy-level thinking and solutions for mental health is likely to be limited. Additionally, the structure of American health and social welfare systems clearly dichotomizes these two policy domains. The American Psychological Association, for example, calls the disconnect between mental and physical health care coverage “discrimination in health insurance” and compares the prevalence of mental health problems to common health problems associated with primary health care.<sup>ix</sup> This is especially problematic if the goal is to advance child mental health policies in the context of a much broader societal concern for health promotion and illness prevention. Taken together, these two factors heighten skepticism about the power of health information to overcome either health individualism or the inability of the public to consider that early adverse experiences get built into the body and determine health outcomes across the lifespan.

To determine the relationship among health, early child development and mental health, we developed three tests. The first is designed to determine if valuation of a healthy society is sufficiently powerful to raise policy support for child mental health policies and programs. The second conceptualizes health as a principle based on research about the mind/body connection in early childhood. The third test seeks to determine if adding health-specific information into the extant simplifying models independently increases support for mental health policies and programs.

In short, this part of the study addresses the issue of whether or not it is possible to broaden the public conversation around early child development — and child mental health in particular — to include deliberations about health promotion and illness prevention.

## Moderating Factors

The literature suggests that framing effects can be attenuated by several factors. In some cases, strong prior beliefs about the issue or object will trump activation by short-term contextual cues (Chong and Druckman, 2007; Iyengar, 1991). In other words, there is a distinction between the temporary activation of cognitive structures and the chronic accessibility of long-standing beliefs. The point is that frame effects are susceptible to moderating influences. In this study we account for three moderating factors: gender, political disposition and news attentiveness.

The first and most obvious moderating factor is gender. It has been long known that women are more likely than men to support policies that support child welfare. In our earlier work we discovered that while, on average, women are more sympathetic than men to children's issues, exposure to the core ECD story had a greater impact on men's child policy support. We speculated that it is not necessary to prime women to think affirmatively about child welfare programs and policies because "they are already there." That is, there is a likely ceiling effect on their policy preferences reducing the amount of variance for frame effects. On the other hand, men have greater residual variance which can be accounted for by exposure to certain frame elements.

We know from prior FrameWorks experimental surveys that political disposition matters a great deal in how people respond to the frames. More specifically, Republicans and Independents have stronger positive reactions to the frames we test — a likely result of the fact that their baseline of support for public policies concerning children's issues tends to be lower than those of Democrats. In many respects, however, an aggregate examination of political disposition generally may be masking important differences. That is, it may be that more strident political groups (of either of the two major parties) are overshadowing important effects on those who are more politically open to new points of view.

Finally, research in issue framing has found that the public has become familiar with the scripts typically used to present information about social issues.<sup>x</sup> Moreover, over time the public, especially those who routinely follow news coverage of current events, are able to "fill in" information about those issues based on frame cues when important facts that would contextualize the issues are absent.<sup>xi</sup> We speculate that those who are more news attentive may have to make a steeper cognitive shift in evaluating the incoming information from the frames because the frame cues (i.e., the way they enter this discussion and the information is presented) are markedly different from the issue presentations that they have become accustomed to. That is, the familiar manner in which child mental health is customarily presented by the media is discordant with its presentation in our frames. Media studies have shown that when there is a disconnect between the incoming messages from the media and what they expect to see coming from that media, people actually pay more attention to it — to incorporate it or to reject it

entirely.<sup>xii</sup>

In sum, we pay attention to three moderating influences throughout the analysis: gender, political predisposition and news attentiveness.

## RESEARCH METHODS

In October 2008, a nationally representative sample of 4,200 registered voters (weighted on the basis of gender, age, race, education and party identification) was drawn and subsequently included in the study.<sup>xiii</sup> The median age of respondents in the sample was 49. Fifty-three percent were women, 77 percent were white, and approximately 30 percent were college graduates (high school graduates made up about 35 percent). In terms of partisan affiliation, 39 percent were Democrats, 31 percent Republicans, and 30 percent non-partisan. More specific demographic and political interest characteristics of the sample are detailed for review in Appendix D.

The theory of random assignment in evaluation research design suggests that any variation between the control and the treatment groups not stemming from exposure to the stimuli of the treatments should be negligible or nonexistent. To test this proposition more specifically in our research, we conducted a series of overall F-tests to determine if there were any systematic differences in the race, gender, education and party affiliation between the treatment and control groups. We found no differences significant at the  $p > .10$  level. Even so, as an additional precaution against selection bias caused by prior disposition or other observed characteristics, we also use statistical methods to control for the impact of a discrete set of demographic and political variables available to us. A broader discussion of those methods can be found in Appendix B.

### The Treatments

A major assertion of Strategic Frame Analysis is the notion that there are many elements of an issue frame and that three of the most important are *Values*, *Principles* and *Simplifying Models*. While not exhaustive of frame elements (clearly other elements like messengers, tone, etc. are important considerations), these three types of frame elements are especially important in developing communications that are effective in illuminating the broader social consequences of policy action. More specifically, articulating *Values* presented at the top of the communications message can aid the public in seeing the societal implications of a problem; *Simplifying Models* (typically metaphors) explain the processes that undergird the problem in a way that helps them understand why policy action might be useful or necessary; and *Principles* are shared concepts in the scientific literature that, when shared with the public, can be helpful in illuminating and thinking about a particular aspect of the problem.

In preparation for conducting these experiments, researchers at FrameWorks conferred with our collaborators (the Center on the Developing Child at Harvard University, the National Scientific Council on the Developing Child, and the National Forum on Early Childhood Program Evaluation) to develop a set of frame elements (Values, Simplifying Models, and Principles) that seemed promising in terms of their ability to advance policy support for early child development. Through several iterations of discussions and feedback sessions, we identified and tested a list of potentially promising frame elements to take into the study: six separate Values, three Simplifying Models and five Principles. The specific narrative executions of these frame elements or “treatments” are detailed in Appendix A but are described generally below.

The Values (Prosperity, Ingenuity, Future, Responsible Manager, Vulnerable Child/Fairness and Healthy Society) were selected as frame elements either because we believed (based on our prior research) that they held great potential in terms of evoking greater support for policies that advance children’s development or, in the case of the Vulnerable Child/Fairness and Healthy Society frames, because they commonly appear in early childhood scholarly and advocacy literature.

Each of the Simplifying Models chosen (Toxic Stress, Pay Now/Pay Later, and Brain Architecture) were tested in two ways — with a discussion of physical health as a consideration in child development and without this information. In this way, the experiments were designed to test the efficacy of incorporating health information in the developmental core story by directly comparing the frame effects of the Simplifying Models where health information was included with ones where such information was omitted. This part of the experimental design was part of a larger interest by child development experts and advocates in explaining the health implications of disruption in child development. As such, we put considerable effort into making use of various iterations of the concept of health in the experimental frames. In addition to testing health at the Simplifying Models level of presentation, we also tested health as a Value and as a self-standing Principle.

Finally, we also tested a series of five Principles that came out of the literature or scientific discourse on early child development. In particular, we wanted to examine the extent to which Principles that emerged from the conversation among child development experts and advocates could also serve to strengthen support from the broader public for child mental health policies.

## **Data Collection and Outcome Measures**

In the analysis that follows, we report the findings from our experiments testing the effects of 17 frame elements against levels of support for child mental health policies. Policy support was

assessed using a fairly exhaustive method focused on several policy batteries that tapped the approval/disapproval dichotomy of a series of policy proposals related to child mental health.

In particular, we also collected a list of public policy proposals against which we could test the usefulness of the frame elements. The policies chosen were selected from policy proposals being promoted by child development experts and advocates for the purposes of improving children's well-being. Although the primary subject of this report is child mental health policy, we also collected and categorized policies in four other discrete policy sub-groups: child abuse and maltreatment, poverty/work supports, health, and early child care. The groups (called policy batteries in this report) used in the experiments largely form the basis of our analyses around policy support.

This report focuses on the child mental health battery (which was derived from the policies listed in Figure 1). To generate the battery, we first pre-tested the child mental health policy battery with a small pilot sample of 125 people. We then checked the inter-item correlations between the questions within the battery and subsequently performed a factor analysis to confirm that they were, in fact, distinct. The results of our statistical tests indicated that the child mental health battery represents distinct underlying factor structures.<sup>xiv</sup> We then performed a Cronbach's Alpha test for the fidelity of the scales in the battery to gauge its general reliability. All tests demonstrated that the respective scales displayed coefficients of .86 or higher; well above the range of acceptability. Assured of the reliability as an independent scale, we collapsed the questions within the battery into an index variable that was subsequently used as primary outcome measure in most of the statistical analyses that follow. In addition, for ease of interpretation, this index variable was rescaled to range from 0 to 1.

**Figure 1. Child Mental Health Battery**

1. Mental health and substance abuse services should be available and affordable for all parents, caregivers and children who need them.
2. Victims of child abuse should receive priority in the allocation of mental health funds so that appropriate treatment can be given to prevent the cycle from continuing when they reach adulthood.
3. Sufficient numbers of well-trained professionals with expertise in mental health services should be recruited, trained and licensed to serve the documented needs of families with young children.
4. Early care and education professionals should be required to receive training in mental health screening to aid in their early detection of mental health concerns in young children.
5. Culturally and linguistically appropriate screening services for early detection of mental health concerns in young children and their families should be available to all who need them.

In terms of the format of the experiments, respondents were first asked to respond to a series of introductory questions where they rated their level of concern about a short series of unrelated political issues. To avoid contamination of testing effects, the series of political issues offered to respondents was rotated each time the survey was administered and was quite broad in subject matter. Immediately following this series of questions, respondents were shown their assigned treatment (essentially, the narrative expression of one of the frame elements as shown in Appendix A) and subsequently asked to answer questions related to their support for the policies in each of the policy batteries, attitudinal questions about the role of government, policy priorities, and questions about willingness to support public funding. Questions within each of these outcome areas were also rotated to mitigate any contamination of the tests.

### **Statistical Model Specification and Estimation**

In general, the statistical models used in this study essentially test the experimental hypothesis that, compared to a control group, support for child mental health policies will be affected by exposure to issue frames that allow the public to enter the discussion of early child development in alternative ways. To estimate support for policy, we used a generalized linear regression model. The regression analysis (as a technique) is useful because it measures the strength of the relationship between multiple variables of interest simultaneously (in this case, between the various frame elements and our measures of policy support). In addition, to increase the precision of the effect measurements, a limited number of covariates were added to the regression models (including race, gender, class, party affiliation, age, education, region of residency, religious affiliation and marital status). A detailed specification of the functional form of the model used to generate the findings in this report, along with a list of covariates used and an explanation of the presentation format of these findings, can be found in Appendix B.

## **THE FINDINGS**

In this report, we detail the results of experiments that test the extent to which variations in the way the public “enters the conversation” (via the employment of different frames) about early child development serves to lift public support for child mental health policies. The findings presented below are divided into two sections that parallel the two research questions outlined at the outset of the report. To recap, our first question asked if exposure to key frame elements of the core story of early child development would heighten public support for child mental health policies. Our second question asked if promoting health as an integral part of children’s overall development would increase support for child mental health policies.

## Study 1: The Frame Effects of the Core Story on CMH Policy Preferences

### Evaluating the Impact of Values

Values are indispensable as gatekeepers in the communication of social messages.<sup>xv</sup> They are connected to and can “cue up” powerful cultural models that ultimately shape public understanding of the source of social problems, the efficacy of efforts to solve those problems, and notions about who is responsible for development and implementation of solutions. As such, the articulation of an appropriate Value at the outset of the communications is a critical component for any communications strategy that seeks to broaden the base of public support.

In a prior research paper, FrameWorks evaluated the performance of the Values in this experiment with respect to different areas of child development.<sup>xvi</sup> Here we summarize the main findings from this work as specifically related to child mental health in Table 1. Table 1 includes the treatment effects (which we define as the difference between the treatment and control group means), effect sizes (which is an indicator of how much of the variation in policy preferences is explained by the frames), and the level of statistical significance (between the treatment and control group means). Statistically significant findings are shaded for ease of interpretation.

Table 1. Values Frame Effects	
Values Frames	Mental Health Interventions
<b>Prosperity</b>	Treatment Effect
	Effect Size (by point increase)
	Level of Statistical Significance
<b>Ingenuity</b>	Treatment Effect
	Effect Size
	Level of Statistical Significance
<b>Future</b>	Treatment Effect
	Effect Size
	Level of Statistical Significance
<b>Responsible Mgmt.</b>	Treatment Effect
	Effect Size
	Level of Statistical Significance
<b>Vul. Child/Fairness</b>	Treatment Effect
	Effect Size
	Level of Statistical Significance
Statistically Significant Differences * p ≤ .10; **p < .05	

Results suggest that *Prosperity and Ingenuity exert positive, demonstrable, statistically significant influence on the extent to which people favor policies related to child mental health.* The treatment effects associated with both Prosperity and Ingenuity Values suggest that they have the effect of raising support for policies on the child mental health battery by an average of about a 3-point increase on the dependent score variable. No other Values tested proved to be statistically significant. The strength of both Prosperity and Ingenuity frames in lifting policy support for child mental health policies suggest that either way of framing this issue is likely to

offer improvements over other frames we tested in the survey — especially over talking about the fairness of policies associated with “vulnerable children,” a common narrative among child development experts and advocates.

To provide more depth as to the frame effects of the Values tested, we also present effect sizes as they relate to the child mental health policies tested. The effect sizes represent the amount of variation in the dependent variable (in this case, support for child mental health policies) that is explained by the treatment (or in this case, by the particular Value). As indicated, the effect sizes are most pronounced on the Prosperity and Ingenuity Values — moving effect sizes on policy support as high as .08 when respondents were exposed to Ingenuity. This means that about 8 percent of the variability (or differences) in support for child mental health can be predicted or explained by Prosperity or Ingenuity. As such, both these frames explain much more of the difference between the treatment and control groups than do other frames tested. That is, their explanatory power in predicting levels of public policy support is stronger than any of the other frames tested.

We should note that these effect sizes would be considered fairly small as experimental impacts but given the modesty of the experiments themselves (one exposure to a framed narrative just before thinking about policy preferences, in which frames are distinguished from one another by a relatively small number of words varied), the strength of the effects makes intuitive sense. Thus, the results show statistically significant but modest differences across the treatments on policy preferences. Moreover, they should be examined not only for their performance in these models but for their capacity to serve as potential predictors of how social messages about children’s development and well-being would likely be received by the broader public if they received ongoing and/or concentrated exposure.

### **Evaluating the Impact of Principles**

We also wanted to test the efficacy of early child development Principles and their performance with respect to child mental health policies. We define Principles as those aspects of child development science that arise from the body of scientific evidence or social policy research and, on the whole, constitute a process or problem that, in the estimation of experts, warrants explanation to the public.

Our experiments were designed to test three specific Principles that emerged from our research: Effectiveness Factors, Continuous Quality Improvement and Return on Investment. We also tested the following Principles that have emerged in prior iterations of our experimental work or come from our deliberations with child development experts: Environment of Relationships and Health (as a Principle).

Table 2. Principles Frame Effects	
Frame Element	Mental Health Interventions
<b>Env. of Relationships</b>	
<i>Treatment Effect</i>	.012
<i>Effect Size (by point increase)</i>	.01
<i>Level of Statistical Significance</i>	.516
<b>EFF Factors</b>	
<i>Treatment Effect</i>	.008
<i>Effect Size</i>	.00
<i>F Level of Statistical Significance</i>	.678
<b>Cont Improvement</b>	
<i>Treatment Effect</i>	.004
<i>Effect Size</i>	.00
<i>Level of Statistical Significance</i>	.824
<b>Rtn on Investment</b>	
<i>Treatment Effect</i>	.005
<i>Effect Size</i>	.00
<i>Level of Statistical Significance</i>	.789
Statistically Significant Differences * p ≤ .10; **p < .05	

Here, we evaluate the effectiveness of these Principles with respect to the child mental health battery. Table 2 suggests that the Principles developed to address the early child development field have a limited direct impact on mental health policy. While there are some differences across the Principles we tested, they represent marginal gains over the control group and none of them is statistically significant. As such, *on the issue of child mental health in particular, the evidence is pretty clear — the Principles tested have no impact on the public's policy preferences. Thus, although the Principles outlined may be helpful in discussions among child development experts and advocates, these data show that they have a limited impact on policy outcomes and therefore are unlikely to elevate public thinking about child mental health policies.*

### Evaluating the Impact of Simplifying Models

Simplifying Models are an important part of engaging the public about social issues and have proven especially useful in communicating about early child development. On the issue of early childhood development, Simplifying Models have been useful because they help improve public understanding of the science of early child development in ways that help make policy solutions easier to envision and support. FrameWorks' most recent research on the development of Simplifying Models suggests that, while they may exert some indirect influence over policy preferences (as our current experiment shows), their primary benefit comes from: (1) their ability to improve understanding and comprehension of the major processes that make policy solutions necessary and useful; as well as (2) improving understanding of the issue in ways that help inoculate against unproductive or ineffectual policy proposals.<sup>xvii</sup>

On the issue of early child development, FrameWorks has developed and tested the effectiveness of several simplifying models that have been helpful in communicating the emerging science of development. We include three of those models in this experiment and evaluate the extent to

which they may exert indirect influence on policy preferences: Toxic Stress (a metaphor that explains that there are varying forms of stress — some of which are “toxic” or particularly inhibitory to children’s normal brain development); Brain Architecture (a metaphor that describes how brains are built and what happens when the foundational aspects of brain development are unsupported and underdeveloped); and Pay Now/Pay Later (a Simplifying Model used to help the public understand the time-sensitive nature and latent aspects of delayed intervention).

Table 3. Simplifying Models Frame Effects		
Frame Element		Mental Health Interventions
<b>Toxic Stress</b>	<i>Treatment Effect</i>	.040
	<i>Effect Size</i>	.12
	<i>Level of Statistical Significance</i>	.031*
<b>PN/PL</b>	<i>Treatment Effect</i>	.009
	<i>Effect Size</i>	.01
	<i>Level of Statistical Significance</i>	.646
<b>Brain Arch.</b>	<i>Treatment Effect</i>	.013
	<i>Effect Size</i>	.00
	<i>Level of Statistical Significance</i>	.505
Statistically Significant Differences * p ≤ .10; **p < .05		

Here, we examine Table 3 which suggests that *Toxic Stress exerts the strongest impact on public support for child mental health policies*. In particular, Toxic Stress as part of the frame represents a 4-point increase on the dependent score variable and this difference is statistically significant. This is an even stronger impact than either Prosperity or Ingenuity (the two significant Values to emerge as a result of these experiments). We also note that Toxic Stress has an effect size of .12 — the largest of any of the frame elements tested against child mental health policies.

The fact that Toxic Stress is the only significant Simplifying Model to show statistical significance on child mental health gives some pause for reflection. It is quite likely that Toxic Stress explains a key part of the developmental process that helps the public understand why policy solutions could be useful (or are necessary) for addressing issues in child mental health. As such, *Toxic Stress may be especially useful on this issue because it explains how the developmental process can be interrupted or derailed in ways that compromise mental health functioning in young children*.

### Identifying Key Moderating Variables

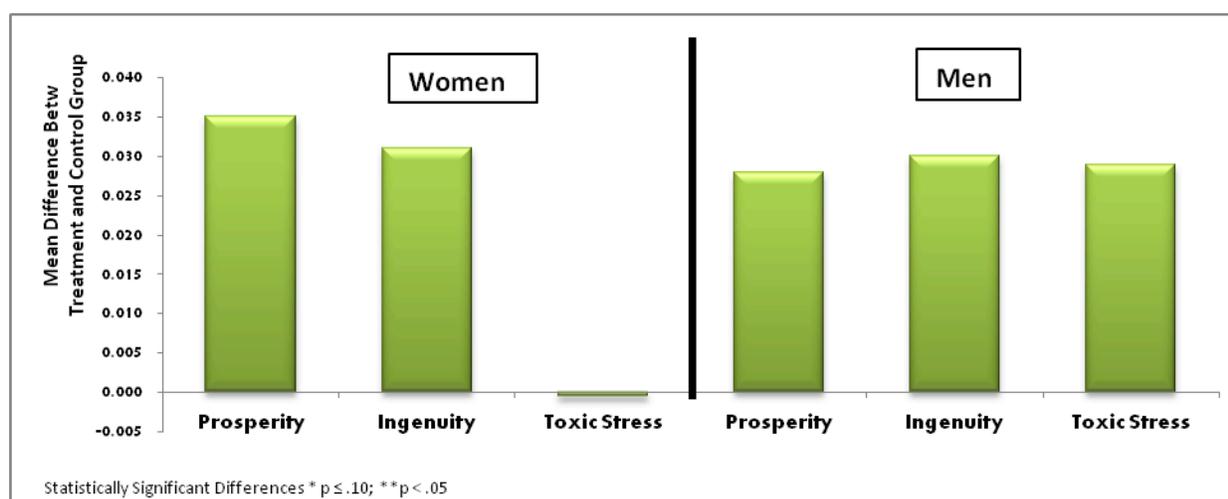
The statistical findings presented above were controlled for demographic and political interest

variables (including race, gender, class, party affiliation, age, education, region of residency, religious affiliation and marital status). As a result, our interest in this section of the report is to examine the impact of variables we suspect (from prior studies) exert moderating influence on the direction of the frame effects. More specifically, we examine three potential moderators: gender, political disposition and news attentiveness. Our expectation at the outset of this analysis is that people who pay more attention to the news media and/or hold more politically moderate viewpoints on issues related to children will ultimately be more sensitive to the alternative frames presented in the experiments and thus more likely to be supportive of child mental health policies.

### Evaluating the Impact of Gender on Frame Effects

Here we evaluate the impact of the frames on men. Prior FrameWorks experimental data has shown stronger frame effects among men and our analysis is designed to examine the magnitude of those effects. Figure 2 presents treatment effects (derived from the coefficients of interaction variables entered into the regression model). Results suggest that *the effects of Prosperity and Ingenuity on men and women are generally quite similar and that only Toxic Stress seems to have a much more dramatic effect on men (although neither of these differences is statistically significant). Women exposed to Toxic Stress were about as likely as those in the control group to support child mental health policies.*

Figure 2. Treatment Effects of Selected Frame Elements by Gender

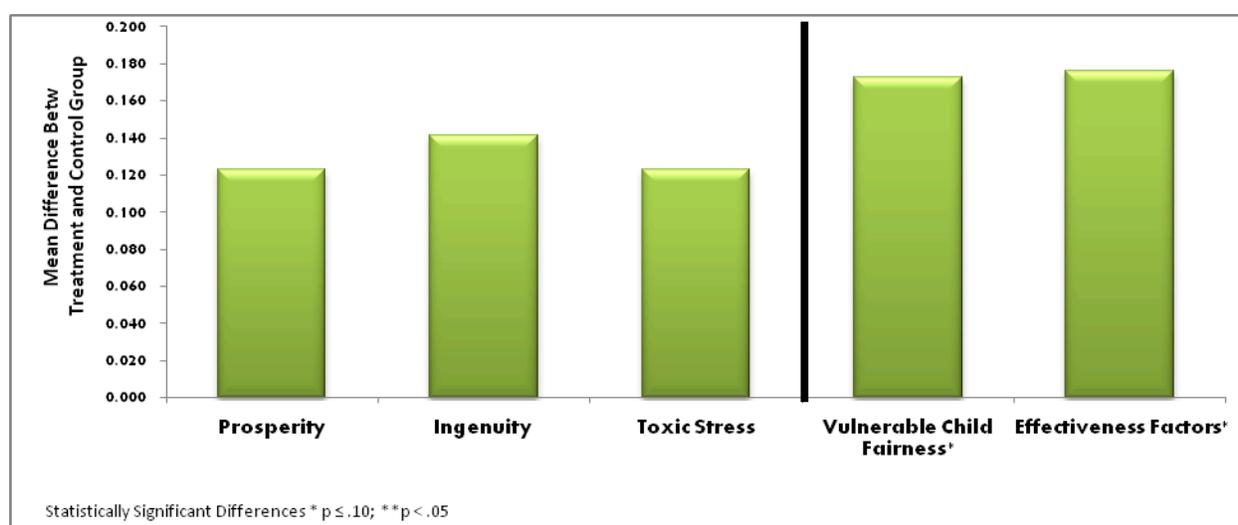


### Evaluating the Impact of Political Disposition on Frame Effects

We also asked as part of this survey that respondents share their political affiliations. More

specifically, we asked for both party affiliation (if any) and the strength of that affiliation (i.e., are you a strong Republican, Not so Strong Republican, Lean Republican, Independent, etc.). We collapsed answers to these questions into one variable that would indicate the strength of a participant’s political affiliation (essentially creating a dummy variable to indicate if respondents were more tentative in their political affiliations or had more entrenched political dispositions) and interact it with each of the frames in the experiment. Figure 3 provides a summary of the findings related to the frames that were shown to increase policy support for child mental health among politically moderate respondents, alongside two other frames where we found statistically significant differences for more politically entrenched respondents.

**Figure 3. Treatment Effects of Selected Frame Elements by Political Disposition**



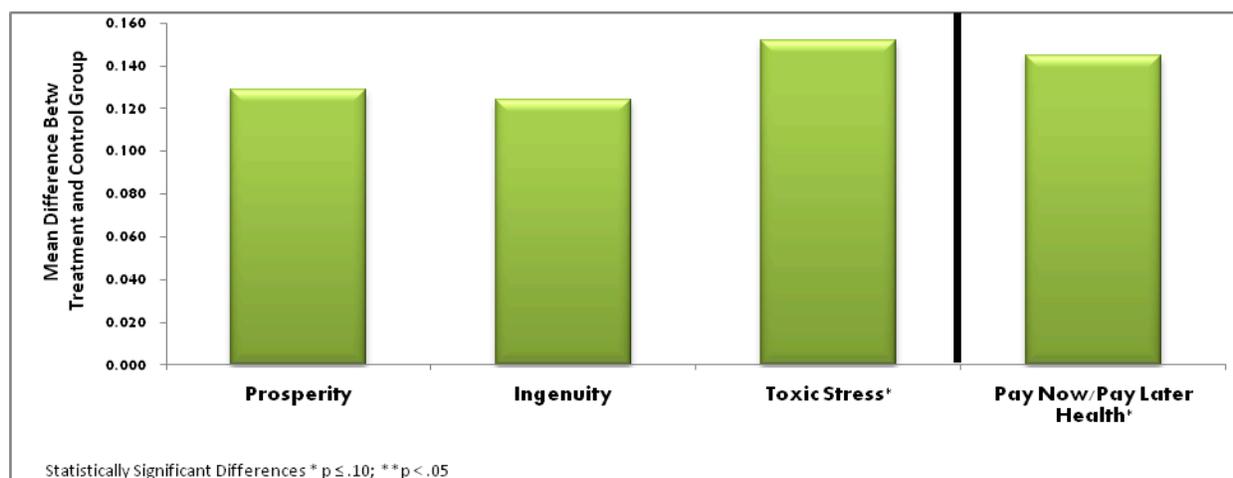
In our analysis of political disposition, *we find no significant differences on the frames of primary interest — those frames which we know improve policy support for child mental health.* More generally, we find only two frames in the survey for which more strident political viewpoints make respondents more sensitive to the frames — Vulnerable Child/Fairness (a Value) and Effectiveness Factors (a Principle). In both the latter cases, respondents who self-identified as “Strong Democrats” or “Strong Republicans” had stronger reactions to these frames that increased their support for child mental health policies.

### **Evaluating the Impact of News Attentiveness on Frame Effects**

In the experimental survey, respondents were asked about the frequency with which they consumed local television news, national television news, a local or national newspaper, or visited news website like CNN.com. Their answers to these questions were collapsed into one overall indicator of news attentiveness (a dummy variable which took the value of 1 if they said that they consumed any of these sources of news “3 or more times per week” or better; and 0 if

news consumption was less frequent or more irregular overall). In the findings discussed here, we report on the results of this “news attentiveness” variable when it is interacted with each treatment (our frames). Figure 4 displays the results from this analysis.

**Figure 4. Treatment Effects of Selected Frame Elements by News Attentiveness**



In our analysis of news attentiveness, *we find significant differences associated with news attentiveness and exposure to Toxic Stress*. That is, news-attentive respondents (people who regularly pay attention to the news media) who were exposed to Toxic Stress were significantly more likely to support child mental policies than those who pay little attention to such the media. Moreover, the level of news attentiveness is also close to significance for both Prosperity and Ingenuity. It is also worth noting that Pay Now/Pay Later Health was the only other frame in the study for which we observe statistically significant differences in exposure to the frames for news-attentive respondents.

### **Summary of Results on Study 1: Overall Frame Effects Analysis and Moderating Factors**

In many ways we were able to confirm the hypothesis that exposure to key elements of the core story of early child development would heighten support for child mental health. The Values of both Prosperity and Ingenuity not only raise support for most areas of early child development but do so for child mental health as well. Toxic Stress, which also appears to lift policy support across multiple areas of early child development, serves to lift support for child mental health policies and has a stronger impact on child mental health than either of the two Values (Prosperity and Ingenuity). The one area where the early child development core story is not easily grafted onto child mental health is with respect to scientific principles. We found no Principles that exert influence over the public’s policy preferences on this issue. The broader implications of this data are that, while there are clearly some Values and Simplifying Models

that are effective in helping to reframe both early child development (generally) and child mental health (specifically), a broader reframe of child mental health as a social concern may require the development of additional Simplifying Models and Principles that are specifically targeted to child mental health. Moreover, the success of Toxic Stress indicates to some extent that a set of Simplifying Models that speak to other ways in which the developmental process in young children can be derailed, as well as offered solutions about how to mitigate such problems, might extend further the public's appreciation for public intervention on child mental health issues.

Also, based on prior research, we posited that three characteristics would likely affect the impact of the frame effects: gender, prior political disposition and news attentiveness. More specifically, we expected men, people with less entrenched political viewpoints, and those who were more news attentive to have a more dramatic favorable response to the frames and thus show evidence of more support for child mental health policies. Our findings suggest that men and news-attentive respondents were more sensitive than those who were less news attentive on at least one of the frames of interest (Toxic Stress). This is an important finding, since the impact of Toxic Stress on support for child mental health policy was stronger than any other frame element examined as part of this experiment. On the second issue, we found little evidence that the strength of the political viewpoints moderated policy support. *One of the broad implications of this finding is that Toxic Stress is much better at reaching those whose support for child mental health is tentative at the outset — men and less news-attentive respondents. A second implication is that child development experts and advocates need not tailor the communications messages around child mental health to different political camps — the frames that elevate policy support do so just as effectively across the entire political spectrum.*

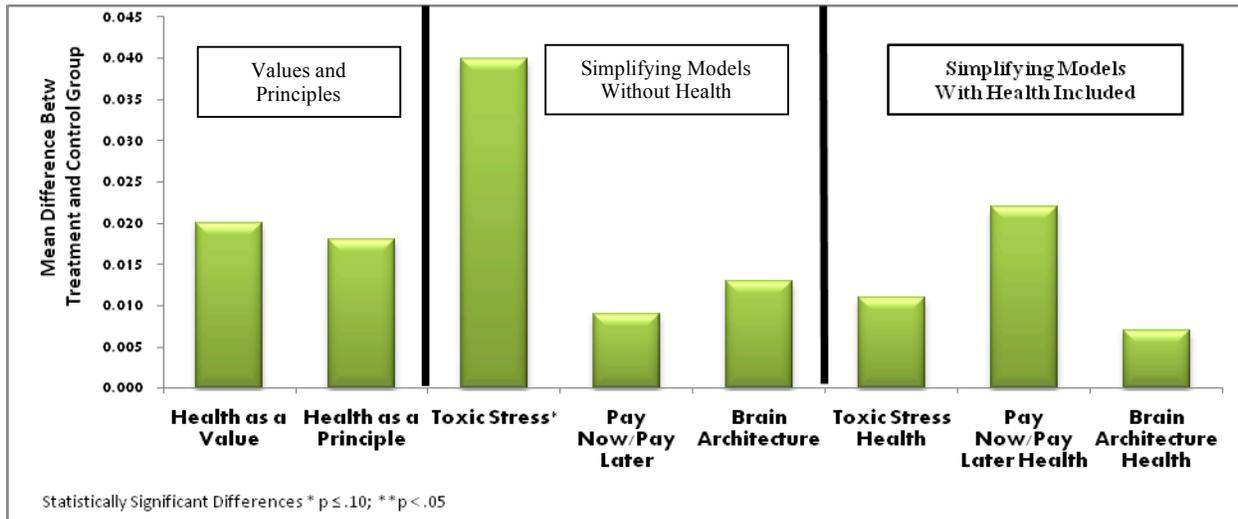
## **Study 2: The Policy Impacts of Incorporating Health as an Explicit Part of the Frame**

A major concern to child mental health advocates has been whether and how they might capitalize on the salience of the health care as policy issue to promote mental health policies. For these experiments, several treatments were designed to purposely test the impact of incorporating health into the frame of early child development. Here we had the separate challenge of thinking strategically about whether, and how best, to incorporate the concept of physical health into the early child development core story. As such, we incorporated health at each level of presentation in the frame — thus, we have treatments that position Health as a Value, Health as a part of each Simplifying Model tested in the study, and Health as a Principle.

The inclusion of the Simplifying Models in the study (included both with and without health information attached) provides an extraordinary opportunity to judge the usefulness of health as part of the frame. Looking specifically at the findings related to child mental health, *we see a bleaker picture with regard to the presentation of health to the frame. Summarized simply, none*

of the frame elements where health is included show any statistically significant advantage over the control condition. Figure 5 allows us to inspect the findings related to health visually. The findings are divided into three areas for ease of interpretation.

Figure 5. Treatment Effects of Selected Frame Elements Related to Health in the Mental Health Battery



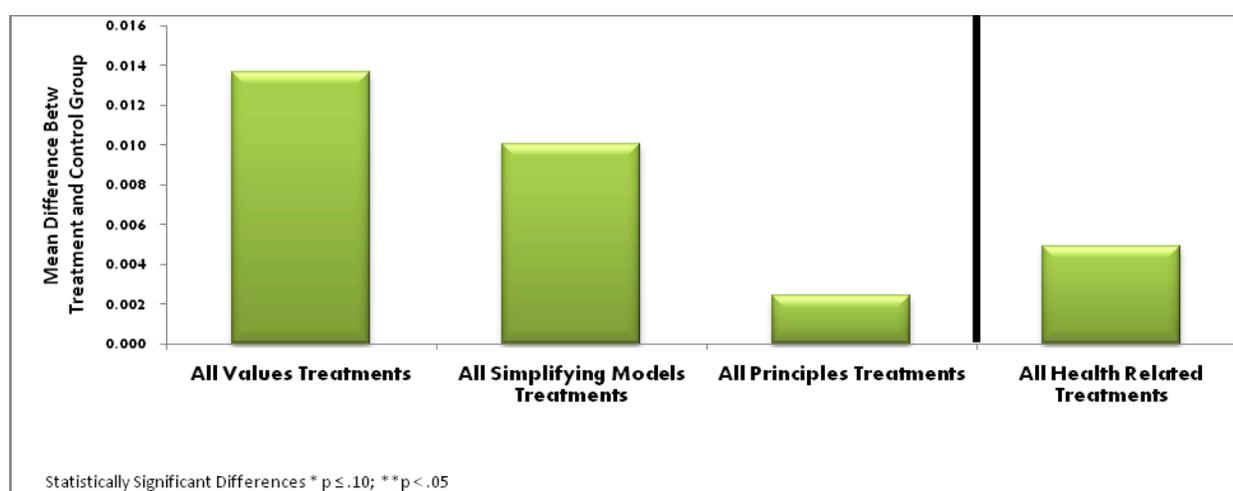
From Table 4, provides greater detail about the frame effects including statistical significance, effect sizes, and mean differences.

Table 4. Health-Related Frame Effects	
Frame Element	Mental Health Interventions
<b>Health as a Value</b>	<i>Treatment Effect</i> .020
	<i>Effect Size</i> .003
	<i>Level of Statistical Significance</i> .290
<b>Health as Principle</b>	<i>Treatment Effect</i> .018
	<i>Effect Size</i> .02
	<i>Level of Statistical Significance</i> .339
<b>Toxic Stress Health</b>	<i>Treatment Effect</i> .011
	<i>Effect Size</i> .01
	<i>Level of Statistical Significance</i> .570
<b>Toxic Stress</b>	<i>Treatment Effect</i> .040
	<i>Effect Size</i> .12
	<i>Level of Statistical Significance</i> .031*
<b>PN/PL Health</b>	<i>Treatment Effect</i> .022
	<i>Effect Size</i> .03
	<i>Level of Statistical Significance</i> .242
<b>PN/PL</b>	<i>Treatment Effect</i> .009
	<i>Effect Size</i> .01
	<i>Level of Statistical Significance</i> .646
<b>Brain Arch. Health</b>	<i>Treatment Effect</i> .007
	<i>Effect Size</i> .00
	<i>Level of Statistical Significance</i> .722
<b>Brain Arch.</b>	<i>Treatment Effect</i> .013
	<i>Effect Size</i> .00
	<i>Level of Statistical Significance</i> .505

Statistically Significant Differences \* p ≤ .10; \*\*p < .05

To make the findings with respect to health clearer, we present the findings for all of the health-related treatments combined versus all others in the analysis. More specifically, we collapsed all of the treatments without health by category and compared them in a side-by-side comparison with a treatment that includes only health-related treatments.<sup>xviii</sup> The findings are shown in Figure 6 below and they show that, *although the Values and Simplifying Models categories are not statistically significant, they do move policy support in the expected direction (and fare better than the control group). The Principles category barely moves public support above the control group.* With respect to the category of interest, the Health-related frames perform worse than Values or Simplifying Models but better than Principles.

**Figure 6. Health-Related Treatments Versus All Others in the Mental Health Battery**



*From these data we conclude that adding health to the core story of early child development does little to enhance policy support for child mental health. While the health-related treatments offer some advantages over the control condition, they fall far short of the impact that the Values or Simplifying Models treatments make on this issue. Generally, this means that influencing support for child mental health by talking about early child development is more effectively done by framing these issues from the vantage point of Values and Simplifying Models that omit health information.*

Our data also allow us to test a popular theory posited by child mental health practitioners. Namely, that exposure to the health-related frames may be the catalyst for moving public support for child mental health policies. In other words, advocates have long wanted to capitalize on the political salience of health care by “hitching the mental health wagon” to the issue of overall health — a policy area with much broader public visibility. The design of these experiments enables an evaluation of the frame effects associated with how the public sees child mental health in relation to other health policies. Our expectation is that if the advocates’ theory holds, exposure to primes with explicitly health-related content should tighten the relationship between

physical and mental health in the public’s mind. In short, can increased exposure to health information influence public thinking in such a way as to strengthen the relationship between child physical and mental health?

To establish a baseline, we first examined the correlations between support for mental health policy and support for health policies within the control group — that is, without exposure to any of the frame elements — in Table 5.

Table 5. Policy Battery Correlations - Control Group					
	Mental Health Battery	Health/Nutrition Battery	Child Abuse Battery	Poverty/WS Battery	Early Child Care Battery
Mental Health Battery	1				
Health/Nutrition Battery	.647**	1			
Child Abuse Battery	.727**	.740**	1		
Poverty/Work Supports Battery	.655**	.856**	.756**	1	
Early Child Care Battery	.660**	.822**	.756**	.810**	1

N = 4,148; \*\*. Pearson’s correlation is significant at the 0.01 level (1-tailed).

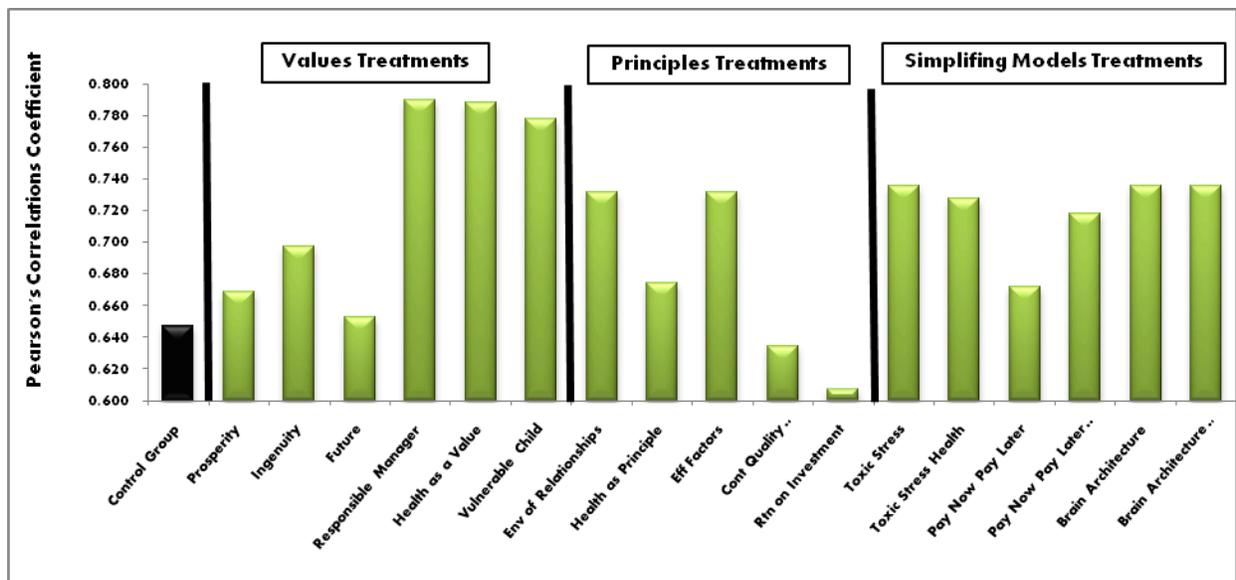
A correlations table specifically examines the strength of the relationship between two or more variables through a set of indicators called coefficients. The coefficients in Table 5 lie between 0 and 1; the closer to 1 the coefficient is, the stronger the relationship between the variables. A coefficient of .8 or better is considered a particularly strong relationship; .6 to .79 confers the existence of a moderate relationship between the two variables but anything under .6 is considered a very weak association. In Table 5, we can see that there is a strong or moderate relationship between all of the policy batteries examined as part of the experiments, as indicated by the statistically significant coefficients associated with every bivariate relationship. This is consistent with what we would expect given that the subject of all of the policy batteries is the same — early child development and well-being. The correlations coefficients in Table 5 further demonstrate that the strongest relationships across the policy batteries occur between poverty and the other batteries. That is, those who more strongly favored policies related to poverty were more likely to do the same with regard to health (.856), child care (.810), child abuse (.756) and, finally, mental health (.655). A closer look at our two policy batteries of interest demonstrates that the relationship between mental health and health care is most tenuous (.647) across the batteries. This means that the link between support for child mental health policies and for health care policies is weaker than the links relating any of the other areas of policy examined in the study. *This provides some evidence that the link in the public’s mind between mental health and health care is more fragile and shallow than for other areas of children’s development.*

A more important question is whether the frames we tested have any impact on how the public sees the relationship between health and mental health care. That is, the second part of this inquiry is to examine whether any of the frames (particularly the health-related treatments) have the effect of narrowing the distance between child mental health and health care batteries in the public consciousness.

Figure 7 presents the correlations coefficients between health and child mental health policies across the frame elements tested. *These data suggest that many of the experimental treatments improve the association between support for child mental health and more general health care policies when compared to the control group. It is clear however that some treatments do this better than others.*

*The first take-away from this analysis is that exposure to health information — whether as a Value, Principle or Simplifying Model — has little independent impact on the relationship between child physical and mental health. For instance, while exposure to the Health as a Value frame tightens the relationship between physical and mental health (compared to the control group), so does exposure to other values, such as Responsible Manager and Vulnerable Child. Further, there is very little independent impact of exposure to health information when it is represented as a Principle or Simplifying Model. In other words, it seems to be the underlying frame element that is driving the results, not the addition of health information. As such, we conclude that the frames with additional health information attached did not (as a whole) strengthen the relationship between health and mental health policies.*

Figure 7. Correlations Coefficients Between Health and Mental Policies, by Frame Element



## **Summary of Results on Study 2: The Incorporation of Health in the Frame**

In our analysis of the data specifically related to child mental health, we found no support for adding health at the Values, Principle or Simplifying Models level of presentation. The broader implication of this finding is that additional information about health in the frame is unlikely to result in greater policy support for child mental health. This may be because the two policy domains are not well connected in the public consciousness — a second issue we examined for this report.

We posited that the health-related frames (which are an attempt to make a more explicit, stronger connection to physical health) would weaken rather than strengthen the relationship between health policies and those related to child mental health. We wanted to examine this second issue as well because although many child development experts and advocates see mental and physical health as related, they have struggled to ascertain how best to get the public to see this connection as well. We found that Values — including Health as a Value — tended to produce the most dramatic reinforcements of the relationship between these policy domains (although not all of the Values tested produced dramatic results), but generally the relationship between these two policy areas is quite tentative and the addition of health-related information into the frame does not, in and of itself, bridge this gap except at the level of Values.

### **CONCLUSIONS FROM THIS EXPERIMENTAL RESEARCH**

The results of the experimental research outlined in this report suggest that it is possible to broaden support for child mental health policies by using the right Values and Simplifying Models that have already been developed on the issue of early child development. It is also clear that there are particular frames that appeal more readily to the news-attentive public which can make broad-based communications to the popular media even more salient to audiences. In this way, more than anything else, the results from this study confirm that the way the public “enters a conversation” about child development matters a great deal in terms of how they come to understand and think about related policies. That is, the frames attached to an issue are powerful determinants of outcomes.

In other ways however, the findings deepen the reframing challenge on this issue. For example, we found that the science Principles tested are ineffective in increasing support for child mental health policies. If science Principles are to be used, there is considerable work ahead in refining those Principles tested here and in finding new Principles that may be more effective in increasing support for the policies that science suggests are necessary and effective. In addition, findings show little support for adding health into the frame around child mental health. As a result, there needs to be additional thinking on how to incorporate health if it continues to be a

communications goal of child development experts and advocates.

This report is the first of several papers that will examine frame effects related to child mental health policies in an experimental context. Subsequent papers will build on the promising results detailed in this report and examine the challenges of reframing child mental health both directly and indirectly. Directly, we will use experimental methods to test frame elements developed specifically to address the cultural models and cognitive holes operative on the issue of child mental health. Indirectly, we will explore how frame elements developed for other issues may be applied to child mental health — opportunistically using the best of our research resources to grapple with the challenges that make this issue difficult to reframe but incredibly fascinating.

## APPENDIX A: VALUES, SIMPLIFYING MODELS AND PRINCIPLES

After the selection of the frame elements, FrameWorks researchers developed a narrative paragraph as a representation of how each element might be discussed in a media report or some other form of advocacy materials to which study participants might routinely be exposed. The specific narratives that respondents were exposed to are listed below. Each respondent in the survey was exposed to one of these narratives unless they were in the control group (where they would receive no exposure to anything except the policy batteries).

### Values Frames

**1. Prosperity Frame.** Lately there has been a lot of talk about the role of society in supporting children. In particular, people have offered various explanations of why it is important to devote societal resources to children at the very earliest stages of life. For example, some people believe that early childhood development is important for community development and economic development. According to this view, skills and capacities that begin developing in early childhood become the basis of a prosperous and sustainable society — from positive school achievement to workforce skills to cooperative and lawful behavior. Have you heard of this explanation of why we should allocate societal assets to young children, because they predict our society's prosperity?

**2. Ingenuity Frame.** Lately there has been a lot of talk about the role of society in supporting children. In particular, people have offered various explanations of why it is important to devote societal resources to children at the very earliest stages of life. For example, some people believe that society needs to invent and replicate more effective policies and programs for young children. According to this view, innovative states have been able to design high-quality programs for children. These programs have solved problems in early childhood development and shown significant long-term improvements for children — but many counties don't have access to these innovations. Have you heard of this explanation of why we should allocate societal resources to creating better solutions for young children?

**3. Future Frame.** Lately there has been a lot of talk about the role of children in society. In particular, people have offered various explanations of why it is important to devote societal resources to children at the very earliest stages of life. For example, some people believe that, because children are our future, we need to give to them now so they can give back to society later. According to this view, society makes an investment in its own future when it invests in quality early childhood programs because these children will be better able to inherit our institutions and steward our nation. Have you heard of this explanation of why we should allocate societal resources to children as our future?

**4. The Responsible Management Frame.** Lately there has been a lot of talk about the role of society in supporting children. In particular, people have offered various explanations of why it is important to devote societal resources to children at the very earliest stages of life. For example, some people believe that it is irresponsible to ignore new findings about child development that should be used to improve our health and education systems. According to this view, we now know that important child development

happens earlier than previously thought, and that early adversity has life-long effects on learning, behavior and health. So we need to update our major preventive systems to incorporate this new knowledge about early childhood. Have you heard of this explanation of why we should allocate societal resources to better management of systems affecting young children?

**5. Health Frame.** Lately there has been a lot of talk about the role of society in supporting children. In particular, people have offered various explanations of why it is important to devote societal resources to children at the very earliest stages of life. For example, some people believe that investments in better children's health result in economic and health benefits for all of society. According to this view, children's health potential is influenced earlier than we thought because we now know that early adverse experiences can have life-long health consequences. This can affect the health of the heart and immune system, so if society wants to lower health care costs, we should invest in early childhood development. Have you heard of this explanation of why we should allocate societal resources to improve our nation's health through young children?

**6. The Vulnerable Child Fairness Frame.** Lately there has been a lot of talk about the role of society in supporting children. In particular, people have offered various explanations of why it is important to devote societal resources to children at the very earliest stages of life. For example, some people believe that society needs to invest in programs that help the most vulnerable children whose families struggle to make ends meet. According to this view, one way to level the playing field for children who suffer from poverty and discrimination is to financially support their access to the same high-quality early childhood programs that wealthier families can afford. Have you heard of this explanation of why we should allocate societal resources more fairly for vulnerable young children?

### **Potential Principles of the Core Story**

**7. Environment of Relationships.** Lately there has been a lot of talk about the role of society in supporting children. In particular, people have offered various explanations of why it is important to devote societal resources to children at the very earliest stages of life. For example, some people believe that young children grow up in an environment of relationships that affects all aspects of their development. According to this view, healthy development depends upon the quality and reliability of a child's relationships with adults. The support and interaction of trusted adults shapes a child's brain circuits, and can affect academic performance and interpersonal skills later in life. Have you heard of this explanation of why we should allocate societal resources to provide consistent and stimulating environments for young children?

**8. Health as Principle.** Lately there has been a lot of talk about the role of society in supporting children. In particular, people have offered various explanations of why it is important to devote societal resources to children at the very earliest stages of life. For example, some people believe that adverse experiences get built into the child's body early in life and can predispose a child to later illness. According to this view, children exposed to early adversity can develop an exaggerated stress response that, over time, weakens their defense system against diseases, from heart disease to diabetes and depression. That exaggerated response may never go away, with lifelong consequences. Have you heard of this explanation

of why we should allocate societal resources to preventing long-term health problems in young children?

### **Simplifying Models and Principles of the Core Story**

**9. Toxic Stress.** Lately there has been a lot of talk about the role of society in supporting children. In particular, people have offered various explanations of why it is important to devote societal resources to children at the very earliest stages of life. For example, some people believe that “toxic stress” in early childhood is associated with such things as extreme poverty, abuse or severe maternal depression, and damages the developing brain. It is important to distinguish among three kinds of stress. We do not need to worry about positive stress (which is short-lived stress, like getting immunized). But toxic stress lasts longer, lacks consistent supportive relationships and leads to lifelong problems in learning, behavior, and both physical and mental health. Please tell us if you have heard this explanation of why we should allocate societal assets to young children.

**10. Toxic Stress (with health information, in italics).** Lately there has been a lot of talk about the role of society in supporting children. In particular, people have offered various explanations of why it is important to devote societal resources to children at the very earliest stages of life. For example, some people believe that “toxic stress” in early childhood is associated with such things as extreme poverty, abuse or severe maternal depression, and damages the developing brain. It is important to distinguish among three kinds of stress. We do not need to worry about positive stress (which is short-lived stress, like getting immunized). But toxic stress lasts longer, lacks consistent supportive relationships and leads to lifelong problems in learning, behavior, and both physical and mental health. *Children exposed to toxic stress develop an exaggerated stress response that, over time, weakens their defense system against diseases, from heart disease to diabetes and depression. That exaggerated response never goes away, with lifelong health consequences.* Please tell us if you have heard this explanation of why we should allocate societal assets to young children.

**11. Pay Now or Pay More Later.** Lately there has been a lot of talk about the role of society in supporting children. In particular, people have offered various explanations of why it is important to devote societal resources to children at the very earliest stages of life. For example, some people believe trying to change behavior or build new skills on a foundation of brain circuits that were not wired properly when they were first formed requires more work and is less effective. According to this view, remedial education, clinical treatment and other professional interventions are more costly and produce less desirable outcomes than the provision of nurturing, protective relationships and appropriate learning experiences earlier in life. Please tell us if you have heard of this explanation of why we should allocate societal assets to young children.

**12. Pay Now or Pay More Later (with health information, in italics).** Lately there has been a lot of talk about the role of society in supporting children. In particular, people have offered various explanations of why it is important to devote societal resources to children at the very earliest stages of life. For example, some people believe trying to change behavior or build new skills on a foundation of brain circuits that were not wired properly when they were first formed requires more work and is less effective. According to this view, remedial education, clinical treatment and other professional

interventions are more costly and produce less desirable outcomes than the provision of nurturing, protective relationships and appropriate learning experiences earlier in life. *We now know that children who are exposed to serious early stress develop an exaggerated stress response that, over time, weakens their defense system against diseases, from heart disease to diabetes and depression. That exaggerated response never goes away, with costly consequences for them and the society.* Please tell us if you have heard of this explanation of why we should allocate societal assets to young children.

**13. Brain Architecture.** Lately there has been a lot of talk about the role of society in supporting children. In particular, people have offered various explanations of why it is important to devote societal resources to children at the very earliest stages of life. For example, some people believe that the basic architecture of the brain is constructed through an interactive process with early experiences. Like the construction of a home, the architecture of the developing brain begins with laying the foundation, and continues with the incorporation of distinctive features that enable increasingly complex skills over time. As it emerges, the quality of that “brain architecture” establishes either a sturdy or a fragile foundation for all of the development, behavior and health that follows. Please tell us if you have heard this explanation of why we should allocate societal assets to young children.

**14. Brain Architecture (with health information, in italics).** Lately there has been a lot of talk about the role of society in supporting children. In particular, people have offered various explanations of why it is important to devote societal resources to children at the very earliest stages of life. For example, some people believe that the basic architecture of the brain is constructed through an interactive process with early experiences. Like the construction of a home, the architecture of the developing brain begins with laying the foundation, and continues with the incorporation of distinctive features that enable increasingly complex skills over time. As it emerges, the quality of that “brain architecture” establishes either a sturdy or a fragile foundation for all of the development, behavior and health that follows. *Early child experiences also get built into the body. Children exposed to serious early stress develop an exaggerated stress response that, over time, weakens their defense system against diseases, from heart disease to diabetes and depression. That exaggerated response creates a weakened foundation for health and has lifelong consequences.* Please tell us if you have heard this explanation of why we should allocate societal assets to young children.

### **Promising Explanations from Forum Literature**

**15. Effectiveness Factors.** Lately there has been a lot of talk about the role of society in supporting children. In particular, people have offered various explanations of why it is important to devote societal resources to children at the very earliest stages of life. For example, some people believe that we can measure “effectiveness factors” that often make the difference between programs that work and those that don’t work to support children’s healthy development. For 3- and 4-year-olds, these would include the level of teacher training, a language-rich environment, and a safe and regulated place that supports a variety of learning experiences. Without these effectiveness factors, some children can spend just as many hours in a program but not show many positive outcomes. Please tell us if you have heard this explanation of why we should identify effectiveness factors when we allocate societal assets to young children.

**16. Continuous Quality Improvement.** Lately there has been a lot of talk about the role of society in supporting children. In particular, people have offered various explanations of why it is important to devote societal resources to children at the very earliest stages of life. For example, some people believe that we need to use principles from business, like continuous quality improvement, to strengthen programs for young children. According to this view, we should hold programs accountable to what we know works for children by using objective data repeatedly to analyze and continually improve important processes. Many children's programs are seldom evaluated. The result is that some children can spend just as many hours in a program, using outdated methods, and not show the positive outcomes that other programs exhibit. Please tell us if you have heard this explanation of why we should allocate societal assets to repeatedly evaluating programs for young children.

**17. Return on Investment.** Lately there has been a lot of talk about the role of society in supporting children. In particular, people have offered various explanations of why it is important to devote societal resources to children at the very earliest stages of life. For example, some people believe that we need to use principles from business, like return on investment, to make smart investments for society. According to this view, we can evaluate the efficiency of programs for young children by comparing the benefit of the investment to the cost. This allows a reliable comparison between programs that don't improve child development and those that show real results. Many early childhood programs are seldom evaluated according to their benefits to the child and the society. Please tell us if you have heard this explanation of why we should allocate societal assets to calculating the return on investment in programs for young children.

**18. Control Group.** (This group received nothing except exposure to the policy batteries).

## APPENDIX B: MODELS ESTIMATION TECHNIQUES

### The Estimation of Models Used to Derive the Frame Effects on Policy Support

To estimate the effects of the treatments on policy support, we used a generalized linear regression model. The specific functional form of the model used is given in Equation 1.

$$Y_i = \beta_0 + \beta_1 X_{i1} + \beta_2 X_{i2} \dots \beta_k X_{ik} + \varepsilon_i \quad [1]$$

Where:

$Y_i$	=	the policy outcome measure for study participant $i$ ( $i = 1, 2, \dots, N$ )
$\beta_0$	=	coefficient for the <i>intercept</i>
$\beta_1$ , and $B_2$ , and $B_k$	=	mean differences or slope coefficients
$X_{i1}$	=	vector of demographic characteristics ( <i>race, gender, marital status, household income, etc.</i> )
$X_{i2} \dots X_{ik}$	=	vector of the treatments (dummy variables that take the value 1 if in the treatment group; 0 otherwise)
$\varepsilon_i$	=	error or disturbance for the $i^{\text{th}}$ unit

In this model, the regression coefficients associated with the treatment conditions (i.e.,  $\beta_2$  through  $\beta_k$ ) estimate the independent impact of each treatment condition on the policy-related outcome measure in question, after adjusting for the effects of the covariates. Because the policy battery is scaled on a 0–1 metric, the regression coefficients associated with the 17 conditions indicate the point difference in the dependent score that represents policy support between participants assigned to each condition and those assigned to the control condition. A  $\beta_2$  coefficient of .05, for instance, means that the effect of treatment amounts to a five-point increase in the dependent measure. The estimated value of  $\beta_2$  therefore provides an estimate of the frame effects on the policy-related outcome measure being examined.<sup>xix</sup>

For each of the outcome measures tested (i.e., policy support, salience, etc.), an extension of the statistical model in Equation 1 and the estimation techniques described here was used to evaluate the frame effects of the Values, Simplifying Models and Principles of interest. Statistical estimation techniques that depart more considerably from this basic model are noted and discussed in the text.

Also, to increase the precision of the effect measurements, a limited number of covariates were added to the estimation models. In particular, we added the following into the models as covariates: gender, marital status, race, party affiliation, religious attachment, household income, education, region of residence and news attentiveness. Thus, most of the statistically estimated

differences between groups in this report are regression-adjusted using ordinary least square techniques that allowed us to control for a series of relevant covariates (as identified in the discussion of each outcome measure in the findings).

More generally, the experimental hypothesis that we tested is summarized in Equation 2 — such that the definition of the expected value of the outcome measures is as follows:

$$E(Y_i | X_{2\dots k}=1) > E(Y_i | X_{2\dots k}=0) \quad [2]$$

Additionally, the random assignment of our groups means that we can test the frames against the “counterfactual” or the proposition that the expected value of the outcome (policy support) is greater for those exposed to the frame elements than for those with no exposure. This inherently also tests the null hypothesis that  $E(Y_i | X_{2\dots k}=1) = E(Y_i | X_{2\dots k}=0)$  or essentially, that there is no difference between the treatment and control groups in terms of policy support. *The combination of random assignment and specification of the model are expected then to produce an unbiased estimate of the average treatment effect of our frame elements.*

Finally, statistically significant findings at the conventional 0.10 probability level<sup>xx</sup> are denoted in the text with an asterisk (\*). In addition to the statistically significant results, we also present effect sizes (or eta-squared parameter estimates). The effect size is a metric used to convey the explanatory power of the treatments in relationship to the control and the tables/figures in this report use eta-squared for this task.<sup>xxi</sup> We present effect sizes here, in addition to the statistically significant results, because significance tests do not represent the size, meaning or importance of an effect in terms of policy relevance. Statistical significance merely conveys the probability that the differences between the treatment and control groups were not simply the result of chance but, rather, the result of exposure to the treatment. On the other hand, lack of a statistically significant result does not mean that there is no impact, it simply means that we cannot reliably distinguish the result from zero at the level of confidence that we have chosen for the statistical tests. As a result, although we base our recommendations on the statistically significant results, as well as those indicated by higher effect sizes, we sometimes point out promising directions that emerged from the overall direction of the means related to the treatments. Finally, unless otherwise noted in the text, two-tailed significance tests are used to evaluate the frame elements.

## APPENDIX D: SELECTED DEMOGRAPHICS OF THE SAMPLE

Table 6. Selected Demographic and Political Interest Characteristics of the Sample (N=4,200)		
		Experimental Sample
<b>Has Attended a Church in Recent Months</b>		55%
<b>Age</b>	0 to 24 yrs.	7.3%
	25 to 39 yrs.	32.3%
	40 to 55 yrs	33.7%
	56+ yrs.	34.1%
<b>Race/Ethnicity</b>	White	77.2%
	Black	11.1%
	Hispanic	6.5%
	Asian	1.1%
	Native American	1.2%
	Other	2.8%
<b>Income</b>	Less than 70K	53.6%
	More than 70k	43.7%
<b>Education</b>	Less than High School	3.7%
	High School	35.6%
	Some College	23.2%
	2 year Degree	7.4%
	4 year Degree	19.8%
	Post- Graduate Degree	10.4%
<b>Marital Status</b>	Married/Dom. Partnership	63.6%
	Single/Widowed/Divorced	36.4%
<b>Gender</b>	Male	47%
	Female	53%
<b>Region</b>	South	34.0%
	Northeast	20.1%
	Midwest	18.2%
	West	27.7%
<b>Registered to Vote</b>		100%
<b>Partisanship</b>	Democrat	38.8%
	Republican	30.7%
	Independent	25.5%
	Other	5.0%
<b>Ideology</b>	Very Liberal	8.5%
	Liberal	17.7%
	Moderate	31.8%
	Conservative	23.3%
	Very Conservative	13.1%
	Not Sure	5.7%
<b>Political Interest</b>	Very Much Interested	70.2%
	Somewhat Interested	24.8%
	Not Much	5.1%

Data in Table 6 are not weighted so that the raw characteristics of the sample can be appreciated. However, in the analyses that follow, the data are weighted by the appropriate sample weights.

## About the Institute

*The FrameWorks Institute* is an independent nonprofit research organization founded in 1999 to advance the nonprofit sector's communications capacity by identifying, translating and modeling relevant scholarly research for framing the public discourse about social problems. It has become known for its development of Strategic Frame Analysis™, which roots communications practice in the cognitive and social sciences. FrameWorks designs, commissions, manages and publishes multi-method, multi-disciplinary communications research to prepare nonprofit organizations to expand their constituency base, to build public will, and to further public understanding of specific social issues. In addition to working closely with scientists and social policy experts familiar with the specific issue, its work is informed by communications scholars and practitioners who are convened to discuss the research problem, and to work together in outlining potential strategies for advancing public understanding of remedial policies. The Institute publishes its research and recommendations at [www.frameworksinstitute.org](http://www.frameworksinstitute.org).

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- <sup>vi</sup> Mooney, C. & Kirshenbaum, S. (2009). Unpopular science. *The Nation*. August 17, 2009.
- <sup>vii</sup> Iyengar, S. (1991). *Is anyone responsible? How television frames political issues*. Chicago: University of Chicago Press; Gilliam, Jr., F.D. & Bales, S.N. (2001). Strategic Frame Analysis: Reframing America’s youth. Gilliam, Jr., F.D. and Iyengar, S. (2000). Prime suspects: The impact of local television news on attitudes about crime and race, *American Journal of Political Science* 44, 3: pp. 560-573; Stone, D. (2002). *Policy paradox: The art of political decision making*. New York: W.W. Norton & Company.
- <sup>viii</sup> See for example: (1) Bales, S.N. (2008). Framing community health as if food and fitness mattered. Washington, D.C.: FrameWorks Institute; (2) Aubrun, A., Brown, A., & Grady, J. (2006). Health individualism: Findings from cognitive elicitations among Californians. Washington, D.C.: FrameWorks Institute.
- <sup>ix</sup> See, American Psychological Association Online. (2009). Ending discrimination in health insurance. The Practice Directorate; Working Paper. <http://www.apa.org/practice/paper/homepage.html>.
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- <sup>xi</sup> Gilliam, F.D., Jr. & Iyengar, S. (2000). Prime suspects: The influence of local television news on the viewing public. *American Journal of Political Science*, 44(3), pp. 560-573.
- <sup>xii</sup> See our discussion of this issue in O’Neil, M., Mikulak, A., Morgan, P. & Kendall-Taylor, N. (2009). Competing frames of mental health and mental illness: Media frames and the public understandings of child mental health as part of Strategic Frame Analysis™. Washington, D.C.: The FrameWorks Institute.
- <sup>xiii</sup> We specifically made use of the national Web-based surveys conducted by Polimetrix at Stanford University. Polimetrix requires its two million panelists to participate in weekly studies in exchange for free Internet access. A two-stage sampling procedure is utilized to create a “matched” sample. First, a conventional random sample is drawn utilizing an RDD sampling frame. At the second stage Polimetrix mirrors the conventional sample by selecting panelists who most closely resemble each member of the random sample.
- <sup>xiv</sup> This was also true of our other batteries.
- <sup>xv</sup> See our webinar on The Role of Values in Communications for Social Change, which can be found here: <http://www.frameworksinstitute.org/webinars.html>.
- <sup>xvi</sup> Manuel, T. (2009). Refining the core story of early childhood development: The effects of science and health frames. Washington, D.C.: FrameWorks Institute.
- <sup>xvii</sup> See for example, our education simplifying models work at <http://www.frameworksinstitute.org/education.html>.
- <sup>xviii</sup> Note we did not include Vulnerable Child in the analysis here since it was the only treatment included because it reflected a practice in the field that we expected to do poorly. It did indeed perform poorly and we wanted the Values category to reflect those Values that FrameWorks developed because they were expected (given our qualitative work) to do well.
- <sup>xix</sup> We should also mention that the key assumption of the model is that the error is randomly distribution such that  $E(u | x_1, x_2, \dots, x_k) = 0$ .
- <sup>xx</sup> The  $p < 0.10$  standard for statistical significance implies that if a true impact is zero, there is only a one-in-ten chance that the estimate will be statistically significant.
- <sup>xxi</sup> The specification for the Eta-squared estimates is as follows:  $\eta^2 = SS_{\text{between}} / SS_{\text{total}}$