Informational not Pedagogical

Peer Group Perceptions of Digital Media and Learning

About FrameWorks Institute:

The FrameWorks Institute is an independent nonprofit organization founded in 1999 to advance science-based communications research and practice. The Institute conducts original, multi-method research to identify the communications strategies that will advance public understanding of social problems and improve public support for remedial policies.

The Institute's work also includes teaching the nonprofit sector how to apply these sciencebased communications strategies in their work for social change. The Institute publishes its research and recommendations, as well as toolkits and other products for the nonprofit sector, at www.frameworksinstitute.org.

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INTRODUCTION

In current discussions of education reform, the need for American schools to deliver a 21st century education has become a frequent refrain. However, the meaning of this term and its call to action — what this new kind of education entails and what it will mean for students — remain largely unexplained to the public. In the midst of this talk about 21st century education, a group of educators and scholars are advocating a significant role for digital media in supporting learning and improving educational outcomes. Without a better understanding of the thinking that informs this recommendation, the public is likely to greet this advocacy with considerable skepticism about the ability of digital media to promote standards-based knowledge and skills, according to FrameWorks' research. Creating communications tools that can effectively translate expert perspectives will be critical in building support for education reform that uses digital media as one of many tools to improve learning and educational outcomes.

> I personally don't like my daughter learning on the computer like that. I would much rather her be in an environment like this with books and talking to people.
>
> *-Peer Discourse Informant*

The research presented here was conducted by the FrameWorks Institute and sponsored by The John D. and Catherine T. MacArthur Foundation. The current research represents an important middle stage in a larger, multi-method exploration of how communications can improve the American public's understanding of digital media and its role in learning. More specifically, the goal is to identify communications strategies that allow the public to see the utility of digital media as a learning tool and as a valuable aspect of learning environments.

As part of this larger reframing effort, the current report details findings from a series of Peer Discourse Sessions conducted by the FrameWorks Institute with groups of civically engaged U.S. citizens on digital media and learning. The research is informed by FrameWorks' previous research on education and education reform. It builds more directly upon two recent reports conducted specifically on the issue of digital media and learning:

- *Faster and Fancier Books: Mapping the Gaps Between Expert and Public Understandings of Digital Media and Learning* details the results of a set of open-ended Cultural Models Interviews conducted on the topic of digital media and learning. Analyzing the data from these interviews, FrameWorks researchers identified the cultural models — collections of implicit, but shared, understandings and patterns of reasoning — that Americans use to think about digital media and its role in learning and education. The report also presents findings from a series of one-on-one interviews that FrameWorks researchers conducted with experts in this field. The comparison between public and expert understandings revealed a set of key gaps in understanding regarding digital media and learning. These gaps constitute both perceptual stumbling blocks and strategic targets for communications research.

- *Where's the Learning? An Analysis of Media Stories of Digital Media and Learning* examines the explicit and implicit messages embedded in the media's presentation of issues related to digital media and learning in the nation's newspapers, radio and TV news sources. When mainstream news outlets discuss issues related to digital media and learning, the focus is mainly on uses in the business and political sectors, ignoring the potential of digital media as interactive pedagogical tools for K-12 children. The report underscores significant opportunities to shift public understanding of this issue by framing digital media as an interactive, hands-on and engaged approach to student learning.

In the research discussed here, FrameWorks confirmed and expanded upon the results of this earlier research and pushed the larger project into its prescriptive phase by experimenting with a set of preliminary reframing strategies that will be further tested and refined in upcoming research. As the bridge between early descriptive and later prescriptive research phases, Peer Discourse Sessions are a vital component of the Strategic Frame Analysis™ research process.

Peer Discourse Sessions serve a number of functions in the larger research process. First, these sessions are designed to capture and identify *public discourses* about digital media and learning in contexts where such discussions might naturally occur. This means that, in contrast to one-on-one Cultural Models Interviews, Peer Discourse Sessions do not capture the aggregate of individual understandings of an issue. Rather, these sessions are designed to identify the norms and expectations that social groups share and the social discourses that participants feel empowered, permitted or expected to say in the public square. These groups, therefore, invigorate a specific dimension of the cognitive landscape around an issue that is not captured in

one-on-one interviews. Our past research has shown that both aspects of the terrain — the cultural models that individual members of a culture hold in mind and the social norms and expectations that mediate these cognitive structures — are essential for understanding how to create more strategic and effective communications around an issue. Secondly, Peer Discourse Sessions allow FrameWorks to being experimenting with primes (prescriptive frame elements such as values and metaphors) intended to structure different patterns of group conversation. In this way, these sessions examine whether intentionally priming conversations with specific frame elements can create a conversation that is substantively different from those documented in earlier, descriptive parts of the research process.

After a summary of the research and a more detailed description of the Peer Discourse method, we present the research findings in greater detail. Discussion of these findings is organized around three research questions:

> (1) *What are the social norms and expectations that shape group discussions about specific social issues?*
> Participants were given a brainstorming exercise and asked open-ended questions about issues related to digital media and learning. FrameWorks looked for what we call *social context effects*. These are the ways that the cultural models identified in previous research are mediated and filtered by social expectations and norms when groups of participants engage in conversations and debates about issues related to digital media and learning.
>
> 2) *Does the introduction of reframing primes facilitate an improved understanding and more robust discussion about digital media and learning?*
> Participants were presented with five primes that represented reframing hypotheses that emerged from earlier FrameWorks qualitative research. After exposure to each prime, the participants engaged in group discussion. FrameWorks gauged the effect of these primes in shaping group conversations, looking to document the ways that these groups drew upon dominant discourses, and therefore expectations about shared norms, to calculate their responses in the group.
>
> (3) *How do people engage with the reframing primes to make decisions about the role of digital media in education?*
> Participants were divided into groups of three and instructed to develop a presentation to a fictitious State Board of Education regarding the inclusion of digital media in the curriculum. FrameWorks analyzed the values, or orienting principles, employed by participants when constructing their arguments, and

analyzed whether the primes from the previous exercise made their way into the negotiation discussions. In this exercise, we were attentive to the way that their expectations about receptivity to the frames we introduced moderated their presentations. That is, how they argued to an audience of peers provided valuable information about how they expect messages to be heard by their neighbors, friends and colleagues.

The findings from these sessions fall into two categories: those that emerged from the analysis of data prior to the introduction of reframing primes, and those that emerged as a result of attempts to influence group conversations through the introduction of such primes. The pre-prime findings in this report expand upon findings documented in previous cultural models research. The findings from post-prime discussions reveal hypotheses for promising reframing directions to pursue and test in future communications research.

EXECUTIVE SUMMARY

The initial section of the Peer Discourse Sessions produced results that are important in building a more complete understanding of the way people co-construct meaning about digital media in learning in social groups. The results of the open-ended sections of these sessions reveal important differences between the ways that individuals hold and use cultural models *in mind* and how those patterns are mediated by social norms and expectations. In the open-ended and unprimed discussions, FrameWorks observed the following:

- **Learning is Passive and Will-Driven.** Group discussions oscillated between two contradictory discussions of how children learn. First, learning was discussed as a passive process. Children were conceptualized as "sponges" that simply soaked up knowledge, practices and behaviors modeled by their parents. In these discussions, children lacked agency and parents were the primary source of information. Learning was also discussed as the result of a child's individual effort or interest. In these discussions, learning was understood to happen by the sheer will and determination of the individual child. Both of these patterns of group discussion were consistent with cultural models identified in earlier research. However, participants' lack of understanding of learning as a dynamic and interactive endeavor was considerably more pronounced in the group research venue as compared to the individual, one-on-one interview format.
- **Digital Learning Is Lonely.** This individualistic understanding of learning, in turn, structured how the groups discussed students' use of digital media. Group discussions consistently focused on images of individuals in isolation using digital technologies. The perceived benefits of digital media (individuals' ability to better consume information) and dangers (the atrophy of social skills, vulnerability to online predation) were discussed within a larger and more fundamental shared understanding that people use digital media in isolation. Parents and teachers were imagined as only able to monitor or restrict usage of digital media rather than participating or facilitating its use.

To begin shifting conversations towards consideration of a productive and positive role for digital media in learning processes, FrameWorks tested three types of primes:

- Values (*Innovation and New Frontiers* and *Civic Development*)

- Metaphors or Simplifying Models (*Remodeling, Scaffolding* and *Connected Learning*)

- Examples of digital media used in learning (*A New Kind of Writing* and *Bugscope*)

The following findings emerged from the analysis of groups' responses to the primes:

- **Primes were unable to inoculate against individualist understandings of teaching and learning.** Some primes were more "usable" than others and found their way into subsequent discussions (namely *Innovation and New Frontiers*, *Remodeling* and *Connected Learning*). However, none of the primes were successful in shifting away from individualist understanding of how learning occurs, or encouraging an understanding of digital media as a pedagogical tool. Rather, participants infused these primes with their previous understandings of the role that digital media should play in the classroom — as a limited, monitored supplement to traditional classroom learning — in short, as *faster and fancier books.*

- **Examples of digital and media and learning showed reframing promise.** The examples of digital media used in learning primes were somewhat effective in channeling group discussions toward some of the more recessive ways of thinking about learning that had been documented in our earlier research (notions that learning is interactive, collaborative, and can be a form of play). This was particularly pronounced for the Peer Discourse Session conducted with participants who were under the age of 35.

The following findings emerged when participants formed small groups and engaged in designing curricula that incorporate digital media as a learning tool:

- **Media are an important source of values concerning digital media.** Participants drew on three values to convince their peers of the utility and necessity of reforming the education system to include digital media: *Efficiency*, *Global Competitiveness* and *Fairness*. None of these values were tested in the experimentation section of the Peer Discourse Sessions (i.e., these were not reframing primes). Rather, the *Efficiency* and *Global Competitiveness* values are dominant in popular media, where the utility of digital media is primarily discussed in the business sector. The use of these values in this exercise resulted in a specific interpretation of the *Innovation and New Frontiers* prime. The emphasis on *Fairness* appeared to emerge organically from the groups themselves.

- **Consumerism undermines the efficacy of the values currently in use.** We argue that *Efficiency* and *Global Competitiveness* are fundamentally rooted in a consumerist way of thinking about education and therefore not productive reframing strategies. Past FrameWorks research has shown that the application of consumerist perspectives to thinking about education and reform is highly counterproductive to boosting support for public policy. This foundational American cultural model powerfully privatizes the issue of education and lodges it under the purview of families and individuals while discouraging broader, more systemic, senses of causal and remedial responsibility. Because both of these values were group interpretations of the *Innovation and New Frontiers* prime, this research suggests extreme caution when advocates frame digital media in terms of innovation.
- **The framing potential of the *Fairness* value should be further researched in the domain of digital media and learning.** Several groups argued that digital media could be used to address inequities in resources between schools and school districts by providing all students access to the most up-to-date information. However, the groups argued that simply providing students with computers could ameliorate educational inequalities. Nevertheless, their invocation of this value was similar to the *Fairness Across Places* value, which has been successful in other areas of FrameWorks research on education. The effectiveness of the *Fairness Across Places* value in the domain of digital media and learning will be tested in further stages of research.

Overall, the results from the Peer Discourse Sessions demonstrated that, in order to conceptualize digital media as a valuable tool in creating more effective learning, Americans need a more robust sense of how learning happens, of what skills students need, and of the environments and tools that best facilitate the development and mastery of these skills. Without that anchoring knowledge, the challenge faced by digital media as an authentic aspect of learning is greatly exacerbated by the shallowness of thinking associated with learning. Finding a way to define digital media as a learning tool is insufficient in and of itself to inoculate against the many problematic ways Americans think about how children learn, what they need to learn and what contributes to that learning. In sum, digital media advocates have to take on the larger task of defining learning. These sessions provide a glimmer of hope that, with this understanding in place, people can conceptualize the dynamic potential of digital media in learning environments.

RESEARCH METHODS

FrameWorks approaches Peer Discourse Sessions with three specific research objectives:

1) Explore the variations in cultural models when they are used in a group setting and gauge the effects of social context on patterns of discourse about an issue.

2) Experiment with speculative reframes that emerge from other FrameWorks research or from area experts to narrow down the number and refine the execution of frame elements that are taken into quantitative experimental research.

3) Engage people in a negotiation in which they experience efficacy and agency over a complex problem and have to debate and articulate a position as a group. In this exercise, researchers observe what framing elements prove useful and pervasive in participants' interactions with their peers.

Put another way, Peer Discourse Sessions are a way to explore the role that social expectations and norms play in shaping patterns of group discussion or public discourses. These expectations and norms are seen as an additional layer of meaning-making that individuals use as they engage with social issues in public contexts.

FrameWorks' more specific goals in these particular Peer Discourse Sessions were: to observe the specific assumptions and norms about digital media and learning that people employed when in social group settings; to begin to see whether the introduction of specific frame elements allows participants to understand the expert understanding of digital media; to overcome individualizing habits of thinking and talking; to imagine public policy solutions that deal with the use of digital media in learning environments; and to explore how people negotiate among, and work with, common cultural models and social discourses in forming positions and making decisions about these issues.

Subjects and Data Collection

In July 2010, FrameWorks conducted six Peer Discourse Sessions — two sessions in each of the following three U.S. cities: Los Angeles, Calif., Tampa, Fla., and Chicago, Ill.

FrameWorks recruited participants through a professional marketing firm, using a screening process developed and employed in past research. At each location, 11 to 13 people were screened, selected and provided with an honorarium for their time and

participation. Individuals were selected to represent variation in ethnicity, gender, age, educational background and political ideology (as self-reported during the screening process), or to meet more specific goals for group composition. For each session, nine of these 11 to 13 screened individuals were selected to participate. Based on previous FrameWorks research, we suspected that participant responses and views would be particularly sensitive to variations in level of education, racial background and age. Therefore, groups were formed as follows: one Black group, one Latino group, one Under Age 35 group, one Over Age 45 group, two groups with variability in race and age.

In addition, FrameWorks purposefully sampled individuals who reported a strong interest in current events and an active involvement in their communities, because these people are likely to have, and be willing to express, opinions on socio-political issues.

All participants were given descriptions of the research and signed written consent forms. Peer Discourse Sessions lasted approximately two hours, were audio and video recorded, and were later transcribed. Quotes are provided in the report to illustrate major points and are identified by the composition of the group, but more specific identifying information has been excluded to ensure participant anonymity. For details on the session guide and analysis, see Appendix A.

FINDINGS

Social Context Effects

At the start of all six Peer Discourse Sessions, participants engaged in two "warm-up" exercises that asked each of them to write down as many words as came to mind when they heard the term "learning." This was followed by similar elicitations on the terms "digital media" and "digital media and learning." Participants were given one minute for each elicitation. Figures 1, 2 and 3 below show the results of these warm-up exercises in the form of word-tag clouds. The size of the word in the cloud shows its relative frequency across the groups. Hence, the larger the word, the more frequently it was cited in the sessions.

Figure 1: Participants' Top-of-Mind Associations with "Learning"

Figure 2: Participants' Top-of-Mind Associations with "Digital Media"

Figure 3: Participants' Top-of-Mind Associations with "Digital Media and Learning"

There are several particular observations that can be made from comparing these three word-tag clouds. As might be expected, there was only one mention of the Internet when participants brainstormed about learning and no other mentions of any form of digital media. When participants brainstormed about digital media, single mentions of "teaching" and "educational" were the only terms that were in any way associated with learning. This finding is even more notable given the fact that the "learning" elicitation had immediately preceded the one of "digital media." This indicates that, without any framing, digital media and learning constitute separate domains in people's thinking.

Second, "computers," "Internet" and mentions of specific products such as iPhones or iPads were the most frequently cited words when participants brainstormed about "digital media" and "digital media and learning." This indicates that when participants were asked to think about digital media and learning together, most participants (although not all) could only think about specific products, but were unable to conceptualize how digital media itself might be used in learning environments. Finally, it is important to note that in Figures 2 and 3 there are very few negative or critical words listed, which was consistent with participants' ability to focus on many of the benefits of digital media in learning environments before turning to its perceived dangers. This finding is discussed in more detail below, as it is an important difference that emerged between Cultural Models Interviews and Peer Discourse Sessions.

After this initial exercise, participants were asked the following open-ended questions: "How do children learn?", "Where does learning happen?" and "What purpose or role should digital media play in learning environments?". These questions allowed FrameWorks to confirm the findings from earlier cultural models research on digital media and learning but, more importantly, to also examine how social norms and expectations mediate and constrain the expression of cultural models. More specifically, we focus our analytic lens on how the implicit understandings that individuals share and hold in mind (cultural models) are mediated by what are the expected views on an issue and what are socially sanctioned modes of expressing opinions.

This focus of social expectation and group norms revealed several differences as compared to the results from Cultural Models Interviews. More so than was evident in the one-on-one interviews, participants' perceptions of the utility or role of digital media were structured by a basic understanding of how individuals use digital media: An individual is imagined in a space by themselves accessing information for their own individual consumption (and entertainment). When applied to learning

environments, digital media was largely conceived as a tool that provides individual students unfettered access to information. Participants could not think about how teachers or other kinds of adult mentors could teach with digital media, and narrowly confined adult participation to monitoring and restricting its use. That is, when discussing digital media and learning, the groups did not accord digital media any pedagogical value. These discussions were predicated by a lack of understanding of how children learn and what constitutes effective teaching. In the sections that follow, we briefly discuss how participants conceptualized how learning happens and then discuss the implications of such conceptualizations on their perceptions of the relationship between digital media and learning.

Learning is an individual endeavor
When the groups discussed how people learn, they oscillated between two discourses on learning: learning as passive and learning as a result of individual effort. As has been documented in FrameWorks' earlier research on education, Americans tend to model learning as an essentially dyadic relationship between a learner, who is typically a child, and a teacher or parent. As the groups moved between the passive and effort discourses about learning, they attributed an almost superhuman sense of agency to one part of the dyad, while denying the agency of the other.

The passive discourse was the first and most dominant way that groups discussed how children learn. Similar to FrameWorks research on American perceptions of early child development, children were regularly discussed as sponges that simply and passively soak up important academic and social knowledge. In these discussions, all meaningful action and responsibility for outcomes were attributed to the adult, who needed to model "good behavior" or bring new information to children.

> **Moderator:** *How do children learn?*
> **Participant 1:** *In general, or nowadays?*
> **Moderator:** *Just in general.*
> **Participant 1:** *They learn by watching.*
> **Participant 2:** *By example, they learn by watching, by example, also by listening.*
> *Chicago, Age 45 and Over/Mixed Race*

> *I would say by modeling. Seeing what somebody else does and repeating it.*
> *Tampa, Mixed Age/Mixed Race*

In this passive learning discourse, learning as a complex and dynamic interaction among a group of people is entirely absent. As will be discussed in further detail below, the passive learning discourse has important implications for how people understood digital media and learning. The dyadic relationship becomes the student and the digital technology. The student then mechanically takes in the information made available.

The second patterned way in which the groups talked about learning was the learning fueled by interest, or effort discourse, which was also documented in earlier cultural models research. In these discussions, an interesting topic inspires a "thirst" or a will to learn that the student then pursues independently.

> ***Participant 1:*** *If it's something they want to learn or something they like. They have a thirst to learn. You know, a thirst for knowledge about the topic or the subject.*
> ***Participant 2:*** *Then they're gonna learn more about that than a subject they*
> *don't like.*
> > *Tampa, Mixed Age/Mixed Race*

> *I feel like they learn with stuff that catches their eye. Like if you put just a blank page of paper in front of them that's black and white, they may not be as interested in it as a paper with color and stuff. So the more eye-catching you are, I think the more that they pick up and understand what's going on. Or they're more interested in learning about it.*
> > *Los Angeles, Under Age 35/Mixed Race*

> *I think sometimes with kids if you make it more fun they learn a lot more. Cause they're interested. It stimulates them and they really want to learn more about it because they're having a good time.*
> > *Tampa, Mixed Age/Mixed Race*

It is important to recognize that, when participants discussed learning as a result of individual effort or interest, the teacher or parent simply presents the child with material and it is then up to the students themselves to be inspired to learn. As with the passive discourse on learning described above, the "effort" discussions contained no sense of *how* teachers teach and no concept of interactivity in the learning process. When groups engaged in these discussions, learning depended on the specific interests and characteristics of the individual student. The groups explained that those children with the will to learn will be successful regardless of any external factors. In regards to digital media, the *learning as a result of individual effort* discourse left

participants with a sense of the benefits of digital media in learning. The groups talked about how children are interested in new kinds of media, and that giving them access to such media may be effective in increasing their motivation and will to learn. While these discussions were associated with more positive associations with digital media, it did not engender a sense of the *pedagogical* value of digital media.

These highly patterned group discourses of learning have important implications for communicating about digital media and learning. Most significantly, they reinforce the understanding that digital media is used by isolated individuals. Students are imagined to either completely lack agency or are endowed with hyper-agency in learning processes. There is no understanding of the importance of *dynamic* learning environments. This limited understanding of learning in turn constrains people's ability to realize the pedagogical value of digital media that better approximates expert knowledge of its utility in learning environments.

Students use digital media in isolation
The idea that learning is largely the result of individual action — either on the part of the student or the teacher — carried through to group discussions about the role of digital media in learning environments. When participants focused on the benefits of digital media in learning, learning was conceptualized as the result of individual effort. The most frequent benefit cited by the participants was increased ease and speed of access to information for completing homework assignments or independent research projects.

> *Participant 1: Well, information is everywhere now so — especially with electronics. You're constantly being stimulated with information and learning something.*
> *Participant 2: Being updated on news or what have you.*
> *Participant 3: It's definitely affecting the kids, though. I have a 3-year-old grandson who's such a whiz. You should see him work those machines. I can't even do it.*
>
> <div align="right">

Tampa, Mixed Age/Mixed Race</div>

> *Participant 1: 'Cause everything now is so digital and you could just go to the computer and just Google about that stuff.*
> *Participant 2: All the answers are there.*
> *Participant 1: Pull up anything and it's there for them. So they can pull up a word and they can learn a whole subject just by Googling it in.*
> *Moderator: So, for you that's a good thing?*
> *Participant 1: Yes.*

Chicago, Age 45 and Over/Mixed Race

> **Participant 1:** *I think it condenses information so that it's more easily accessible. Like you can go to one page and see all this news of the whole world really easily.*
> **Participant 2:** *And speed.*
> **Participant 3:** *You get information so much faster.*
> *Los Angeles, Under Age 35/Mixed Race*

It is important to note that, initially and without priming, the groups were very receptive to and supportive of the use of digital media in educational contexts. However, the benefits of digital media in learning processes were imagined to accrue to individual students who were pursuing knowledge on their own, and not as a tool that could foster a dynamic learning community. That is because, when participants spoke to each other about the benefits of digital media, it was in the context of understanding learning as a process that was accomplished through individual effort.

While all group conversations began with positive associations with digital media, they quickly turned to the dangers in digital media in learning environments and then to the dangers of digital media for young people in general. The role of digital media in learning quickly dropped out of the group conversations and the groups focused on digital media itself, indicating the difficulty participants had in holding these two domains together in conversation. The most cited danger associated with digital media, even within educational contexts, was the atrophy of social skills. Because the use of digital media was imagined to occur in isolation, participants talked about young people's inability to interact with others and engage in "normal" childhood activities, like playing outside.

> *I personally don't like my daughter learning on the computer like that. I would much rather her be in an environment like this with books and talking to people. I think they lose social skills. I don't think they learn as well 'cause they're more learning individually versus as a classroom-type environment where you can talk about an issue. Raise your hand, ask questions. I mean I know they get the message if they do all that but I think you lose the whole inter-social interaction of that also. I mean they don't even text with full words anymore, you know? They don't speak to each other anymore. They're losing all of that.*
> *Tampa Mixed Age/Mixed Race*

Participant 1: With digital media there's become a real lack of skill sets around personal interaction for today's youth. To the point where they can feel free in putting everything into an Internet system about themselves and they don't think ... there's no consequences for their behavior.
Participant 2: There's a role there for digital media to start addressing the lack of social skills or norms that are outside of digital media. I mean this provides us an asset to do lots of interesting stuff but the skill set to develop those social norms isn't there. And it's really affecting our youth.

Los Angeles, Latino/Mixed Age

Participant 1: Yeah, I agree with some of it so that they don't use their imagination as much 'cause when we were kids everybody was outside playing all the time and now they're all sitting at computers. They don't get out.
Participant 2: Trying to get them outside to play sometimes is tough. Sometimes.
Participant 3: Yeah, they don't want to go outside.

Tampa, Mixed Age/Mixed Race

Participants at certain points in the sessions worried about the atrophy of academic skills. However, the loss of children's *social* skills as a result of using digital media was clearly the dominant concern. When group discussions shifted to the dangers of digital media, they employed more passive understandings of learning. Furthermore, children's unrestricted use of digital media was used as an indictment of other people's parenting skills. Group conversations then quickly devolved to fears of more extreme dangers. Isolated from other people, including one's own parents, and infinitely vulnerable to all kinds of information because of their passivity, children were perceived to be at risk of suicide or predation online as a result of their exposure to digital technologies.

What happens with isolation, you see the extreme cases in the news media right now. They're talking about these kids that are killing themselves because they've been picked at. Well, in our lives, everybody's been picked at. I was picked at and you don't take that recourse. Unfortunately in this day and age, there's both parents working, they don't have that same feeling that they can go to their parents — not that they don't love them, it's just that they don't have time for them, and their center of their world is around computers ...

Chicago, Age 45 and Over/Mixed Race

Participant 1: Parents gotta put a cap on that digital media stuff. Look at that little girl that got lured by that guy online.
Participant 2: And what did he kill her or something?
Participant 3: Which one? And again it goes back to the home. I can't imagine at when I was that age, going off with a strange man anywhere 'cause it was instilled in the home, you don't talk to strangers.

Los Angeles, Latino/Mixed Age

The experts FrameWorks interviewed on digital media spoke about the critical role of adult mentorship when digital media is employed in educational contexts. The above quotes illustrate how participants conceptualized adult involvement in digital media. First, because learning dropped out of the conversations, parents, more so than teachers, were discussed as responsible for protecting children from digital media's dangers. That is, the "Family Bubble," or the idea that parents are solely responsible for children's developmental and educational outcomes, was an implicit understanding that shaped these conversations. Participants spoke at length about the need for adult involvement, but adults were there to govern, monitor and restrict student usage of these technologies. This limited sense of adult involvement was again based on the notion that individuals use digital media in isolation, and that children mechanically take in any information in front of them. Because there was no understanding of more dynamic and interactive uses of these technologies, participants could only think about how children's use of digital media should be controlled.

The unprimed group conversations offer critical information about the challenges experts and advocates face when communicating about digital media and learning in the public sphere. These discussions evidence a strong and highly patterned discourse in which learning and teaching, even with digital media, are fundamentally individual pursuits. The *learning as a result of individual effort and interest* discourse shows some communication promise, as it predisposes people to see the utility of digital media. However, engaging this discourse by itself will not suffice; our data show that people require better understandings of *how* teaching and learning happen before they can fully grasp the pedagogical potential of digital media. In the section that follows, we discuss the findings from our initial attempts to intervene in these conversations with specific frame elements.

Prime Exploration and Experimentation

The following section describes how the introduction of reframing primes — values, simplifying models, and examples of digital media in learning — affected patterns of conversation across the six Peer Discourse Sessions. The full text used in each of the

six primes tested is presented in Appendix B. We discuss the specific results from each prime tested below.

Value: New Frontiers and Innovation
This prime connects digital media and learning to a historical legacy of innovation in the United States. It mentions significant technological breakthroughs over the past century and builds an argument for how today's digital technologies can strengthen our educational system. We tested this value as a means of evaluating current communications practices in use by some advocates of digital media.

In most groups, exposure to the value led to discussions of global competitiveness and U.S. exceptionalism in educational performance. This was not the intended effect of the prime. Based on their interpretation of the value, group discussions focused on digital media as a way to give U.S. students a technological advantage over children in other countries such as China and India.

> **Participant 1:** *It's funny you should say that. I wrote China on the edge of the paper as I was reading it.*
> **Participant 2:** *Yeah, they're quickly becoming a superpower and I mean they're probably the most well-connected country in the world. Definitely benefiting them becoming a superpower 'cause they have so much technology on hand.*
>
> *Tampa, Mixed Age/Mixed Race*

While it may be promising that this prime found initial support among participants as a way for American students to "compete" with their international counterparts, this may not be the most productive way to initiate communication on this issue. Prior FrameWorks research has found that "competition" frames have the tendency to individualize issues, which depresses support for public policy solutions. Furthermore, competitive frames set up an "us versus them" mentality, which can play out in both foreign policy thinking and with domestic groups. In the former case, one can easily imagine how this kind of thinking undermines support for a more international curriculum and cross-cultural learning. In the latter case, education is perceived as benefiting undeserving "others" who take away resources from more "deserving" students. "Us versus them" thinking, even applied on a global scale, makes thinking about the public (rather than individual) benefits of education very difficult.

It is important to note that the *New Frontiers and Innovation* prime was designed to orient participants to the importance of digital media in learning. Values primes in

general do not provide information about how an issue works. For this reason, the prime was largely unsuccessful in shifting away from existing dominant discourses about digital media. In many instances, the initial support for the prime devolved quickly into familiar discussions about digital media as a passive form of learning. In addition, as people thought more about what skills define a competitive position, more "basic" skills won out. The prime elicited conversations that focused on the idea that digital media is for "entertainment" — an unproductive way of thinking that was identified in our cultural models research.

> **Participant 1:** *I feel like we kinda got lost on giving kids the tools to develop science and math skills. And that's where we're lagging.*
> **Participant 2:** *Question is, are we going to get that from a computer tablet?*
> **Participant 1:** *Absolutely not.*
> *Tampa, Mixed Age/Mixed Race*

> *I'm not saying the Internet's bad. I'm just saying I didn't agree with the sentence saying it helps them become creative. 'Cause I don't agree with that particular aspect.*
> *Los Angeles, Latino/Mixed Age*

> **Participant 1:** *It turns into another "boob tube," okay?*
> **Moderator:** *How so?*
> **Participant 1:** *Back in the day, if you didn't sit down and read to your child, you didn't want to be bothered, you sat them in front of the TV, and let the TV babysit them. And this essentially replaced the TV as another babysitter.*
> *Chicago, Black/Mixed Age*

Overall, as an orienting value, the *New Frontiers and Innovation* prime would need to be substantially revised so that it cues participants' understanding of innovation and avoids unproductive discourses about global competition. Furthermore, it is clear from group discussions that Americans require more information about *how* digital media can be used, and more specifically about its potential functions as a pedagogical tool. Without this information, people will continue to worry that, from a zero-sum perspective, the inclusion of digital media threatens other forms of learning and causes "basic" academic skills to atrophy. In short, the results from our experimentation with this value underscore the importance of framing digital media to inoculate against the quick perception that it is just an entertainment device.

Value: Civic Development

This prime was intended to help the public understand the importance of digital media in relation to its potential for fostering civic engagement. In the prime, digital media is portrayed as a platform for students to learn, discuss, and participate in community and social issues. It was included in the sessions because of its use in expert and advocate communications materials.

After being exposed to the prime, most group discussions began with recognition that the nature of civic engagement is changing and that digital media is playing a role in this change. The conversations that followed the *Civic Development* prime were some of the only points in the sessions where digital media was discussed as a means to create and foster community. The following interaction illustrates this finding:

> ***Participant 1:*** *The social movements have changed. It is now very social-media oriented. We don't need to have national groups or committees that task force to develop a movement or to go march on Washington anymore.*
> ***Participant 2:*** *Yeah.*
> ***Participant 1:*** *You can do that through social media.*
> ***Participant 2:*** *That's true.*
>
> <div align="right">Los Angeles, Latino/Mixed Age</div>

Many participants mentioned the role of digital media in building a volunteer and supporter base for President Obama. Some used the term "elected by the BlackBerry" to refer to the role that digital technologies played in the electoral process (Los Angeles, Latino/Mixed Age). However, in most of the discussion following the prime, participants saw this as a function of digital media *for adults*, and did not reference students in such conversations.

When groups mentioned young people in the discussions following the *Civic Development* prime, they talked about the ability of youth to mobilize in reaction to community violence. This was particularly true in the Black and Latino groups. Again, while important to note, these conversations did not pertain to digital media as a learning tool, but rather as actionable information.

> *Participant 1: Let me tell you something, teenage kids, when their friends get killed, they have a train of people from South Harlem to New York City to California protesting. Everybody — and Jessie Jackson cause he's on there, and they use this to a tee, but when it comes to helping somebody.*
> *Participant 2: But let somebody get killed today in our community, everybody comes, and they don't know you tomorrow.*
>
> <div align="right">Chicago, Black/Mixed Age</div>

In the rare cases in which discussions of the prime focused on students and learning, the conversations devolved back into dominant discourses of digital media as a passive form of learning or as a source of danger for students. The following interaction illustrates the ways in which these dominant discourses made their way into conversations among participants.

> *Participant 1: How did Libya rally and how did everybody rally in the recent Middle East activities? They used Facebook and they got together and they said we're not gonna put up with this anymore. But like you just said, this can also be used for bad, too.*
> *Participant 2: Brainwashing.*
> *Participant 1: Yeah.*
> *Participant 1: I think you have to supplement the digital tools with good instructors. Good teachers.*
>
> <div align="right">Tampa, Mixed Age/Mixed Race</div>

The *Civic Development* prime provides an entryway for the public to consider digital media as fostering civic engagement, especially for voting-age adults. The public remains largely skeptical, though, about its potential for civic development for students. The assumptions that Americans have about digital media keep them from engaging in conversations about its role in education and learning.

Simplifying Model: Remodeling

The *Remodeling* simplifying model has been successful in shifting public support for education reform in prior FrameWorks research. It is based on the idea that the education system can be thought of as a building that needs remodeling. Just as a crew of skilled workpeople remodels a building to bring it up to date and in line with the needs of its inhabitants, a crew of skilled stakeholders can work together to remodel the education system so that it is able to meet the needs of today's students. The simplifying model was adapted here to help participants conceive of digital media as one tool to help remodel the educational system.

Remodeling tended to be a very "sticky" concept — participants used the metaphor throughout subsequent discussions. Most groups agreed that the U.S. education system lags behind the rest of the world and needs to be remodeled and brought up to date. However, these same groups argued that the way the school system should be remodeled is by returning to a focus on "the basics." In this sense, digital media was perceived largely as a supplement, and sometimes even a threat, to students' development of basic academic skills.

In addition to the focus on the basics — a dominant cultural model documented in past FrameWorks research on education — the prime cued several other common and unproductive modes of discussion about digital media and learning. The first of these understandings relates to the use of technology to improve access to information, but not necessarily as a way to enhance pedagogy, student creativity, interactivity or productive capacities. In this way, participants supported digital media in learning environments exclusively as a means to access information, and group conversations suggested that there was no other way to talk about how digital media could be used in an educational context. For example, one participant stated:

> *I like the fact that this quote says that digital media will help create a new and improved educational system. And "effectively remodel," I like those key words. Then one of the things that I didn't really think about which bothered me when I was in school was outdated history books. Like, textbooks are so old. And it takes a lot of funding just to get new books in. So I think that would be a complete improvement just by updating textbooks. A basic new textbook.*
> *Los Angeles, Under 35/Mixed Race*

Although the groups argued, on the one hand, that digital media offered improved access to information, participants doubted whether digital media actually improves learning and skills. In other words, even though digital media made information readily available, this did not necessarily translate into learning.

> *People aren't getting jobs right now because they're failing tests. The reason they're failing tests because everyone's on a computer that can correct anything that you do; your spelling, your punctuation.*
> *Chicago, Black/Mixed Age*

In general, participants agreed with the basic premise of the *Remodeling* simplifying model. They believed that the education system does need to be updated and functionally improved. They doubted, however, that integrating digital media and learning tools would accomplish that goal. As in the other primes, this simplifying

model failed (and was not designed) to explain learning processes or digital media in ways that allowed the groups to productively integrate these two concepts. It remains to be seen whether, once digital media and learning are embedded solidly into a learning process via a different metaphor, the *Remodeling* simplifying model can be recruited to aid in understanding the educational transformation that must take place to realize its potential as a force for learning.

Simplifying Model: Scaffolding

This prime was intended to help participants view digital media as a way to support learning processes. The text refers to ways that digital media provides a platform for teachers and students to exchange information and help students develop skills. The simplifying model was designed in the context of FrameWorks' previous research on teaching and teachers, which indicated that the public needed a deeper understanding of what teachers need to be effective professionals.

Participants largely saw the metaphor as ineffective. The prime frequently led to outright confusion, or defaulted quickly to the discourse of digital media as a passive, or "lazy" form of learning.

> *I don't think that social media helps solve problems and builds the brain better. How are you going to solve problems when Google tells you every answer?*
>
> *Tampa, Mixed Age/Mixed Race*

> *Are we gonna use the Internet to help build the brains? Are we gonna use the iPad? What are we gonna use to build these brains? Or "scaffolding" sounds like you can put that brain in my house.*
>
> *Chicago, Mixed Age/Mixed Race*

Although largely ineffective, the prime was able to help participants understand the role of teachers in the mentored use of digital media. In a few conversations, groups were able to use the metaphor to fill in the role of teachers in digital media and learning.

> **Participant 1:** *Where does digital media fit into this idea of scaffolding?*
> **Participant 2:** *As a partner with the instructor.*
> **Participant 1:** *Yeah.*
> **Participant 2:** *An aide.*
> **Participant 1:** *Yeah.*
> **Participant 1:** *But more like a helper not a replacement.*
>
> *Tampa, Mixed Age/Mixed Race*

Participants largely did not understand the metaphor of *Scaffolding* in this prime. The model referred to brain building, but without a deeper explanation of the cognitive aspects of learning. Participants questioned, and mostly rejected, digital media as a way to "build brains" because, with a passive understanding of how learning occurs, they envisioned a machine simply filling children up with information. Rather than brain building, the prime, as executed, allowed default discourses of digital media to take over group conversations. Again, it remains to be seen whether *Scaffolding* can contribute to a larger understanding of the role of teachers in digital learning, once the more developmental challenges that attach to digital media are addressed via an alternative metaphor.

Simplifying Model: Connected Learning
The *Connected Learning* prime was designed to communicate the notion that digital media connects students to multiple learning environments and allows them to practice transferring skills. This prime was derived from the expert discourse within the digital media and learning field.

Overall, participants were receptive to the notion of extending learning beyond the classroom. The prime helped break down the division between in- and out-of-school learning that was powerful and unproductive in our earlier research. After exposure to the prime, many of the groups saw *Connected Learning* as an important goal — to be able to apply what one learns in school to "real world" situations.

> *It definitely allows you to follow your personal interests and participate actively in your education. So instead of just having my education confined to the walls in a classroom with my teacher, I could participate actively in my own education and pursue other sources of media whether it be a professor lecture somewhere else or me just going to an online library and referencing and stuff like that.*
>
> *Tampa, Mixed Age/Mixed Race*

> *Certainly it's like I can get a virtual fieldtrip. You bring up a museum website like when I brought my son to this museum a few weeks ago. We searched the web for a virtual tour so he knew a lot of what he was about to see.*
>
> *Chicago, Mixed Age/Mixed Race*

In the first passage, the participant stresses the ability of digital media to aid in an individual's pursuit of knowledge. In this instance, the model reinforced individualistic notions of learning. However, the second participant describes a

mentored use of digital media in ways that begin to approximate expert understandings.

In other instances, participants felt that *Connected Learning* was too vague. It sometimes defaulted to an understanding of digital media in facilitating learning communities across place.

> ***Participant 1:*** *That's saying that if you're going to learn about something, you can go and find whatever you want and learn it.*
> ***Participant 2:*** *Yeah, but if you join a club, then isn't the main thing to personally interact with people, instead of like, hey why don't we all get together and get on our computers and not talk to one another?*
> *Los Angeles, Under Age 35/Mixed Race*

Participants were less able and willing to see the ways in which "real world" learning could be brought into the classroom. In this way, they mentioned the role of internships and access to topics of interest, but such movements of the "real world" into the classroom domain were seen as *supplementary* rather than complementary to traditional learning. In other words, participants reported that digital media could connect students to the world outside classroom learning by giving them opportunities to apply what they had learned in school. However, they remained resistant to the idea that digital media could be incorporated into school as a foundational learning tool.

In many cases, this prime cued up discussions of a "pen pal" type of learning. Participants viewed digital media as a way to connect with other students in foreign countries and develop cross-cultural understandings using applications like Skype.

> ***Participant 1:*** *I guess if you're in a club, you can post your discussions and stuff online for other people to see it. Maybe become involved in it as well. But I'm still kind of missing it a little bit. It doesn't resonate with me because I don't really understand what it means.*
> ***Participant 2:*** *Yeah.*
> ***Participant 1:*** *Unless they're talking about an online club, where like a chat room. Where you can join online and talk to people around the world. But it's not how it comes off.*
> *Los Angeles, Under Age 35/Mixed Race*

Lastly, this prime cued up the dominant model that digital media is a "passive" or "inauthentic" form of learning. In this sense, learning online, or learning "virtually," was discussed as an inadequate substitute for "in-person" learning.

> *But if you put it into a different context of having, like, a surgeon working on you, I'd want to know the surgeon that's working on me has actually done it on a real flesh … cause anything can happen.*
>
> *Los Angeles, Latino/Mixed Age*

Most importantly, the idea of connected learning failed to change or restructure underlying models of learning. It could connect places where learning happens (to some extent), but was limited by the fact that it did nothing to take on the unproductive underlying understandings of learning (learning is hard, learning is unidirectional from teachers to students, learning is about basic skills) that structure so much of the public's resistance to the idea of digital media *in* learning. Again, as with other primes, it remains to be seen whether *Connected Learning* can have better effects when tied synergistically with a metaphor that accomplishes this fundamental challenge.

Example: "New Kind of Writing"
The *New Kind of Writing* prime details an example of an English teacher who teaches his students how to use video, music, recorded voices and other media to express ideas and tell stories. It was included in the sessions because of an earlier FrameWorks finding that Americans have difficulty conceptualizing and imagining *how* digital media might be used in learning. Moreover, previous FrameWorks research on unfamiliar aspects of learning, such as globalized curricula, found significant impact when people were presented with tangible examples. This prime provided a concrete example for group discussions.

There was very little receptivity to this idea. The groups interpreted the prime as advocating the replacement of "basic" or traditional classes *in favor* of digital media. The groups talked about how the example in the prime should *not* be considered an authentic "English" class. The only role they could see for such an exercise was as an elective course. Such opinions are entirely consistent with earlier findings that digital media is understood as superfluous luxury and entertainment rather than a meaningful or critical tool.

> *I mean it's just that this should be taught in a drama class. Maybe that's the thing. Is that it's English and we have our traditional view of what English should be. And I don't know, it just seems like he ought to just have 'em give a book report. But if they're gonna be doing video or recording voices or*

something like that, that's like an acting or public speaking course in my opinion. So I think this kind of demonstrates the misuse of digital media tools.

Tampa, Mixed Age/Mixed Race

Following the introduction of the prime, group discussions focused on the idea that English classes should be about writing and book reports. Again, responses evidenced a deeper "digital media as supplementary to learning" assumption, as the following interaction demonstrates:

> **Participant 1:** *I'm like, oh my god; this is the way I used to get out of doing papers in high school. "I know … I'll write a song about it."*
> **Participant 2:** *Yeah.*
> **Participant 1:** *Draw a picture of it.*
> **Participant 2:** *Yeah.*
> **Participant 1:** *I remember my girlfriend in her class that did an interpretive dance. So to me this is laughable. I don't think it should be excluded by any means, but that's what it evoked in me. If he's teaching an English class, that assignment better be accompanied by something written down.*
>
> *Los Angeles, Latino/Mixed Age*

Unfortunately, the dominant cultural models of digital media as a "lazy" or passive form of learning were strongly reinforced by this prime. Rather than unlocking a new conception of digital media by providing a real-world example of its productive application in learning, the groups talked about how such an example is instead an illustration of the "hype" around digital media and of the need to cling closer to the basic pedagogical approaches and tools. In sum, the example did not prime a different way of thinking.

Example: "Bugscope"
The *Bugscope* prime concretely described a science project that employed digital media to allow students free access to a scanning electron microscope at a university so that they could learn about insects. Similar to *New Kind of Writing*, this prime attempted to address the documented need to show Americans what digital media in learning would actually look like on the ground.

In some cases, the prime led to group discussions that showed some understanding of how digital media tools could be used for learning. This prime found significant support, for example, from the Under 35 group.

Participant 1: I think this is the ultimate interaction. The kids going out into the yard, picking up a bug, putting it in an envelope, sending it to the scientists and then seeing it a week later, you know? I think that's the ultimate cool experiment, and who's to say the frog's not going to be involved later?

Participant 2: Yeah. I love everything about this. I think it teaches them to be more aware of the environment and they appreciate more things. It teaches them patience because they have to mail it away, and they're all excited, and they need to know that things take time. But it also gives them motivation to maybe go to college because maybe one day they want to be the scientist who they're mailing their bugs to. And actually do it. So, I do agree there needs to be hands-on experience, but this sounds like it's more for the lower grades, rather than in high school or something like that. So I think that it's a great program.

Los Angeles, Under Age 35/Mixed Race

However, similar to the *New Kind of Writing* prime, most group discussions focused on this use of digital media as a diversion from "real" learning, which happens by actually "dissecting frogs" with "your own hands." The groups reported that students should be able to learn science by "reading a book and do research without going to the computer." They also expressed the view that a project like this should supplement, but not replace, more traditional means of science education.

Participant 1: Nobody likes to dissect a frog but it's the experience, you don't forget that. You see it on TV, you know, you remember it for a week and then it's done. It's like watching National Geographic or Discovery Channel, you know, it's really nice, it's educational but if you leave it at that you're gonna forget it in a week or it's just gonna be something else you saw.

Participant 2: If you dissect the frog and then next day go, okay, well here's this microscope that enhances everything you did. Here are the things you couldn't see. That's okay.

Participant 3: Yeah, or like going back to see it again after you've done it once to have the opportunity to, like, write your paper and be able to, like, look at it again and not just, like, forget what you saw. It's like an aide to help you remember, but not as a replacement — definitely not.

Tampa, Mixed Age/Mixed Race

Like the *New Kind of Writing* prime, *Bugscope* was largely ineffective in shifting understandings of digital media in ways that allowed the group to think about how it might be used in learning contexts. In short, after exposure to the prime, the groups

continued to be unable to see how learning with digital media constituted "real learning."

Overall, the results from the experimentation section of the Peer Discourse Sessions show how the underlying assumptions of the domain of "learning," on the one hand, and "digital media," on the other, structure a deep and general resistance to the incorporation and synthesis of these domains. Even after having been exposed to multiple primes designed to build support for digital media and learning programs and policies, participants continued to struggle to re-conceptualize their previous notions of digital media and its utility as an authentic learning tool.

Negotiation

The negotiation section of the Peer Discourse Sessions included an exercise in which participants were divided into three groups, each of which was asked to make presentations to their State Board of Education on why digital media should be incorporated into state curricula. At the end of the negotiation exercise, each participant was asked to vote for the presentation they found most convincing and to provide some justification for their decision.

In these presentations, the subgroups were asked to design and present arguments they felt would convince others of the value of incorporating digital media into learning. As such, we expected that the groups would draw on commonly held and shared values to make their arguments. We expected that these values would be gleaned from the primes in the previous exercise, but we also looked for modes of argumentation that emerged from the groups themselves. Therefore, the results from this exercise not only reflect what individual participants thought, but evidenced their beliefs about arguments and values that they felt would resonate with others in their peer group. As such, dominant media discourses are powerful sources of the values that are in circulation about digital media and learning and, as illustrated below, inform the kinds of values and rationales the groups used to formulate their arguments. Below, we discuss the three values the subgroups drew on to make their arguments for the inclusion of digital media in the education system: *Efficiency*, *Global Competitiveness* and *Fairness*.

Efficiency

Several sub-groups argued effectively that digital media allowed for more innovative teaching practices — a view that appears to have been influenced by their earlier exposure to the *Innovation and New Frontiers* value. However, all groups equated innovation with efficiency. As the quotes below demonstrate, the innovative use of

digital media meant an increase in the speed at which students learn and more cost-effective teaching.

> *We thought along the lines of the virtual media as well. The learning goes along with digital media and allows them to connect and empower so that they are learning at their own pace. They can also see what they need for each child's learning ability. And the teacher would get immediate feedback. Advantages ... enables them to stretch their potential, development skills, research lifelong learning, keeping them in touch with current affairs and events and keeping them competitive with other countries that are competing for the same jobs. And cost effectiveness.*
>
> *Tampa, Mixed Age/Mixed Race*

> *And also certain subjects would benefit more, such as biology or some sort of science, where you can show a video of the process happening versus hearing someone explain the process. And then you would learn it much quicker and that would leave a window of opportunity to move on to other subjects at a much quicker rate.*
>
> *Los Angeles, Under Age 35/Mixed Age*

In these discussions, the groups equated education with any other industry. Students became the products that need to be filled with information as quickly and as cost effectively as possible. And, as with the mechanization of other industries, participants reasoned that digital media could be cost effective and efficient because it reduces the need for teachers' labor. In fact, a few groups argued that digital media could replace teachers, thereby eliminating the costs associated with their labor. The following passages exemplify participants' arguments regarding the reduction of face-to-face teacher time:

We are proposing that we move 50 percent of our high school grades nine through 12 to virtual classrooms. And by doing that, they'll have to access to digital media and this will allow them to learn at their own pace and will allow them to have instant feedback on lessons each day. It will be more of a college-type setting in this high school environment. It can cut down the class size and bring up the amount of students on campus on any given day. Does this mean that they're gonna be at home and not socializing? No, they're going to take four to five hours a day in the class and then the rest of the day those classes would be virtual through digital. This will free up teacher time, this will be cost effective as far as routine maintenance on the campus and additional costs that would be normally used on a daily basis.

Tampa Mixed Age/Mixed Race

It would teach children self sufficiency because they would learn a whole new skill set for problem solving 'cause they would know how to research things on their own. They wouldn't need someone there constantly guiding them hand and foot through each problem and showing them how to do something, where to find information. Research skills are really the best advantage of this.

Los Angeles, Latino/Mixed Age

The *Innovation and New Frontier* prime's focus on innovative teaching practices did, in fact, lead to more productive conversations about the pedagogical value of digital media. However, participants' arguments were fundamentally structured by the equation of innovation with efficiency in a capitalist economy. The equation of innovation with efficiency is also likely the result of the media's consistent discussions of digital media within the business sector. Students were conceptualized as a product that could be manufactured in a quicker and more cost efficient manner. That is, participants still maintained a consumerist model of education that previous FrameWorks research has shown to be detrimental to more robust understandings of education and learning. While the focus on innovation showed promise, the dangerous discursive slippage to efficiency is a tendency that needs to be examined further in later stages of research.

Global Competitiveness

Sub-groups argued that the inclusion of digital media in learning environments would make U.S. students more globally competitive. In fact, the ability of digital media to help students compete in a global market was a rationale that was employed in every Peer Discourse Session. Participants expressed fears of American children being left behind in the global economy. The use of digital media in learning was positioned as one way of helping American children keep up.

As far as the entire education system as a whole, it would mean that American children would be better able to keep up with the global society and the global job market because people in Third World countries, as we were saying earlier on, are learning these things much faster than us and they are using their outsourcing jobs constantly so we'd be able to keep up with this fast pace.

Los Angeles, Latino/Mixed Age

The world is going digital and the kids are going to have to go digital too and if we want the best kids or if we want the best jobs to come here, the kids have to be up on the best technology and they have to go through ... all the way through high school and hopefully into college and they have to use the best technology in order to get there. If we want employers to hire our kids, our future workers, then we're gonna have to go digital.

Tampa Mixed Group 1

The invocation of the global competitiveness value often led to stereotypical, and even xenophobic, discussions of people in other countries, especially countries in Asia and Southeast Asia. For example, the following group discussed why children in South Korea were surpassing their American counterparts.

Because not only discipline, I mean, as a matter of life and death for a lot of these kids. Okay, if you are an A+ student in Korea, you get to come to this country to study. If you're just a plain A, you fill up the spots in Korea and if you are a B student, you go to the rice fields for the rest of your life.

Chicago, Black/Mixed Age

It is important to note that issues of global competitiveness were not discussed in the unprimed conversations and it was not directly mentioned in any of the primes tested. However, the discussions following the *Innovation and New Frontiers* prime focused on global competition, and this value was carried through to almost every presentation in the negotiation exercise. Again, the over-representation of digital media in media coverage of business issues, where competition is a dominant way of understanding the value of digital media, is another source of the groups' invocation of this value. That is, the value of global competitiveness not only resonated with individual participants, but they believed this argument would resonate with others as well.

While clearly resonant, the global competitiveness value will likely have communications consequences that are at odds with how experts conceive of the importance of digital media and learning. Framing education as a competitive race means that there are winners and losers, and reinforces the existing and dominant notion of education as a finite resource. As such, it raises fears of "others" — in this case, children in other countries — who are taking resources away from American children. This "otherizing" process is easily cued and applied to the domestic context, which undermines people's ability to think about the collective and public benefits of education.

Inequality and Fairness

The sub-group presentations also focused on the potential of digital media to reduce educational inequalities in the United States. Despite scholarly documentation of the "digital divide" and "participation gap" among racial and socio-economic groups in the U.S., sub-group presentations frequently evoked the notion of *digital media as an equalizer*. They argued that digital media provides everyone access to the same information. This line of argument was made most strongly by the Black and Latino groups.

> *And then access to things that you might not get because of budget or whatever it is. Like if the school doesn't have a microscope, now at least you can see what you would see if you had that. All you needed was an Internet browser.*
>
> *Los Angeles, Under Age 35/Mixed Race*

> *It also would give them the advantage not to be working from textbooks that are 10-20 years old, where the planets have been re-designated since we were in school. If I have a kid, or I'm a kid looking at a book, and he's still saying there's nine or 10 planets, and there's really six, we got a problem. We talked about the academic decathlon, which they have in Chicago … where they pool the best students from each school, and they ask them questions to see who's learned the most. But if you have a child who's working from a book that's 5 years old, you have a child that's working off the digital media, and of course, the child from digital media is always gonna win, and it will make it a more even playing field for those children.*
>
> *Chicago, Black/Mixed Age*

> *We also felt that test scores would improve because this would give students that don't have access to this technology normally more access to it in the*

education system which would put everybody at a level playing field, at least while they're at school.

<div align="right">

Tampa, Mixed Age/Mixed Race

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Each district or each school or community has a ... set of resources that are available to disburse amongst all the students. This limits your skill set in terms of your resource pool for teachers, number of students you're servicing, any kind of equipment. Now social media would supplement that, would bring it into the classroom and help to level the field, so to speak.

<div align="right">

Los Angeles, Latino/Mixed Age

</div>

It is interesting to note here how participants talked about educational inequality in these passages. Rather than talking about differences among groups of students, they focused on the unequal distribution of resources among schools or school districts. That is, their understanding of inequality was place-based and did not invoke specific racial, ethnic or class-based groups. This closely approximates the idea of *Fairness Across Places*, a value that has proven effective in FrameWorks' research on education reform. Its organic emergence here, and its relatively positive effects in shaping productive conversations about digital media and learning, suggest that the value should be tested in future phases of our research.

CONCLUSION AND IMPLICATIONS

Results from these Peer Discourse Sessions further refine our understanding of the communications challenges faced by advocates and experts around digital media and learning.

First, the groups did not need to be convinced that digital media has a place in learning environments. Digital media represented, especially for the older participants, the inevitable march of technology. For better or worse, they argued, students needed to be able to use such technologies lest they be left behind in the global economy. Second, although participants focused on the imagined dangers posed by digital media, they discussed at length, and without priming, several benefits of digital media. It was not difficult for participants to make positive associations with digital media. Therefore, changing the tenor of the conversations or encouraging people to see the benefits of digital media are not advocates' primary communications challenges. In order for the public to gain an understanding of digital media that more fully comports to expert understanding, people need a more robust and dynamic understanding of how learning occurs. Without this understanding, they could only see a dyadic relationship between the technology and its user, with information flowing to a passive and vulnerable student.

The primes tested in these sessions showed some promise. They loosened participants' sense of parental responsibility for educational outcomes. Primes such as *Connected Learning* and *Bugscope* encouraged a better understanding of adult mentoring (rather than just restricting or monitoring) of students' use of digital media. Although only mentioned in the context of adult use, the *Civic Development* prime allowed participants to think about how *communities*, rather than isolated individuals, can use digital media. The *Remodeling* prime encouraged group discussion of how the education system in the United States can be updated and improved. However, people still failed to see digital media as a pedagogical tool that can be used to create dynamic and interactive learning environments.

The Peer Discourse Sessions also demonstrated the allure of framing the importance of digital media and learning in terms of global competitiveness. Emphasis on global competition was largely absent from the pre-primed discussions. Although it was not the intended meaning of the *New Frontiers and Innovation* value, participants nevertheless understood this value through the lens of global competition, which was also the most frequently employed value in the negotiation exercise. The use of digital media as a competitive tool in the business sector is the most dominant media frame about these technologies, which seems to be shaping public conversations

about digital media in learning environments. This indicates that the *Global Competition* value is operative in public discourse and appears to resonate with the public. However, resonance is not necessarily evidence of effectiveness. Instead, success is measured by whether or not a frame element can structure productive understandings of issues and support for policy solutions. From this perspective, values based on competition have many unproductive entailments and are unlikely to create the types of understandings or policy support for which digital media and learning experts advocate.

The inability of any of the primes to address the unproductive tendencies in reasoning about digital media and learning suggests that more than one frame element will be needed to effectively communicate on this issue. The Peer Discourse Sessions indicate that the public needs an understanding of what happens when children are learning and how learning occurs. In addition, this research suggests not only the need for conceptual work on learning, but for serious reframing attention to public understandings of digital media. In short, what appears to be necessary for better public understanding of digital media and its importance in learning environments is a core story of learning and education that contextualizes and supports it. This story would clearly lay out the skills that children need, the most effective ways of learning and assessing these skills, and how the education system can more effectively work to achieve these learning outcomes. With this understanding in place, an argument for the role of digital media as a learning tool would not have to take on quite so much baggage (learning, teaching, interactivity, etc.) and could be effectively made as part of a broader reframed discourse.

Furthermore, results suggest that the *Fairness Across Places* value that has been successful in other FrameWorks research on education might be adapted to the domain of digital media.

Most hopeful of all was the impact that the discussion had over the course of the two-hour sessions. In the initial section of the Peer Discourse Sessions, the groups were largely unable to sustain a discussion about digital media *in learning*. By the end, they were able to make presentations about its necessity in a standard curriculum. This progress will guide the future stages of this research as we attempt to refine the particular primes to address the widest "gaps" between expert and public thinking.

APPENDIX A: SESSION GUIDE AND ANALYSIS

Peer Discourse Sessions are directed conversations and, as such, follow a fixed guide and are facilitated by a trained moderator. These sessions begin with open-ended discussion followed by moderator-introduced framed passages, or "primes," designed to influence the ensuing discussion in specific ways. The sessions end with a group negotiation exercise in which participants break out into smaller groups tasked with designing a plan to address some part of the larger issue.

Section 1: Social Context Effects
The first exercise used a word-association task and open-ended discussion about learning, digital media, and digital media and learning to confirm the dominant cultural models and public discourses attached to these issues.

Similar to the methods used to analyze data from the Cultural Models Interviews, *social discourses*, or common, patterned, standardized ways of talking, were first identified across the eight groups. These patterns of talk were then analyzed to reveal tacit organizational assumptions, relationships, logical steps and connections that were commonly employed but taken for granted. In short, analysis looked at patterns both in what *was* said (how things were related, explained and understood) and in what was *not* said (assumptions and taken-for-granted understandings).

Section 2: Prime Exploration and Experimentation
In the second exercise, the moderator introduced primes that were written as news articles. These primes were designed to address perceptual issues identified in early work related to digital media and learning. Values, simplifying models, and example primes represent different frame elements in communications. Values provide ways for participants to orient to the issue in terms of why it is important to introduce learning innovations in education and the role that digital media can play in education reform. Simplifying models are metaphors that work as "cognitive shortcuts" that allow for participants to understand how digital media and learning works in a way that is more aligned with how the experts see the issue. Finally, issue examples provide concrete instances of how digital media works in a classroom setting. Earlier FrameWorks research on public understandings of digital media and learning shows that many people have a difficult time conceptualizing what this kind of instruction actually looks like in everyday use. This explains, in part, the public's inability to think productively about digital media *and* learning. Issue example primes detail a specific classroom project using digital media and learning tools and allow for FrameWorks to explore how examples work to unlock or reinforce previous public conceptions.

The primes were also measured by their ability to meet some or all of the following criteria:

User friendliness: Researchers evaluated whether primes were "user friendly" — if participants were able to use the language of the primes in subsequent discussions. User-friendly primes are also more likely to appear in other areas of the Peer Discourse Sessions, such as in the discussions of subsequent primes and during the final negotiation exercise.

Shifting away from the dominant models: In general, successful primes are also relatively effective in "loosening the grip," or inoculating against the dominant cultural models and conversational patterns. We therefore looked at whether, after being exposed to a prime, group discussions were measurably different than both unprimed conversations and discussions following exposure to some of the less successful primes.

Float time: Related to the ability to shift off of the dominant default patterns of thinking and talking, FrameWorks looks at the "float time" of the primes. Float time refers to the time from the introduction of the prime (when the moderator finished reading the prompt), to the point at which the group conversation makes its way back to one of the dominant default discourses.

Filling gaps in understanding: Effective primes are also relatively successful in filling what FrameWorks calls "gaps in understanding," or gaps between the ways that the public understands a concept and the way that experts do. We measured this by referencing previous phases of the research that identified these gaps and analyzing whether discussions that follow the primes engage with expert understandings of digital media and learning.

Section 3: Negotiation
In the third section, each group was tasked with arguing to their State Board of Education why digital media should be included in standard curriculums. FrameWorks staff distributed small, handheld digital recorders to capture the discussions and negotiations within the small groups. In subsequent analysis, we examined the arguments that people used to rationalize choices and convince others in the group of specific positions and documented the multiple perspectives used to negotiate decision-making. In this exercise, we were interested not only in participants' patterns of talk and process of negotiation, but also in whether their active engagement in the exercise could diffuse the dominant models that structured

unprimed conversation about digital media and learning. We were, therefore, not as interested in the specific policies that each group proposed as in how they arrived at their solutions, the rationales they employed in constructing arguments, and shifts in the tone and general attitude toward the issue that emerged as a result of inter- and intra-group discussions.

APPENDIX B: EXPERIMENTAL PRIMES TESTED

1. Values Frames

NEW FRONTIERS + INNOVATION
Title: **American Schools Should Embrace Digital Media and New Frontiers of Innovation**

> *Description: America has a long history of exploring new frontiers of knowledge, science and learning. Whether landing men on the moon, developing new vaccines or creating the Internet, America has been at the leading edge of innovations in technology and learning. Today, exciting new digital tools — smartphones, computer tablets, GPS systems and the Internet itself — provide new opportunities for hands-on learning and creative expression by students. It is time for our educational system to embrace new horizons of learning and exploration. This will give our students the best tools to explore, invent and create. Ingenuity and innovation are important to keeping our nation strong and vibrant for generations to come.*

Pullout: It is time for our educational system to embrace new horizons of learning and exploration.

REMODELING
Title: **Digital Media Provides New Tools for Remodeling Education**

> *Description: Right now, many of our educational tools are old and outdated, and can't be used effectively to remodel our education system for today's world. Fortunately, we have new tools available that are hands-on, interactive and motivating to students. These include exciting new digital tools like smartphones, computer tablets, GPS systems and the Internet itself. When students use these tools in the classroom, they learn in hands-on ways to be active participants in their own education. Bringing these new hands-on tools into the classroom will help create a new and improved education system, one that is updated to meet the needs of the world we live in today.*

*Pullout***:** *We have new tools at our disposal that are hands-on, interactive and motivating to students.*

2. Simplifying Models Frames

CONNECTED LEARNING
Title: **Digital Media Connects Students to Multiple Learning Environments**

> *Description: Right now, classroom learning mostly takes place within the classroom walls. But digital tools provide ways for students to learn from and connect to resources and places **outside of classrooms** — places like libraries, businesses, colleges, clubs, communities of interest and classrooms in other schools. Connected learning allows students to see how what they're learning is important beyond and outside of the classroom. It enables them to stretch their potential, follow personal interests, and develop the skills that form the basis of lifelong learning. Connected learning encourages students to participate actively in their education and provides opportunities for students to contribute to the world.*

Pullout: Connected learning gives students the tools to relate their education to the world around them.

CIVIC DEVELOPMENT
Title: **Digital Tools Help Young People Develop Skills that Translate into Civic Participation**

> *Description: The strength of our country depends on the civic participation of its citizens. Digital tools prepare students to be active citizens by providing opportunities for them to collaborate and discuss issues that matter most to them and their communities. By using digital media to explore and educate themselves on social and civic issues, young people become empowered to create positive change in the world. When a new generation of citizens is active in civic participation, this ensures a strong and vibrant democracy for our country.*

Pullout: Digital media prepares students to be active citizens.

SCAFFOLDING
Title: **Students and Teachers Need Scaffolding to Build Cognitive Skills**

> *Description: Teachers and students are both involved in building brains. That's why both of these groups need scaffolding that supports them and provides them with tools and materials they can use. When teachers are supported and connected to other teachers with this scaffolding, they can more effectively and efficiently share plans and tools that are essential for*

learning. Also, when teachers and students are supported with this scaffolding, they can work together to design learning in a way that makes sure brains get built for problem-solving and critical thinking skills. So the best way to make sure that we have effective teaching and learning is to ensure that teachers and students are supported by strong scaffolding.

Pullout: *Teachers and students benefit from scaffolding that supports brain development.*

3. Issue Examples Primes

5(a). NEW KIND OF WRITING
***Title*: Writing 2.0 in the Classroom**

Description: *Dave Boardman is an English teacher at a high school in Maine. Although he teaches a traditional English curriculum, his students aren't producing typical five-paragraph essays or even research papers. Take the case of "Tillman," a writing assignment a freshman produced a couple of years ago. "Tillman" is a moving video that tells the story of Patrick Tillman, the NFL player who quit football to fight in Afghanistan and was killed while serving. The video moves seamlessly back and forth between the student's own thoughts on the case, and CNN and other news coverage. As teacher Boardman says, "I think the definition of writing is shifting. I don't think writing happens with just words anymore." In his classes, Boardman guides his students in learning how to use video, music, recorded voices and other media to effectively express their ideas and tell their stories.*

Pullout: *"I think the definition of writing is shifting. I don't think writing happens with just words anymore."*

5(b). BUGSCOPE
***Title*: Connecting High-Tech Science to Students in the Classroom**

Description: *The Internet is playing a role in reimagining the science lab. The Bugscope project, an educational outreach program of the University of Illinois, provides free access to a scanning electron microscope so that students anywhere in the world can explore the microscopic world of insects at a higher magnification than most people have ever seen. With their teacher's guidance, students can propose experiments, locate and identify bugs and insects, mail them to the university, and then explore insects at high*

magnification, discussing what they see with university scientists — all from their classrooms via a regular web browser over a standard broadband Internet connection. The kids even get to control the movement of the microscope! Bugscope represents the kind of innovative project that is preparing a new generation of young scientists who are excited about experimentation, and about collaborating with other learners and scientists across the nation and globe.

Pullout: Students anywhere in the world can explore the microscopic world of insects at a higher magnification than most people have ever seen.