



**“Faster and Fancier Books”:
Mapping the Gaps Between Expert and Public
Understandings of Digital Media and Learning**

A FrameWorks Research Report

Prepared for the FrameWorks Institute
by
Nathaniel Kendall-Taylor, Eric Lindland, and Anna Mikulak
December 2010

© FrameWorks Institute 2010

Table of Contents

INTRODUCTION	4
SUMMARY OF FINDINGS	6
RESEARCH METHODS	10
I. Establishing the “Core Story” of the Field of Digital Media and Learning	10
II. Cultural Models Interviews	11
FINDINGS	12
I. Expert Interviews	12
1. Reasons to promote digital media and learning	12
2. Affordances of digital media	13
3. Skill cultivated through mentored use of digital media	14
4. Social benefits	15
5. Policy frontiers	17
II. Cultural Models Interviews	18
A. Dominant Cultural Models	18
Cultural Models of Learning	18
1. “In-school” learning is distinct from “real-world” learning	19
2. “Book learning” is distinct from “hands-on” learning	22
3. Learning happens through challenge and adversity	23
4. More is better	24
5. Discipline is compulsory	24
6. Individuals are responsible for learning	25
7. Learning is highly individualized	25
8. You have to be safe to learn	26
<i>Implications of cultural models used to “think” learning:</i>	26
Cultural Models of Digital Media	29
1. Digital media is entertainment and luxury	30
2. Digital is the opposite of manual	32
3. Digital media is passive... a thing to be watched	32
4. Digital media is dangerous	32
<i>Implications of Cultural Models used to think digital media</i>	34
Patterns of Reasoning About Digital Media and Learning	34
1. “Digital media and learning” is assumed to be exclusively about in-school learning	35
2. “School should be hard” + “limit outside distraction” + “digital media is entertainment” = digital media distracts students and fundamentally threatens the educational project	35
3. “Digital media is automatic and passive” + “authentic learning is hands-on and direct” = Digital media detracts from learning	36
B. Recessive Models	37
1. Interactivity is good for learning	37
2. When you <i>want</i> to know, you learn better: The importance of personal relevance	37

OVERLAPS AND GAPS IN UNDERSTANDING..... 38
CONCLUSIONS 42
APPENDIX 1: RESEARCH METHODS..... 45
APPENDIX 1: THEORETICAL FOUNDATIONS 47

INTRODUCTION

The research presented here was conducted by the FrameWorks Institute and sponsored by The John D. and Catherine T. MacArthur Foundation. This multi-method project seeks to facilitate the design and advancement of more effective ways of communicating about the field of “digital media and learning.” This particular report lays the groundwork for this larger reframing effort by comparing expert discourse on this topic with the ways that average but civically engaged Americans talk and think about digital media and learning. Data from interviews with members of these groups are compared to locate and examine gaps in understanding that can ultimately be addressed through strategic communication strategies. Future phases of the larger project will seek to fill these gaps and address other aspects of public understanding by designing and testing tools that can be employed to effectively and efficiently translate information on the role of digital media in learning.

Americans have access to a rich set of shared assumptions and understandings that they bring to bear in thinking about issues of “learning,” “digital media” and “digital media *and* learning.” This report shows that not only are these shared but implicit understandings numerous, they are highly compartmentalized and frequently oppositional.¹ This modular perspective on meaning-making goes a long way toward explaining why people express what appear to be irrational views and opinions — in the case of this research, for example, that technology is helpful and at the same time, as one informant said, “the root of the problems in our world.” Cultural models theory explains these seemingly irreconcilable results by conceptualizing culture as a series of shared, discrete but highly implicit understandings that members of a culture bring to bear on making sense of their worlds. Thus, applying one of these shared understandings — or cultural models — might lead to one opinion, while the application of another available model may structure the expression of a seemingly contradictory position. Examining these cultural models in mind is therefore key to understanding Americans’ opinions on issues and to crafting strategic communications that seek to more effectively navigate these terrains of meaning.

Our research suggests that public thinking about digital media and learning is cut along three specific axes. First, there are two key fissures *within* the domain of learning, where Americans see equally important but highly compartmentalized “types” of learning. These types are organizing in thinking as oppositions. One opposition exists between classroom and “real-world” learning, while the other is organized around learning modalities with a compartmentalization between “hands-on” and “book” learning. These compartmentalizations have key implications for communicating about the field of digital media and learning — a field that, at its core, is about melding and blending these two domains to create more effective practices of teaching and learning.

A third cognitive compartmentalization was evident between the domains of “learning” and “digital media.” Our research suggests that the domains of “digital media” and “learning” are without the well-worn cognitive paths of association that allow them to be easily connected in productive and generative ways. In short, the cultural models used to think about learning were, only in the most tenuous ways, connected to those used to process the domain of “digital media.” This compartmentalization is evident in informants’ difficulty in thinking about how digital media might be used to improve and innovate learning. Beyond making “fancier books” and

“libraries that you don’t have to drive to,” informants had difficulty connecting these issues in productive ways. Furthermore, this compartmentalization had an oppositional structure, such that not only were these domains unconnected, they were seen as being fundamentally at odds with one another.

This compartmentalized cognitive landscape and the internal complexity of the issues of learning and digital media present a challenging picture for researchers, reformers and advocates who wish to improve the education system by incorporating innovative and evidence-based uses of new media and technology. However, past FrameWorks research has shown that, on similarly bounded and compartmentalized domains, strategic communications research can bring issues together in mind and allow new patterns of thinking to emerge. Within this research as well, there exist features of public thinking — for example about the power of “hands-on” learning — that suggest openings for linking digital media to learning within and beyond school environments. This is the task that lies down the road in our iterative multi-method approach to communications research. The first task in connecting these cognitive compartments is to accurately map and understand how Americans think about each issue and the ways in which they *are* able to make connections. It is this cognitively cartographical endeavor that we take up in the following report.

FrameWorks’ research shows that understandings “learning” and “digital media” are disconnected — with very few contiguous or porous places for thinking on one domain to productively move into the other. However, the research also shows that this is *common ground* and that the understandings and connections between domains are highly consistent across individuals. This suggests that communications strategies designed to create paths and connections between these areas can help *all* Americans to think in new ways about learning, digital media and education. *In short, the presence of shared cultural understandings suggests the promise of communicating around a set of common messages.*

The landscape on the issue of digital media and learning is further fraught by the existence of another problematic feature — a series of gaps in understanding between the ways that experts and the public understand this issue. By subjecting the data gathered from expert interviews to a comparative analysis with those gathered from interviews with the general public, we map these gaps in understanding to pinpoint specific places where communications tools are needed to bridge conceptual expanses. Our goal is to help develop strategies that communicate to the public how experts understand the role and potentials of digital media in a new paradigm of learning, and in so doing help people expand and improve their thinking about the importance, promise, and direction of education reform in America.

In the following research report FrameWorks first used a series of “expert interviews” to identify foundational themes and concepts in how experts understand, explain, and talk about the concept and field of digital media and learning. Using thematic analysis, these concepts are synthesized to create a “core story” for the field — a finite set of principles, messages and themes that characterize the essence of a topical area. We then conducted “cultural models interviews” with Americans to understand how they think about “learning” and “digital media” and whether and how they relate the two. The application of theory and methods from cognitive anthropology to analyze these data results in the identification of a set of “cultural models” that Americans

consistently employ in reasoning, understanding and making sense of the subject. Finally, we “mapped the gaps” by comparing the expert discourse and American conceptions. This analysis revealed specific places where both gaps and overlaps exist between these understandings. With improved knowledge of these features, we are able to move toward the second stage of Strategic Frame Analysis™, which involves identifying communications strategies that build on these overlaps and close the gaps. In so doing, the larger goal of this research is to give Americans access to new ways to think about the uses of digital media in learning.

SUMMARY OF FINDINGS

Expert Interviews

A detailed analysis of the expert story is provided beginning on page 10 with a summary table on page 15. Below we highlight some of the findings from expert interviews.

- The experts interviewed focused on the need to develop a new paradigm of learning that is built around students’ mentored use of digital media. Experts explained that a central goal of this new paradigm is to break down the false divide between scholastic and experiential or other forms of learning, and to help students pursue learning across a range of institutions. According to experts, this approach will connect schools to communities, encourage greater civic participation, and help cultivate a culture of innovation that will pay social and economic dividends for the nation.
- Experts asserted that a mentored use of digital media has the power to increase levels of student engagement and improve educational outcomes by providing hands-on modes of learning situated in real-world contexts of direct interest to students. Furthermore, experts explained that the speed, ease and scope with which information and creative content can be accessed, produced, distributed, modified, assessed and otherwise used in learning allows for unprecedented levels of personalization and collaboration between learners.
- In light of digital media’s growing prevalence and import in contemporary life, experts asserted that schools and other community institutions are key locations for mentoring students in the safe and responsible use of these media. In addition, experts noted that students fluent in the use of digital media will be empowered with critical personal and professional skills as they enter a 21st century job market and world.
- Experts also focused on the need for policy and funding to support digital media literacy training for parents, teachers and policy makers in order to address concerns and skepticisms and to help cultivate a vision for the promise of digital media in learning.

Cultural Models Interviews

- One of the most significant findings was that informants’ thinking about learning was characterized by a strict compartmentalization between *two distinct and oppositional types of learning* — *in-school learning and real-world learning*. Discussions of learning were predicated on the understanding that, in the words of one informant, “there’s education, and then there’s learning.”

- Real-world learning was understood to happen on your own and continue over space and time.
- School learning was understood to: require a teacher; involve “dumping” educational content; be conveyed through “books and facts”; be hard; and to require limiting distractions.
- There was an additional compartmentalization that structured informant discussion of learning. Informants spoke of hands-on learning versus book learning — seeing these as distinct and incompatible processes. This distinction mapped fairly well onto the in-school versus real-world distinction, with book learning being much more strongly associated with school learning and hands-on learning finding more implicit connection with real-world learning. However this mapping was not absolute and informants occasionally made connections between hands-on learning and in-school learning, explaining that this could be a productive mode of learning in scholastic settings.
- In addition to these fundamental oppositional constructs, cultural models interviews revealed other dominant assumptions that were employed in understanding “learning:”
 - *Learning happens through challenge and adversity.*
 - *More is better* — a consumerist perspective of learning as a commodity and individual benefit to be accumulated.
 - *Discipline is compulsory* — the implicit notion that strong and rigid discipline is a prerequisite for successful learning.
 - *Individuals are responsible for learning* — the assumption that learning is an individual act over which the individual learner has narrow and exclusive responsibility.
 - *Learning is infinitely individualized* — the assumption that “no two people learn in the same way.”
 - *You have to be safe to learn* — the notion that there can be no learning without first focusing on and securing student safety.
- Research suggested that a second and discrete set of cultural models is used in thinking about “digital media”:
 - *Digital media is entertainment and luxury* — that digital media is inessential, and simply a way of making life a little “faster” or “easier.”
 - *Digital media is automatic* — that digital media’s defining characteristic is its automaticity, and that this automaticity is the antithesis of more manual — and essential — operations.
 - *Digital media is passive* — that digital media is “a fancier book” or “something you pop in to watch.”
 - *Digital media is dangerous* — this pernicious assumption was structured by still more nested understandings that: digital media is the opposite of the real world; that in escaping, the “real” suffers; that information accessibility is dangerous; and that digital media causes skill atrophy.

- Another key finding was that informants assumed that conversations about digital media and learning were about *school learning* and they did not draw connections between digital media and out-of-school learning.
- On those rare occasions when the cultural models of learning and digital media came together, combinations of assumptions established a position from which informants were opposed to core tenants of the field of digital media and learning. There were two specific patterns that structured these negative opinions:
 - “*School should be hard*” + “*limit outside distraction*” + “*digital media is entertainment*” = *digital media distracts students and fundamentally threatens the educational project.*
 - “*Digital media is automatic and passive*” + “*authentic learning is hands-on and direct*” = *digital media detracts from learning.*
- Research also revealed a set of *recessive models*. These assumptions were employed by some informants some of the time, but required a specific cue or conversational context to become active. These patterns of thinking were also easily crowded out by the more dominant models. The recessive models included:
 - *Interactivity is good for learning* — the notion that digital media and technology allow for active engagement.
 - *When you want to know you learn better* — the idea that interest fuels learning.

Overlaps in Understanding:

Research identified the following promising overlaps between the ways that ordinary Americans and experts understand the issue of digital media and learning. These overlaps suggest ripe areas to explore in future prescriptive communications research:

- *Learning happens through interactivity and direct experiences* — Both groups shared an understanding of a productive relationship between learning, interactivity and direct experiences, although in the public’s thinking this understanding was more strongly linked to real-world learning and less connected to in-school learning.
- *Digital media can be interactive* — Expert and public informants displayed an understanding that motivation facilitated learning, but again this was a latent perspective for lay informants and was easily crowded out by the more dominant understandings.
- *Learning is limitless* — The idea that learning extends over space and time was a fundamental tenant of the expert story and was also evident in the way that members of the general public thought, specifically, about out-of-school learning.

There were other overlaps that evidenced fundamental communications *challenges* rather than foundations. These unproductive overlaps included:

- *Compartmentalization in systems and minds* — Experts described and critiqued a system of education in which clear lines are drawn between in- and out-of-school learning. This paralleled the public’s implicit mental partitioning of learning.

- *Digital media to accelerate learning* — Both groups acknowledged the power of digital media to speed up learning. For the public this understanding was connected to the idea that digital media is a luxury — a dissonant understanding from that employed by experts.
- *Individualization and learning* — Both groups also spoke to the idea of “individualized learning.” For experts, this suggested the power of certain approaches to education, while for lay informants this variability was taken as infinite and framed policy aimed at populations or groups of children as fundamentally flawed, ineffective and “destined to fail.”

Gaps in Understanding:

In addition to overlaps, there was a set of particularly conspicuous gaps between expert and public understandings:

- *Temporal perspectives on learning and skills: forward versus backward facing* — Expert discourse revealed a perspective in which the future necessitates new skills and, in turn, new means of learning. Interviews with lay informants suggested a different temporal perspective — that the uncertainty of the future necessitates “going back to the basics” and the “good old days,” “when kids knew how to read.”
- *The role of digital media: function versus frivolity* — Experts saw a deep and powerful function for digital media in learning. Members of the general public attributed a surface and inessential role to these materials.
- *Accessibility: increase versus limit* — Experts focused on increasing access to and availability of digital media. Public assumptions of the dangers of digital media and the role of education in limiting distractions structured a dramatically different perspective — that access to digital media is something to be *restricted*.
- *Assumed models of learning: active versus passive and process versus content* — Experts understood learning as an active skill-based process, while for members of the public, learning was modeled as a fundamentally passive process of receiving information.
- *The role of teachers: mentors and guides versus the center of the educational universe* — Experts maintained a pivotal place for teachers, but saw these professionals as mentors and guides in a student-centered model of learning. Public informant interviews displayed conceptualizations in which teachers were the focal purveyors of learning.

Communications Implications

- The most significant implication of this research for communications is the existence, number and strength of implicit understandings that inhibit the public’s ability to think productively and positively about bringing digital media into the realm of learning— especially in-school learning. More specifically, the cognitive lines implicitly drawn between types of learning and between learning and digital media, suggest a default orientation that is powerfully at odds with the expert message around this issue.

- However, there are features of the current landscape of public understanding that, with careful reframing, can be used to translate information from the field of digital media. These features point to specific recommendations that can begin to bring the issues of digital media and learning together and change the current compartmentalized model of “digital media *or* learning” — into a synthetic perspective of “learning *through* digital media.”
- The following are initial communications recommendations:
 - *Connect digital media with the power of “hands-on” learning.*
 - *Focus on invigorating recessive models.*
 - *Bring out-of-school learning into the classroom — but not explicitly.*
 - *Provide examples of digital media and of digital media being used in classrooms.*
 - *Avoid acknowledging the dark sides of technology.*
 - *Work on shifting the roles of teachers and expanding the importance of mentoring.*

RESEARCH METHODS

I. Establishing the “Core Story” of the Field of Digital Media and Learning

To assemble a “core story” of digital media and learning, FrameWorks’ researchers synthesized data gathered from two methods: *one-on-one expert interviews* conducted with researchers and other specialists in this field, and a *literature review*.

Expert Interviews

To locate “experts” on “digital media and learning”ⁱⁱ, FrameWorks compiled initial lists of both academics and key figures in what is currently referred to as the field of “digital media and learning.”ⁱⁱⁱ FrameWorks’ initial list was compiled by MacArthur Foundation staff, who have been instrumental in forming this field. FrameWorks contacted individuals on this initial list and asked for additional recommendations for interviewees. Given the wide range of professionals studying and working in this field, the final list was created with an eye for including as much variation as possible in background (disciplinary), specialization (content specialty) and professional role (academic researchers as well as those working more on policy and program design and evaluation). In this way, the final list of “expert” participants represented a range of opinions on and approaches to the field and practice of digital media and learning.

A total of 10 one-on-one interviews were conducted over the telephone with these experts in July and August 2010. Interviews lasted approximately one hour and, with the participants’ permission, were recorded and subsequently transcribed for review and analysis.

Expert interviews consisted of a series of probing questions designed to capture expert understandings about the field of digital media and learning and its core ideas, definitions, principles and findings, as well as perceived challenges and implications. The interviewer went through a series of prompts and hypothetical scenarios designed to challenge expert informants to explain their research, experience and perspectives, and to break down complicated relationships and simplify concepts and findings. In addition to preset questions, the interviewer probed for additional information throughout the interview. In short, the interviews were semi-

structured collaborative discussions with frequent requests from the interviewer for further clarification, elaboration and explanation.

Analysis employed a basic grounded theory approach.^{iv} Common themes were pulled from each interview and categorized, and negative cases were incorporated into the overall findings within each category, resulting in a refined set of themes that synthesized the substance of the interview data.

Literature Review

To assemble the materials for the review, search terms such as “children + digital media,” “digital learning,” “social media/new media/Internet + learning” and “new media literacy” were entered into the Academic Search Premier database, which provides access to over 3,500 peer-reviewed academic publications from a wide variety of disciplines.^v

We employed the same grounded theory approach described above to conduct thematic analysis of the selected articles. In this way, the themes identified are representative of all the articles reviewed and characterize the published materials in this field more generally.

II. Cultural Models Interviews

To complete the other side of the comparison, FrameWorks conducted 21 in-depth cultural models interviews with members of the American general public in Philadelphia, Penn., Jacksonville, Fla. and Los Angeles, Calif. The interviews were conducted by three FrameWorks Institute researchers in September and October 2010.

Informants were recruited by a professional marketing firm through a screening process developed and employed in past FrameWorks research. Informants were selected to represent variation along the domains of ethnicity, gender, age, educational background and political ideology (as self-reported during the screening process). Individuals working in fields related to digital media and learning (e.g., teachers, software developers) were screened out of the sample to avoid biasing the sample and impeding our ability to gather data about how the general public, as non-experts, reasons about target concepts.^{vi}

Efforts were made to recruit a broad range of informants in terms of age, political identity and level of education. All in all, 11 women and 10 men were recruited. Ten of the 21 participants were Caucasian, six were African American and five were Hispanic. Three participants self-identified as “conservative,” five as “liberal” and the remaining 13 as “middle-of-the-road.” The mean age of the sample was 35 years old, with an age range from the early 20s to the late 60s. We must note here that although the sample was constructed to include as much variation as possible, it is not nor was it meant to be nationally representative in any statistical way. Issues of demographic variability and representativeness of the findings presented here are taken up in a subsequent phase of FrameWorks’ research. In this later method, such questions can be more appropriately and effectively addressed in a large sample size, via online experiments where more rigorous statistical sampling techniques are possible.

Informants participated in one-on-one, semi-structured “cultural models interviews.” Consistent with interview methods employed in psychological anthropology,^{vii} cultural models interviews

are designed to elicit ways of thinking and talking about issues — in this case, ideas about learning, digital media and the ways these ideas might be connected. All interviews were recorded and transcribed. Quotes are provided in the report to illustrate major points, but identifying information has been excluded to ensure anonymity.

Elements of social discourse analysis, cultural models analysis and grounded theory were applied to identify shared cultural models.^{viii} First, patterns of *discourse*, or common, standardized ways of talking, were identified across the sample using a basic grounded theory approach to thematic analysis. These discourses were then analyzed to reveal tacit organizational assumptions, relationships, propositions and connections that were commonly made but taken for granted throughout an individual’s transcript and across the sample. In short, our analysis looked at patterns both in what *was* said (how things were related, explained and understood) as well as what was *not* said (shared, but taken-for-granted assumptions). More detailed information about the specific methodology and format of these interviews can be found in Appendix 1.

FINDINGS

I. Expert Interviews

The following themes emerged from analysis of both expert interviews and from the literature review and comprise the foundational components of the “core story” of digital media and learning. This “core story” simultaneously represents the object that communications research seeks to translate, and the outcome against which the success of such translations is evaluated.

Below is a list of the main themes that emerged from our analysis of expert interviews and the literature review. These findings are divided into five thematic areas: (1) reasons to promote digital media and learning, (2) affordances of new digital media, (3) skills cultivated through the mentored use of new digital media, (4) social benefits and (5) policy frontiers.

1. Reasons to promote digital media and learning.

- **The world and job market of the 21st century require a new set of skills.** Experts argued that schools and other learning institutions should provide young people with competence in a new set of skills that are increasingly in demand across a wide spectrum of professions and occupational niches, and that will open doors and expand opportunities for both personal and professional fulfillment.
- **The current model of education is broken, and we need to rethink schools as learning institutions.** Experts asserted that the current model of education and learning operative in most school districts today is too narrow and fails to integrate important forms of learning that occur outside of the classroom. This compartmentalization does a disservice to both arenas of learning and encourages students to experience their school learning as disconnected from the rest of their lives. Experts argued the need to build schools that are integrated with a larger set of learning environments and institutions outside of school.

- **Students need to be given context and meaning for their learning.** Experts pointed to a pattern evident across the United States — that students feel disengaged and alienated from their schooling because classroom curricula are experienced as decontextualized from their lives. Experts argued for a learning model that lets students connect to topics that are personally meaningful, and encourages them to explore, research and expand on those topics using digital media.
- **The context of use matters.** Experts consistently noted that digital technologies and media can be used in ways that are both positive and negative for their users and those with whom they relate. As such, it is critical to build up a culture and ecology of use where adults lead by example, model productive and responsible patterns of engagement with the media, and hold children and youth accountable to these standards. Experts explained that such interventions were necessary because children are not “digital natives” whose technology use is “natural.”
- **Action is necessary to close the digital divide and participation gap.** Experts consistently spoke to the need to build educational and community institutions that provide all children, especially children from poverty, with access to mentored environments where they can use digital media to develop skills, competencies and practices that will empower them as they move forward in life.
- **Digital technology and new media is here to stay.** Experts asserted that schools, parents and communities must acknowledge the tremendous power and presence of new digital media and proactively engage and leverage them in the service of improving children and young people’s lives. For experts, it was not a question of *whether* young people will use these media and be influenced by them, but of *how, towards what ends and with what outcomes*. In this sense, experts see themselves as pragmatists.

2. Affordances of digital media.

- **Accelerated and expanded learning.** Experts asserted that digital media can accelerate the learning process for students because of the scope, speed, and ease with which information, creative content, and feedback can be accessed, distributed, and exchanged. This allows teachers new ways to scaffold student development. Furthermore, digital media offer visualization, simulation and remote access tools that give students unprecedented power to engage, explore and interact with creative content, concepts and information.
- **Enhanced participation and collaboration.** Experts noted that students and teachers can use digital media to access, comment on, distribute, produce, collaborate, share, compare and otherwise participate in a vast and diversified field of information and creative content. Until recently, most people were the recipients of information, knowledge and art created by others, but the ease, interactivity and reach of digital media have handed the tools for creation, participation and collaboration to anyone with the means and will to engage.

- **Experiential learning.** Experts noted that new digital media enable students to engage topics and questions through hands-on, experiential learning. Unlike often abstracted textbook approaches, where students feels separate from the topics at hand, experts explained that digital media facilitates students stepping into and engaging problems and topics through game-playing, experimentation, role-playing and other experiential modes.
- **Contextualized learning and empowerment.** With an expanded scope of reference, new forms of participation and collaboration, and a more hands-on approach, experts argued that students can experience their learning as part of a larger context or narrative of meaning, connected to broader patterns of thinking, questioning and learning taking place in the world. Student efforts will then be motivated by more than earning a grade or pleasing an adult, but by a self-generated desire to connect with and contribute meaningfully to a larger project or effort in the world. In this way, students can come to experience themselves as powerful agents in a larger world of information and expression.
- **Engagement.** Perhaps more than any other affordance, experts and the literature more broadly speak to the potential for digital media to engage students in the joys of learning and discovery: to transform the process of learning from one of passive reception to one of active and engaged creation. Digital media offer students the opportunity to create and control their own learning environments in collaboration with educators and parents, rather than as something imposed upon them. Whether it is software for game playing or design, for audio or video editing, or for collaborative content creation, many digital media tools provide for hands-on, creative participation and production by students in ways that cultivate a sense of motivation and ownership. Because of the mobile, connected nature of these technologies and devices, students can also connect to a wider set of resources and peers than they might find locally.
- **Personalization of learning.** Experts suggested that digital media are ideal for creating more flexible and adaptable learning environments. As students become more engaged and self-motivated in their learning, and gain the skills to access and assess reliable information, they can “carve out” personalized paths of learning that build standard skills but do not require a standard curriculum. In this model described by experts and as evident in the literature review, teachers are liberated to step back from their traditional roles as primary distributors of a standardized body of knowledge, and can shift into the roles of mentor and guide.
- **Transferability of skills.** Experts emphasized that the skills developed through mentoring students in an engaged, creative and discerning use of digital media are directly transferable to other arenas of civic, professional and personal life, including research, design, problem solving, networking, navigation, assessment and writing skills, as well as participation and leadership in interest-driven groups.

3. Skills cultivated through mentored use of digital media.

- **Basic skills.** Experts consistently spoke to how digital media can be used to teach, develop and augment traditional scholastic skills, including reading, writing, math, science, research and critical thinking. Experts also explained that digital media allow students to engage in new ways with a wide range of subjects and curricula in social studies, language arts, hard science, art, music and other traditional departments.
- **Networking and collaboration skills.** Experts and the literature more generally point to the power of digital media — social media in particular — to enhance and expand students' networking skills and capacities. As students create, share, collaborate and provide feedback for each other's work, they can cultivate social skills alongside their technical and knowledge skills. As they expand their learning network beyond their scholastic peer group to people living in other regions, countries and cultures, they can develop social skills that will serve them throughout life, including the ability to skillfully introduce themselves and their creative efforts, respond with tact and sensitivity to the work and effort of others, and dialogue and negotiate about differences of opinion and perspective. These interactions can likewise serve youth in their own processes of identity formation, as they experiment with and seek to construct healthy, authentic and confident understandings of themselves in relation to others.
- **Systems-thinking, causal-reasoning and problem-solving skills.** Experts suggested that students mentored in the use of digital media can enhance their capacity to understand and design complex systems and functions. The speed, scope and power of the media offer students new opportunities to take on complex and multifaceted problems, access multiple sources and levels of information, and network with a diverse array of experts and fellow problem-solvers. In so doing, students can explore the complexities of how systems are organized, how parts are interrelated, and how feedback loops and causal chains affect overall functioning.
- **Critical reflective literacy.** Experts frequently noted that, with the explosion of information sources afforded by the Internet, it has become critical for students to develop their capacities to discern the quality and credibility of the information they access. Experts argued that adults — teachers and parents alike — need to assume a proactive role in helping students develop this new form of literacy by mentoring their use of new media sources. While young people often develop sophisticated self-taught skills for accessing information, experts argued that they require guidance and help in learning how to judge the quality and relevance of this information.
- **Safety and dignity of use.** Likewise, experts argued that children and youth need guidance in how to navigate digital media safely. Experts were cognizant that the speed, reach and ease of digital information brings with it certain vulnerabilities, and that children and youth need to be mentored in their responsible and discerning use, including where to draw boundaries, how to assess the appropriateness of communications, and what information to divulge about themselves and others.

4. Social benefits.

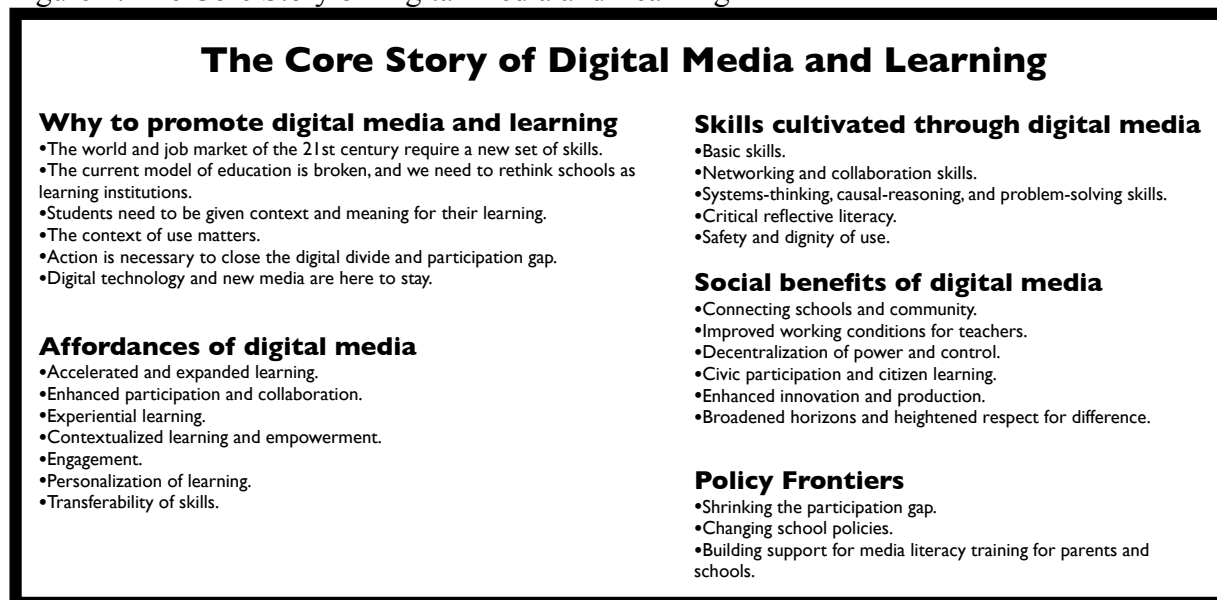
- **Connecting schools and community.** Experts spoke to the promise of a new educational paradigm that embraces digital media to strengthen the connection between schools and other community institutions. In this view, the emergence of a more open and inclusive approach to student learning across multiple institutions — schools, libraries, homes, public spaces, businesses, museums, colleges, clubs and interest groups — would bring people together around the common cause of student learning and facilitate new forms of cooperation and collaboration.
- **Improved working conditions for teachers.** According to experts, a skillful use of digital media in schools, where students are encouraged to engage and develop self-directed learning projects, would free teachers up from their traditional role as the primary, if not sole, locus of expertise and knowledge transmission for students. This would represent a dramatic shift away from a “teaching to the test” approach, and an embrace of teaching foundational skills within a diversified, problem-solving and experientially based ecology of learning.
- **Decentralization of power and control.** Experts spoke to the leveling power of digital media, where a young person with a good idea, some creative effort and an Internet connection can generate online content that has the potential to reach and influence millions of people. Likewise, the plethora of online sites and media programs affords students the opportunity to pursue their creative and learning goals via a wide range of potential rather than predetermined avenues of exploration and work.
- **Civic participation and citizen learning.** Many experts in the literature and our interviews spoke to the promise of digital media to help young people develop skills and confidences that will translate into more active and mature civic participation. As youth experience themselves as able, competent and valued contributors to the collaborative and interest-driven groups in which they participate, they are empowered in their role as agents of knowledge, influence and change. As experts explained, as student abilities and confidence grow, so too will their willingness to “scale-up” their contributions and engagements with others in the service of solving collective problems.
- **Enhanced innovation and production.** Experts spoke to the promise of raising a generation of students fluent in digital media, who have been empowered and encouraged to pursue their interests and questions, express themselves, experiment with ideas and approaches, collaborate over time on complex problems, embrace trial-and-error learning, and brainstorm and tinker with solutions and theories. In the expert view, the end result will be a culture of innovation that will serve the social good and economic prosperity of the nation writ large.
- **Broadened horizons and heightened respect for difference.** Experts asserted that digital media offer children and youth unprecedented opportunities to communicate, collaborate, share, teach, learn and negotiate with people from different countries, cultures, religions, ethnicities and generations. Through mentored debate and dialogue with people of divergent viewpoints, students can learn tolerance and respect for those who see the world differently, and have their own assumptions challenged in ways that

can cultivate heightened awareness and more mature understandings of themselves and their culture.

5. Policy frontiers.

- **Shrinking the participation gap.** Experts suggested that integrating digital media into a new paradigm of learning could lead to a widening of the participation gap unless clear policy steps are taken to prevent it. In the most undesirable scenario, well-resourced school districts and a few select charter schools would take up the new educational paradigm, while the majority of schools in under-resourced districts would continue to operate under the old model. As such, experts spoke to a necessary commitment to changing the overall conversation around learning and education in the country such that changes in priority, policy and funding take root across the spectrum of educational institutions.
- **Changing school policies.** Experts pointed to a range of policy changes they want to see implemented in schools. While not every expert spoke to the same specific changes, there was a consistent emphasis on introducing greater openness and flexibility into curriculum and grading standards and expectations for when and where learning happens.^{ix}
- **Building support for media literacy training for parents and schools.** Experts saw this effort as a central policy challenge. Parents, teachers, school administrators and policy makers need to be provided with opportunities to access good information about the benefits of bringing digital media into learning practices. They should likewise be provided with forums where they can voice questions and concerns, and dialogue with those who can help them understand this new vision for learning.

Figure 1: The Core Story of Digital Media and Learning



With this summation of expert thinking in mind, we now turn to the results of the cultural models interviews that were conducted with civically engaged Americans who lack specific expertise in this topic.

II. Cultural Models Interviews

A. Dominant Cultural Models

Our interviews suggest that Americans operate with three major compartmentalizations, or “oppositions” as we call them below, to denote their binary structure. These oppositions fundamentally structure thinking about learning, digital media and the potential relationship between these concepts. The first two oppositions have to do with the topic of learning itself, and are interrelated, while the third structures an understanding of the relationship between digital media and learning.

Opposition #1:

“In-school” learning versus “real-world” learning.

Opposition #2:

“Book” learning versus “hands-on” learning.

Opposition #3:

Schools are about learning versus digital media is about recreation.

In the analysis that follows, we elaborate on each of these compartmentalizations and on the assumptions and cultural models about both “learning” and “digital media” that inform them. We also explore the labored ways in which informants sought to draw connections between these two domains that are typically separate in their thinking. In so doing, we show both the content of the cultural models — that is, *what* Americans assume about these topics — as well as the way in which they are applied in reasoning — that is, *how* these assumptions structure and explain patterns of talk, opinions and expectations.^x Both of these tasks are of central importance to the effort to develop communications strategies that can open up new and more productive ways of thinking for the American public.

Cultural Models of Learning

Discussions of learning by our public informants showed highly consistent and predictable patterns of talk that revealed a set of foundational and shared understandings. Perhaps the most pervasive of these implicit assumptions was the understanding that there are different “types of learning.” Frequently, the researchers’ initial volley of open-ended questions about learning was returned with another question — “What kind of learning do you mean?” This response, along with other discursive patterns described below, suggests that informants were conceptualizing learning through a fundamentally compartmentalized model that partitioned learning into

different and discrete “types.” The first point below speaks to one of the major axes along which this typology was constructed.

1. “In-school” learning is distinct from “real-world” learning. (Opposition #1) Informants consistently distinguished between two kinds of learning that were defined largely by location. As one informant said, “There’s *education* and there’s *learning*.” In this view, “in-school learning,” or “education,” is seen to happen through “absorption,” “intake” and “memorization” of “facts about wars and generals,” and mastery of “the basics” like literacy and mathematical proficiency. Meanwhile, in a separate cognitive compartment, “real-world learning” takes place outside of the classroom, occurs largely through “having experiences” and results in a wide range of skills and attributes, ranging from “social skills” to “knowing right from wrong” to “making good decisions.”

The presence of this implicit dichotomy was also manifest in the consistent focus on “balance,” where informants emphasized the need for parity between “education and learning” — or between scholastic and “real-world” learning.

There is a time and has to be a balance for everything; a time for school, a time for extra-circular activities.

I don’t know which is more important, classroom or outside the class. How could you be successful in life if you don’t have the classrooms but at the same time ... how can you be successful in life if you don’t have the other kind?

I think you need to create a balance in your life in the social and educational. When I was in school, I wanted to learn in school but also have a good social life and take part in student organizations where you can meet other students. So it kinda goes back to the individual and their ability to do it [find the balance].

In addition, informants had a great deal of difficulty when asked to blend these opposed types, and generally resisted mixing what they saw as two distinct spheres of learning. Informants largely made sense of learning by applying the oppositional proposition that learning is either “something you do at school” or “something that you get from life.”

Within this dichotomy, informants used more specific sets of assumptions to reason about each “type” of learning. Below we discuss each of these more specific models as they were used to think about each type of learning.

Real-world learning:

- **Real-world learning happens on your own.** According to public informants, “real-life” learning happens at an individual level. As one informant said, “you do it by yourself.” This understanding asserts that not only is the individual solely responsible for learning, but the individual is the only party involved.

I think teachers definitely help people learn. But then there's all the other stuff ... You do that by yourself.

We learn outside in nature ... even in the social settings ... You learn about interacting with other people or how to play a game or something like that ... That's just learning by yourself in the world and now we have a lot of self-learning things ...

- **Real-world learning continues everywhere and throughout life.** Informant discussions revealed an underlying assumption that real-life learning is not bounded by place or time; that it could happen “anywhere” (except school) and “anytime” (except when in school). Employing this assumption, informants reasoned that learning — at least real-world learning — is an on-going and continuous process.

You never stop. I'm 58, and when I got into another industry, I got into the cable TV industry, everything that I learned in cable didn't apply with the telephone. So, you never stop learning because you always find something that will make your job easier. And you might have a problem, but you never stop learning, never.

The learning thing is endless, it just doesn't stop. Yeah, it doesn't stop, it just doesn't, you can't stop learning. Not even the president knows everything.

Of course you can learn anywhere ... There's no set area where anyone has to be to learn.

School learning:

- **School learning must involve a teacher.** Informants employed a dominant model in which school learning and “education” was defined by the presence of a teacher. This assumption is nested in a more general model in American culture that FrameWorks has described in its work on education.^{xi} In what we have called the *triad model of education*, Americans are cognitively predisposed to focus narrowly and exclusively in their thinking about education on three players — students, parents and teachers. In this mental model, the teacher often comes to represent the education system writ large. When interviewers introduced ideas of more student-centered and independent approaches to learning, there was a frequent protest that these attempts were, as one informant put it, “taking away from the teacher's ability to do their job.” As another informant put it, “What would a school be without teachers.”

Interviewer: Do you think that [a co-operative on-line learning exercise] would be a good idea?

No, I don't — I don't think they should be doing that during school hours because I think it's a distraction from the teacher, it's taking away from the teacher giving her in-person knowledge, information and experience.

It's [education] all down to teacher interaction and student interaction.

They're [teachers] there for you to learn from. 'Cause a child today, they need instructions to help them out — to help them to go at it in the right direction. You need that person there.

Interviewer: And you think that's how school works now?

Yeah. I mean you *need* that teacher.

- **School learning is about acquiring information.** Another pervasive understanding of school learning is that this type of learning happens through the conveyance of knowledge and facts *from* teachers *to* students in a static unidirectional process. In short, informants suggested that students are passive recipients of discrete chunks of knowledge that they “receive” from teachers, whose job it is to dump this material into their charges. This is a highly passive model of learning, in which learning requires no engagement of the student but only that they, as one informant explained, “open the door” and have a teacher who can deliver content in a caring way.

So, the teacher is the one who imparts the knowledge. They give the knowledge that they have and the person learning should be the recipient of their knowledge.

Interviewer: What does it mean for someone to learn?

It's a teacher giving you information.

- **School learning must be hard.** Perhaps one of the more deep-seated and pernicious models that emerged from discussions of school learning was the assumption that school learning should and must be hard. Informants' discussion of school learning was peppered with language that revealed this assumption — words and phrases such as “suffering,” “mandatory,” “no fun,” “hard,” “difficult,” “sacrifice” and “tough” were frequently employed descriptors.

He didn't have the will and drive to learn and the teacher didn't care and basically they was just passing him through, just passing him through without him learning. I saw that and from the conversation me and him had, I was like, “Wow, you are still thinking like you are 10 years old and you're 15.” And I took it upon myself and went down to the school and met some of his teachers and said, “How did my son get this B?” And I found out he didn't get it — it was *given* to him. And at that point I took him and said if you work hard for it you'll feel a lot better about yourself. When they just *give* you it it's going to hurt you in the long run because you're not learning anything.

It's hard to try something different and it's [education] hard. But even then you gotta try and try. And I think that works. I think it would work that if they try and of course you're going to try and some things will work, and you'll try and some things will fail ... but I think like if you can find a way ...

- **School learning is about limiting distractions.** A final assumption that structured informants' conversation around school learning was the idea that a primary function of education is *to limit distractions for students* and make learning contexts as "pure" and unadulterated as possible by, as informants frequently said, limiting "outside influences." In short, informants held a basic conceptualization in which school learning should be separate and "protected" from the outside world and its distractions. Fundamental to this idea was the deeper, more abstract, equation in which *outside* world = distraction from *in-school* learning. The basis of this assumption lies in the underlying idea that what happens *in* school needs to be *insulated and kept separate* from the outside world if it is to be successful. This assumption explains, in part, the distinction between real-world and school learning.

I can't imagine [how you would use the Internet in school]. How would you go about teaching? If you bring that in, at what point during these classes or courses do you actually inhibit or prohibit the children from doing what they want. "I'm going to start doing this now?" At what point does it become a distraction in the class?

I think as learning goes in school, I think it's [bringing things into school that were described as being outside of school] problematic. Even in college, I think it's problematic. Facebook wasn't even around when I was in college so, it wasn't a distraction for me. But now, it's *such* a distraction in school.

2. "Book" learning as distinct from "hands-on" learning. (Opposition #2) In addition to the distinction between "in-school" and "real-life" learning, public informants consistently compartmentalized two forms of learning: a kind of abstracted "book" learning and a more "hands-on" experiential form of learning. This distinction partly mapped onto the previous one between scholastic and life learning, with a strong association of "book" learning with in-school learning, and "hands-on" learning with the real-world varietal. But this association was only partial and had significant exceptions, as informants also spoke to incidents of "hands-on" learning within schools. Several interviewees suggested that learning was most effective while in the "hands-on" mode, and there was a general affirmation of the strength of this kind of learning.

As part of the compartmentalization, there was an assumption about the mechanism and content of school learning — that content is "facts ... about wars and generals" and that this content is transferred via "books" and that teachers purvey them.

In school, I believe it's about dates, facts, generals ... To me that's formal learning ... and multiplication. When you're little in school it's regimented like $5 \times 8 = 40$ and $8 \times 8 = 64$, you know? To me it's memorization — that's the word I'm looking for. A lot of it is memorization.

There's book learning and book learning is what you learn in a book. Book learning is about more what profession you want. I mean learning in a classroom ...

We have to keep it basic in how we learn.

Interviewer: What do you mean by that when you say "basic?"

You have go back to reading the books with the kids and reading is very fundamental. You have to be able to read to do anything in life so then that's one of my biggest pet peeves. You have to actually sit down with the kid and that's back to the basics!

Hands-on learning was understood as happening through direct experiences and was more strongly associated with real-life learning than with school learning, although, as noted above, some participants were able to see the value and utility of this type of learning experience in in-school settings. When informants discussed "hands-on" learning, they focused on the importance of *having experiences*, and explained how learning is effective because the problems and situations in which individuals are engaged and from which they learn are compelling and "real." As one informant explained, "This [learning] happens because you're in it and you've *got* to deal with it."

[explaining why someone did not have life learning] It's mostly because they just haven't lived as much and they haven't — they haven't experienced life.

When I think hands-on in school, the first thing that pops in my head is like science lab, like anatomy. When I was in anatomy and physiology, you know, I had lab and it was hands-on.

When I was younger and when I was going to school, my learning came from the textbooks and my learning came from what the teacher wrote on the board or what you had to memorize, whereas with my sister, she's going on all these field trips to the natural history museum or something and then she's going to Catalina to study ...

3. Learning happens through challenge and adversity. Discourse revealed a tacit assumption that *learning happens through challenge*, and that people, but especially children, learn by facing adverse situations. In discussions structured by this understanding, informants frequently adopted a kind of "any challenge or adversity will do" perspective, making few if any distinctions of type, duration or degree. In addition, explanations failed to address the importance of actually *meeting* these challenges, as *exposure* to the adversity was assumed sufficient to precipitate learning.

Things happen right in front of you that get you upset, but you can't get so upset. You have to *learn*, and learn how to deal with stress and realize that it's something that happened in your day and you got to overcome it and go on to the next part and you learn from it.

Interviewer: So do you have to have challenge in order to learn?

I'm going to say yes ... It's [challenge] good because of the way the world is today. The world is moving and you gotta know a lot to be able to do things today. You gotta read more, you gotta go to the library more. And to me I just look at the world as being a challenge and I feel like if you don't have that challenge, you're gonna lack learning and

lack success in life ... You can't be successful in life if you don't take challenges.

How is an individual, a person, supposed to evolve and learn and go to the next level or the next step if there's no challenges, if there's no setbacks?

4. More is better. Public informants also consistently spoke of learning as an entity that one could accumulate, and their discussion often went further to position learning as a *commodity* that individuals were responsible for accumulating, “grabbing” or “getting” as much of as possible. In this view, the goal of learning is to accumulate a large *quantity* of learning. This assumption is likely informed by a broader consumerist cultural model that FrameWorks has unearthed in studying other issues — from budgets and taxes to child mental health.^{xii}

You need you need that degree in order for you to be able to make it. Even if you go to a training school ... as long as you get some kind of a degree. That [degree] means somewhere you have gotten that learning ... You need that learning to get into that job and that's how I'm looking at it. You get learning to get into a job.

It's all about what they're *offered* for learning. Whoever the guardians are or whoever they encounter, [the question is] how are they going to get that knowledge or learning.

I think a person who finishes school won't regret it. It'll be something that “okay, I got my education and if nothing else it's something that can't be taken away from me.” No matter what happens, no education can ever be taken away from you. So it's something for you to keep, to hold on to. It's a really valuable thing.

5. Discipline is compulsory. Informant discourse also revealed the assumption that discipline and learning are deeply, integrally and hierarchically connected. In this view, learning cannot occur in the absence of a strong sense of “discipline” and “respect.” More specifically, informants explained that *discipline* was a precursor for *focus*, which was compulsory for *learning*. According to this implicit script, without discipline there is no focus, and without focus there can be no learning.

Interviewer: So how could we go about improving learning?

In today's world there should be more discipline. Some of it starts as a child with children who are told “Okay, go to your room.” But if their room has a TV and they take their cell phone with them and their text message machines and everything else, that's *not* discipline. Discipline is teaching you that there's consequences if you do something wrong, there are consequences. To me undisciplined people are people who are in prison — well I guess there could be some innocent people in there but to me those are undisciplined people. If you have respect then that's discipline. You need to learn to respect the teacher, to respect others.

[answering a similar question about how to improve learning] I'm a firm believer in uniforms. I know the kids would hang me high but that's what I feel.

I went to Catholic schools. So, the difference between Catholic and public is totally the discipline.

Interviewer: [following up on an earlier statement about teachers being different in public and Catholic schools] So, one reason that learning is different is that teachers are different?

Yes, yes. They're getting more lenient than strict.

Interviewer: And so that makes learning different, how?

It makes it more difficult, as far as education. They're not pushing education and discipline on children as much as they used to.

6. Individuals are responsible for learning. There was an underlying assumption across all 21 interviews that learning is an individual's responsibility. Informants reasoned that others (i.e., teachers) can give and expose a person to learning material, but that the individual is responsible for making sense of, processing and incorporating information — in short, that the learner is responsible for learning outcomes. When asked about other possibly responsible parties, the assertion of learner-responsibility became even more explicit, as informants frequently pushed back and resisted the attribution of responsibility to parties other than the student/learner.

I think an individual has to be *willing* if they want to learn something and they have to be open to it [learning]. They have to be *willing* and *wanting* to try different things, new things. They have to be responsible and not limit themselves. [If they're not responsible] then they're limiting their capabilities, their information, their connection.

—
You can't blame the teachers, you can't blame the politicians, you can't! I mean hello ... It all starts with you. It's all on your shoulders.

—
I feel that things like building a house are such a group effort, but learning is such an individual effort.

7. Learning is highly individualized. Another powerful public assumption that ran throughout the interviews was the idea that learning is a highly *individualized* process. Paraphrasing a common refrain, "No two people learn in the same way." Informants explained that because each individual is "unique," the process of learning is almost infinitely variable. From this dominant perspective, some informants backed themselves into a rhetorical corner where they were forced to acknowledge, as one did, that "there's really not much in common you can say about learning." In this view, since each individual and their learning process is so different, there is little of universal relevance or applicability that can be said about learning or teaching.

—
I think it [learning] has to be individually catered to each kid ... and you have to find their interest.

[In response to a question about how to improve learning] I'm thinking you've got to make it [learning] individualized for each and every person.

8. You have to be safe to learn. In making sense of learning, informants drew on a powerful implicit connection between the concepts of “learning” and “safety.” Discussions revealed that not only are these two ideas related, but related in the same hierarchical or prerequisite way in which learning and discipline were also connected. In short, informants focused heavily on the need for students to be safe in order to learn. This assumption was evident in the way that informants talked about how “dangerous the world is today” and how “it’s just not safe for kids out there these days.”

In making this assumption, informants drew on well-worn narratives and models about safety and children, reasoning that any conversation about *learning* must first address the provision of *safety*. Several informants spoke to “ensuring student safety” as a primary goal of the education system — even ahead of or in some cases in the absence of “learning” as an explicitly identified goal.

[In response to a question about how learning is different now than 50 years ago] I think there’s definitely more safety concerns than there was back then. That’s for sure!

Interviewer: What do you think should change about learning in the future?

I’m hoping that it would be more about safety concerns ... more about awareness, more focus on preventing accidents from happening. Less accidents happening. To me that would be a goal.

Interviewer: What do you think are some of the key skills that you need to learn while you’re a child?

I guess I think safety is really important. You need to learn about safety first. You know, don't run in the street

Implications of cultural models used to “think” learning:

1. **Compartmentalized nature of learning is a communications challenge.** The oppositional bearing informants applied to the topic of “learning” — both in terms of where and how it happens, is directly at odds with the information the field of digital media and learning wishes to communicate. From their current compartmentalized position, it will be hard, without significant attention to recasting and establishing new ways of understanding, for the public to respond favorably to attempts to bring the real world and its media into the classroom. This constitutes a major challenge for prescriptive reframing research on this issue. Breaking down the boundaries between “education and learning” and between “book” and “hands-on” modalities will require building bridges and creating a porousness between these concepts.
2. **Learning on your own threatens to individualize, but is consonant with the field’s approach.** The *real-life learning happens on your own* assumption clearly limits the

parties that are seen as immediately involved in and responsible for learning. This assumption is also at odds with the social, community-based models of learning that are central to the field's approach. However, at another level, the idea that individuals learn by themselves is somewhat consonant with the learner-centered, student-based model advocated by the field of digital media and learning, in which the power of digital media for learning is derived through its ability to create personalized and personally engaging learning experiences. The utility of appealing to this model warrants further investigation, as it presents both concerning and possibly promising communications directions.

3. **Limitless learning is highly promising.** In translating the story of digital media and learning, the assumption of the boundlessness of real-world learning appears useful. We suspect, and will test the proposition, that from this assumption, Americans will be receptive to the core tenets of the field of digital media and learning. For example, if Americans approach information about education from a general assumption that this process is boundless over space and time, they are likely to productively consider the use of media in blurring learning boundaries to create more engaging practices of learning and teaching. Therefore, this assumption, if it can be applied to the other "type" of learning, is a promising tool in breaking down the boundaries between what are seen as distinct types of learning, and bridging the divide between digital media and learning.
4. **Engagement and hands on learning are fertile ground.** The assumption that learning is facilitated through the engagement that results from direct participation and personal experience is highly consonant with messages from the field of digital media and learning. Because of this consonance, the hands-on learning understanding, and its application in thinking about other aspects of learning (i.e., "school learning"), needs to be empirically tested. Upcoming peer discourse sessions present an ideal opportunity to begin to experiment with specific ways of activating this assumption and exploring its effects in connecting digital media and in-school learning. What remains to be seen is whether this model, that in interviews was more strongly associated with thinking about "real-life learning," can more consistently be brought to bear on how individuals understand "school learning."
5. **Models of teachers limit thinking about models of learning.** The role that informants attributed to teachers in in-school learning is concerning. Much of the information the field wants to convey rests on a fundamental reconceptualization of the role of the teacher. These new models seek to create more of a mentoring role for teachers in a student-centered learning process. If this message is interpreted using current dominant assumptions about teachers, we suspect there to be significant resistance to these reforms.
6. **Passive learning impedes new ways of understanding education.** If Americans filter messages about digital media and learning through the assumption that school learning is passive, there will be understandable difficulty in processing messages about learning that do not revolve around their understanding of it as a one-way knowledge dump.
7. **Perceived necessity of facts and books impedes innovation.** The relationship between facts, books and school learning sets up an equation in which the absence of either of the first two variables calls into question the legitimacy of the third. The fact that the field of

digital media and learning seeks to, at the very least, expand these variables suggests that so doing, without careful attention to reframing, may be met with resistance.

8. **The idea that learning must be hard and free of distractions sets definitional parameters that run counter to the field of digital media and learning.** The field of digital media and learning argues that education and educational outcomes are improved when learning is made engaging and engrossing by embedding learning in contexts and practices that students are attracted to and derive enjoyment from. The proximity of much of the field’s discussion to the idea of “fun” will likely be problematic given the puritanical perspective that is so deeply connected to school for most Americans.

9. **Connections between challenge and learning are both promising and problematic.** The “learning happens through challenge” model opens an opportunity to talk about the “problem-based” learning tasks and curricula that are particularly well facilitated by digital media. On the other hand, however, this assumption glosses over several key elements of the way the field of digital media and learning positions challenge in relation to learning. Most importantly, the lack of distinction between types, levels and degrees of challenge is cause for concern. The “any old challenge will do” and the “no challenge is too great” sentiments inhibit the ability to communicate about skill-appropriate challenges and that inappropriate challenges and adversities can be detrimental to learning and development more generally. Secondly, the challenge assumption exists in dangerous proximity to another very dominant American cultural model that FrameWorks has repeatedly unearthed in studying issues of child development — what we call the “stress does the body good” understanding. In this model, Americans attribute an unambiguously positive role to stress with a similar inattention to exposure issues such as chronicity, type and severity, as well as the presence or absence of concurrent sources of buffering and support. If this “any old challenge will do” model is, as we suspect, a cue for the more general “stress does the body good” way of thinking, it is highly problematic in communicating about digital media and learning — with the field’s strong grounding in developmental science and perspectives. Investigating the positive and negative effects of this assumption is particularly well suited for Peer Discourse Sessions that FrameWorks will be conducting on this issue.^{xiii}

10. **More is better is not best.** The “more is better” model emphasizes *quantity* of learning as a *product*. In addition, the “quantity”-based model structures a kind of “dump as much in as possible” model of teaching. These perspectives are decidedly at odds with the field of digital media and learning. Plus, the “get all you can” mentality that attaches to this model individualizes the issue of learning and obscures the importance of public policy in this domain. When the issue of learning becomes one where individuals must get as much as they can at their individual costs and for their individual benefits, learning becomes a fiercely private issue.

11. **Individual discipline is perilous but the focus on “focus” has potential.** The application cultural model of individual discipline is likely to yield perceptions that learning outcomes are more a function of an individual’s degree of internal discipline than the contexts in which he or she learns. However, there is one subtle but potentially promising aspect of this assumption — the implicated idea of “focus.” The promise of “focus” in reframing thinking about learning stems from digital media and learning’s

message that the use of and incorporation of digital media into education can facilitate a more engaged and active *focus*, which can in turn yield improved learning outcomes. What remains to be seen is whether this part of an otherwise unproductive model can be harnessed without the activation of the other damaging aspects of the assumption and without linking to other unproductive models such as the assumed importance of limiting distractions.^{xiv}

12. **Individual responsibility makes *too* much sense.** While the individual learner is, of course, a responsible party in the learning process and in the outcomes that result, there are a host of other parties that share responsibility. In our interviews, the recognition of individual responsibility was found to occlude nuance and block a more multi-faceted understanding of causation and responsibility. From the cultural model of individual responsibility, the learning equation appears deceptively neat and conclusive — learning outcomes are the product of individual internal characteristics and motivations.
13. **The need for and difficulty in thinking universally.** The conclusion that “there’s not really much you can say about learning” that results from the individualization assumption is highly unproductive for communicating about education policy and reform. This assumption results in a powerful feeling of futility and fatalism in which, if there is infinite variation in learning, the only answer is an equally if impossibly variable pedagogy and curriculum. Furthermore, meeting individual variation through policies or programs is viewed as impossible within any “system.” In addition, this perception creates one solution to learning problems — a teacher for every student. This perspective is likely to focus attention on a narrow and familiar set of reforms that seek to decrease the teacher-to-student ratio and make other reforms appear misguided.
14. **“Infinite individualization” may be able to become “individualized learning.”** At the same time, and in a more promising vein, the individualization assumption may create room to communicate about the need for policy that supports the fact that individuals learn differently. Using digital media in education is one way of doing this.
15. **Safety is not safe for communications.** The connections between learning and safety threaten to adulterate conversations about learning with powerful themes, emotional responses and reactive concerns about safety. If discussions about learning become discussions of safety, the former becomes easily derailed by dominant patterns of talking and thinking about how the country (and the world) has gone to hell in a hand basket. In this way, discussions fall easily into crisis mode and result in disengagement from public policy or, even worse, lead to support for a reactive set of criminal justice measures.

Cultural Models of “Digital Media”

We now turn to the public’s implicit understandings of “digital media.” Informants were first asked a series of open-ended questions about digital media that employed alternative terminologies, including: new media, social media, interactive media and interactive technologies. The general pattern across the interviews was a lack of familiarity with these terms, with the slight exception of “social media,” which people associated with Facebook, Twitter and similar sites. Notably, informants who were conversant and verbose in talking about learning, even in response to frustratingly broad questions, were often rendered laconic when the interview switched to these subjects.

There are several interpretations of these grinding halts in otherwise rich interviews with articulate informants. One explanation might be that these terms were simply unfamiliar — that informants simply did not understand the terminology employed, were unable to connect the terms employed with models in mind, and were therefore confused about what they were being asked to talk about. The second explanation is a potentially deeper one, and from a communications perspective, more concerning — that the sparse responses evidence a dearth of mental and experiential models for people to access and use in thinking about this topic. In this way, the paucity of discussions following initial questions about digital media suggests either that all the terms used as proxies for this concept were unfamiliar — the linguistic representation problem — or that there is a cognitive thinness to this domain overall — that informants did not have a sufficiently elaborated mental repertoire of the subject to readily engage in conversation.

A clear trend in the interview data points to the first of these possible explanations. While informants had great difficulty responding to initial open-ended questions about “what digital media is,” or “what this term refers to,” most *were* able to speak to those questions *after* the interviewer provided them examples of the technology, media and practices that might be included in the concept of digital media. That informants were able to work with concepts once they had actual examples of the target domain (digital media) suggests that the problem was largely a semantic one — that they were simply unfamiliar with the term digital media (and the proxy terms) and thus were unable to call on or activate what we subsequently found was a rich cognitive domain. This suggests that there is considerable communications work to be done in either building definitions of digital media or in arriving at an alternative terminology which allows people to more effectively orient to the discussion and access the cultural models that, research showed, are available to think about this topic. However, as the findings presented below suggest, reframing the issue of digital media will require significantly more work than just coming up with better terminology, as the cognitive landscape that informants *did* draw on, once definitional problems were addressed, was highly problematic in light of the story that experts in digital media and learning want to communicate.

Below we discuss the models that comprise the landscape of digital media, and the various implications of this terrain for communicating about the field of digital media and learning.

1. Digital Media is entertainment and luxury. Perhaps the most deeply held and pervasively applied assumption evident in public thinking is the idea that digital media (and technology more generally) are auxiliary and superficial luxuries, used largely for entertainment purposes and in order to make our lives, as one informant said, “a little bit faster and easier.”

Interviewer: So what are the purposes of digital media?

Oh it’s something that you just would just enjoy using, you know, on your free time when you just want to just go online and play games or when you want to send pictures or whatever. Just something that you do for enjoyment. Entertainment, and for personal use.

Interviewer: If you saw a newspaper headline and it had the words digital media in it, what would be the first thing you think of the story might be about?

Entertainment. The entertainment industry.

This implicit understanding was brought into further relief through informants' patterned responses to several specific lines of questioning. In one question, the researcher asked the informant to respond to a hypothetical situation, "what if you woke up tomorrow morning and all of these things that we've been talking about [digital media] were gone — what do you think would happen? How would things be different?" Analysis revealed a highly patterned response and, upon deeper analysis, the presence of an underlying assumption that appeared to inform these responses. In the words of one informant:

Things would pretty much be the same. I mean you'd have some grumpy people walking around without their iPhones, and things might take a little longer and be a little less convenient, but really, I mean *really*, everything would be pretty much the same and as it *should* be.

Below are additional examples of responses to this line of questioning. All are structured by an underlying assumption of the fundamental frivolity and entertainment function of digital media. This is a clear example of how, in reasoning through scenarios and constructing narratives, the cultural models that structure thinking become evident.^{xv}

[If we didn't have digital media] it would be more old-fashioned. Things might be a little more boring if they took touch-screen away and cell phones. If that was taken away I could imagine life would be more boring; it would be simpler.

—
Interviewer: What if we woke up one morning and digital media was gone? How would your life be affected?

You know, you get used to the conveniences of having what you have, and so it would be different.

—
Interviewer: How would your life be different?

I'm kind of spoiled by the convenience of it, and the quickness ... So my life would be more of a hassle ... I don't think it necessarily makes the world a better place, but it makes it easier.

In addition, there were many cases where the interviewer tried to steer conversations to more direct consideration of the various functions of digital media. Despite these attempts, informants defaulted again and again to the assumption that digital media is about leisure and luxury.

Interviewer: Do you see anything positive about it [digital media]?

Other than pleasure? No. Nothing is jumping out at me.

2. Digital is the opposite of manual (and manual is better). Informant discourse also revealed patterns of thinking in which “digital media” was implicitly perceived as synonymous with concepts of “automaticity.” Digital media, in the words of one informant, “does stuff for you, rather than you having to do it.” Furthermore, these concepts were often perceived through a “zero-sum” type of thinking in which the “digital” quality of things was opposed to the “manual” quality of things, and the two qualities were structured as exclusionary.

As I understand it, your brain — when you do something manually, for example, ride a bike or play the guitar, once you do something, I read that once you do something 1,500 times manually, play the G cord, do-do-do-do, or the scale, na-na-na-na-na, up the neck, once you’ve done it 1,500 times, your brain does the synapse of that one thing, and you never forget it. That don’t work online! That doesn’t work with digital media. You’re not building that synapse.

3. Digital media is passive ... a thing to be watched. In addition to assumptions about digital media’s automaticity, informant discussions revealed an assumption that digital media is *passive* and mostly about viewing pictures and movies — things that, in the words of one informant, “you pop in to watch.” In defaulting to a focus on visual media, many informants’ descriptions spoke to the passive consumption of media and were devoid of ideas about *the generation and manipulation of creative content*.

Interviewer: So what do people use digital media for?

For TV and for movies. I see it in the movies and stuff and it’s just a clear picture and you don’t have any dead time.

—
To me digital media means *pictures*. You can look at a picture and say, “This is the Trevi Fountain in Italy.” You learn that because you saw a picture and it said where it was, you know? So digital media I think could probably bring the world together because you could learn different places through pictures. To me that’s all digital media ... But I don’t know if I’m correct.

4. Digital media is dangerous. Informant discourse also revealed an underlying assumption that digital media (and technology more generally) is “dangerous.”

Children growing up spend too much time looking at those little screens and being online. Like the girl that spent thousands of dollars texting her friends. Like texting while driving your car. I mean that’s like a *giant* danger. And I guess just having so much information out there, sometimes you just don’t know. Like people that want to volunteer for everything and they can’t throw away any e-mails or they have to read *everything*. Then all they’re doing is looking at that screen. And I also think there’s like some kind of thing that happens to your eyes.

—
[In response to a hypothetical scenario of a student using digital media to learn] No, I don’t like that. She needs to make relationships with *people*, not just sitting there with these virtual people who aren’t ... they’re not *real*. I mean, she is on there [the Internet] and then there’s also people that she doesn’t know on there. So we don’t know who she’s

making these relationships with online. That's where it gets into all the scary stuff.

There were a series of more specific understandings that informants relied on to evoke the dangers of digital media. They include:

Digital media is the opposite of the real world and is often used as a means of escape

Informants approached the issue of digital media with the assumption that there is a fundamental division between “digital media” and the “real world,” and that many people use digital media as a means of escape from the real world. This escapism was described as dangerous because it compromises people's real-life relationships and their ability to live up to their real-world responsibilities.

I feel like people are living in this dream, you know, this dreamland ... They've created this dreamland that is *not* real. It's this phony image kind of thing. It's a phony perception ... It's not a real reality. It's fake.

— If you're too immersed in it you lose track of interacting with people for real. You're using it to avoid real-world situations and [in that way] it's [digital media] a negative.

— You feel like you know a person on the Internet but you don't. So, yeah, it's hurting personal relationships and, people are just getting more and more satisfied with just what they see on the computer. Oh, it's just too scary out there ... When people are on the computer they really lose that [personal connection], and people need that.

The danger of information accessibility and availability

Discussions of digital media as dangerous were also structured by the underlying assumption that the media facilitates open access and availability to information and that, in “the wrong hands,” this information can be manipulated with catastrophic results.

On the Internet there's a lot of flaky people and bad people, and information and misinformation, so it's dangerous.

— I mean out here is Facebook and the other ones, that's what they do, that's what the kids do nowadays and I think that people — kids get in trouble because they put too much information on and you've got bad people out there that have desires to do bad things.

Digital media creates dependency and atrophies manual skills

Finally, informants viewed the automaticity of digital media as dangerous because it atrophies a person's ability to “do things for themselves.” This is especially the case for children who “need to be learning actually how to do these things like long division.”

Some things you need to pay more attention to for more than 30 seconds ... I mean you get so used to it, and then that that's how you start to process information, that's how you want it. That's why when somebody then gives you information very slowly or very completed and things aren't just little chunks, it feels like it's just too much, it's more than you can handle.

I don't understand what ever happened to sports, you know what I mean? They instead I find, you know, people don't play sports anymore. They sit around and play Wii. And they don't understand why obesity is a big problem. I don't move and I gain weight...

Implications of cultural models used to think digital media

1. **Entertainment concept inhibits application to learning.** Informants implicitly attributed a tertiary role to digital media as a source of luxury and entertainment, and thereby dismissed their potential importance to life and learning. This denigration of digital media complicates the effort to communicate their potentially productive role as tools of learning.
2. **Automaticity suggests atrophy, rather than development of skills.** The assumption of automaticity and its perceived definitional opposition to “manual-ness” is highly problematic from a framing perspective. In reasoning from this position, informants concluded that digital media “makes people lazy” and actually *damages* skill. Reasoning from this perspective, the public is likely to interpret propositions about the virtues of digital media for learning with skepticism and overt resistance.
3. **Passive consumption precludes interactivity.** The assumed role of passive observation of, as one informant said, “pretty moving pictures,” obfuscates efforts to ascribe these media more active roles and functions in learning. Put another way, communicating the affordances of digital media that are most promising — its creative, generative, responsive, malleable and engaging functions — will be challenging, given the deeply engrained understanding that these media are passive and largely for consumption.
4. **Danger challenges link to learning.** The application of the danger assumption and its nested propositions is highly concerning in the communications task. These assumptions function powerfully to make people wary, resistant and outwardly hostile to attempts to bring digital media into learning contexts. For this reason, communications research must focus intently on how to deactivate and build-out alternatives to this pattern of thinking and its composite assumptions.

Patterns of Reasoning about “Digital Media and Learning”

When the interview turned to asking informants about combining the areas of learning and digital media or in responding to scenarios that presented examples of such combinations, responses were generally negative. In general, informants thought that using digital media as a learning or education tool was either “*not a good idea*” or conferred no particular benefits, as the quote below illustrates.

[In response to a question about using digital media in learning] I guess if it's not against the law, then it may not a *bad* thing. I feel if it's not causing harm to anyone then it's not a bad thing but that's how I feel about a lot of things in life.

The most common reaction to questions about digital media *and* learning was difficulty in reasoning — in the words of one informant, “they just don't go together for me.” This inability

to combine and work with these concepts suggests the compartmentalization of these domains and the lack of a well-developed cultural model, narrative construction or cognitive connection between them. In other words, much of the difficulty that informants encountered in trying to connect and synthesize these domains suggests that Americans are not practiced in making these connections and therefore have not developed the mental shortcuts and cognitive prototypes for a concept of digital media *and* learning.

This compartmentalization in public thinking has major communications implications for a field that hopes to connect digital media to learning and emphasize the utility and functions of the former in facilitating the latter. The public's cognitive difficulty in connecting these domains, even when presented with examples of syntheses, suggests that, if translated literally, many of the ideas that the field wishes to communicate will be "hard to think" for the public. Careful reframing research, using empirically designed and tested reframing devices, will be required to build more concrete, comfortable and accessible pathways between these concepts. This conceptual work will have to be done *before* communicators can get to the important work of explaining the various utilities and functions that digital media can play and the ways that these technologies, media and practices can improve learning and education.

Despite the difficulty that informants had in articulating a connection between digital media and learning, open-ended probing from interviewers *did* elicit regularities across informants' talk that show deeper patterns of implicit understanding and connection. They include the following:

1. "Digital media and learning" is assumed to be exclusively about in-school learning.

When faced with synthesizing the subjects of digital media and learning, informants had an overwhelming proclivity to land on one side of the first compartmentalized model of learning and assume that discussions of "digital media and learning" were about *in-school* learning. This was evident both in the examples and stories informants recounted, but also in what they left out. Their responses were largely void of non-scholastic uses and integrations of digital media in learning. This largely implicit pattern was occasionally given explicit voice, as in the following quote:

I think they [digital media] are being used by students outside of class. I really do, it's *outside* of class.

The implications of this tacit assumption have largely been discussed above in regards to the assumption of two distinct types of learning — namely that attempts by the field of digital media and learning to blur these lines are likely to be hard to think and met with some resistance.

2. "School should be hard" + "limit outside distraction" + "digital media is entertainment" = digital media distracts students and fundamentally threatens the educational project.

As discussed above, informants had considerable difficulty in merging "digital media" and "learning." But in those cases where informants *were* able to talk about why they expressed this response, a strikingly standardized pattern of logic emerged in which informants pulled specific models from the domains of learning and digital media to justify their opinions about the idea of digital media *and* learning.

From their thinking about “learning,” informants pulled the assumption that it should be hard and that a primary goal of school is to *limit* outside distractions. From their thinking about “digital media,” they pulled the assumptions that it is primarily about entertainment and inherently distracting. In the resulting combined script, attempts to bring digital media into school were interpreted as affronts to what school should fundamentally be about and what children are supposed to be getting out of it. The result is that informants answered a resounding “no” to the proposition that digital media and learning can be productively combined.

Interviewer: would it be a good idea to bring some of these things [digital media] into class?

No! I don’t think it would be a good idea because you’re going to take away from actually what the teacher is actually supposed to teach them.

I don’t know how I feel about using that [digital media] for school. Getting on Facebook at school would lead to distraction, and lead you away from doing what you’re supposed to be doing, lead you away from *learning*.

Interviewer: What if they were to create like a small, internal school-only Facebook or something like that, a small-scale one? Would that be workable?

No, I think anything like that is distracting, no matter *what*. It will always go back to distraction. And it’s easy for you to harass someone ...

I would *not* want to see the school system bring this [digital media] into the school and take away from teacher duties. I see it more as a secondary — not primary.

3. “Digital media is automatic and passive” + “authentic learning is hands-on and direct” = Digital media detracts from learning.

A second combined script used by informants to justify their skepticisms of digital media and learning drew from assumptions about the automaticity and indirectness of digital media and about the power of hands-on experiences for learning. In a way similar to that described above, the combination of these assumptions created two diametrically opposed and incommensurable concepts. In this case, digital media was characterized by automated features that contributed to a kind of artificial (and problematic) passivity in people’s use of it, one not conducive to learning. Authentic learning, on the other hand, was seen to hinge fundamentally on direct, hands-on experience with materials and problems. In short, whereas digital media is modeled as automated, artificial and passive, learning is modeled as direct, authentic and active. The result was a clear cognitive resistance to bringing these two domains together in thinking.

Interviewer: Do you think there are any particular skills that people learn well in using digital media?

I don’t! No! When I think about it, no. I don’t think because a person uses digital media that they’re getting anything that they would get if they did it themselves. They’re not going to gain something that they wouldn’t gain if they didn’t. No, I don’t think so.

Interviewer: So what do you think digital media are mostly good for?

Entertainment! Number one, entertainment!

B. Recessive Models

Two other shared and patterned assumptions emerged from the interviews with members of the general public. While these models were not as frequently employed or used with the same degree of automaticity as the dominant models described above, they are nonetheless important features of the cognitive landscape of these issues. We call these “recessive” models, as they represent patterns of reasoning that are *available* to the public to think about learning and digital media, but that are not *readily* or *automatically* employed in understanding these issues.

1. Interactivity is good for learning.

In some places, informants applied an implicit assumption that there is “something” about digital media and technology that *is* interactive. This was a highly recessive model — expressed by some informants in a few places in their interviews — but one that nonetheless did appear as a recurrent if weak pattern throughout analysis. In this assumption, digital media, and technology more generally, can be interactive and so facilitate a unique type and set of positive experiences. In the quote below, an informant displays this understanding.

Yeah, your mind reacts differently to different tools versus just reading it, you know? But hearing and seeing it is completely different and sometimes that’s good.

However, as illustration of the weakness of this model, both previous to and shortly after making the above statement, the same informant switched away from this understanding and employed the far more dominant notion of the passivity of digital media use.

However latent it may be, the interactive understanding of digital media is highly promising. This pattern of understanding should be examined in future prescriptive research to assess its power and utility in allowing people to see digital media as a learning tool.

2. When you *want* to know, you learn better: The importance of personal relevance.

In some places, informants employed an understanding that learning is facilitated by interest and the *desire* to know. This model holds that learning is more effective when it is motivated by a person’s connection to and investment in relevant learning materials and practices. This idea, quite simply, is that learning is better when it’s engaging. Analysis revealed, however, that the more dominant “school learning is hard work” model tended to crowd out this model of personal relevance in structuring how informants understood learning.

The most intent learner is learning something on their own initiative, not as part of a school program or something they *have* to do, it’s something they *need to know*.

—

I feel like it resonates more in their [the student's] brain when they're *in* it. I feel it's kind of hard when you're telling somebody something even when they're interested in it but you're just *telling* them. I mean they may even see it at some point but if you actually take them to it, I feel like it hits harder than just hearing about something, especially if they're not interested. But if they're interested ... If you're trying to teach them about art by *telling* them ... well, words can only go so far for so long. But if you're *telling* them about this stuff *and* you take them to *see* it, that's just like a whole new world for them. That might actually open it up instead of just keeping it confined in words.

You can't feed somebody steak and then go to giving them tuna ... you just can't do that. You got to at least come to the middle level, and go from steak to hamburger. So like if they're playing these advanced video games at home why do they want to go to school and play this crappy video game that has nothing to do with anything? You know what I'm saying? Like, again, when I played the video games and basketball games that taught me fractions, I was playing because I *wanted* to play them. At the time I was very obsessed with basketball so I was like always playing basketball games but I did it because I wanted to. So I feel like if you have to design a game or have it tailored to what the interest is. Like *hide* it in there, *hide the learning* in there somewhere and they will learn. I'm telling you they will learn. Music, sports, anything, you just hide it in there. They'll be so into it that you could feed them all the information you want to feed them. We'll call it the Trojan horse of learning. You make it look like it's some mindless gift and inside it's packed full of learning and they never see it coming. They never see it coming and they'll probably love it actually.

While the above quote displays many of the dominant unproductive models discussed above, it also shows how the model of learning through engagement holds significant promise in communicating about digital media and learning. If communications can activate, further develop, and give people practice in connecting interest, learning and digital media in their thinking, just as the informant above does, then the field of digital media and learning may find a lever for translating core components of their message.

OVERLAPS AND GAPS IN UNDERSTANDING

The goals of this analysis have been to: 1) document the way experts talk about and explain the issue of digital media and learning; 2) establish the way that the American public understands this and related issues; and 3) compare and “map” these explanations and understandings to reveal the overlaps and gaps between these two groups. We now turn to this third task.

Comparative analysis suggests that there are key areas of overlap between expert and public understandings of issues of learning and digital media. Some of these overlaps represent features of the cognitive landscape that communications can strategically leverage, activate and build on to improve the accessibility of expert information.

Promising overlaps in understanding:

1. **Learning through interactivity and direct experiences.** Both groups shared an understanding of *a relationship between learning, interactivity, and direct experience*. Experts focused on the power for interactivity in creating more effective learning processes and systems, while the public spoke to the idea that hands-on manipulation and interaction with content can be a powerful form of learning. The public, however, had a narrower application of this understanding to primarily “real-world” types of learning and did not as readily extend this understandings to school learning.
2. **Technology can be interactive.** Data from both groups also revealed an understanding of the interactive potential for technology and digital media. For experts, digital media’s interactivity was a defining feature, while for lay informants, interactivity was a potential and more tertiary provision.
3. **Motivation and learning.** Expert and public informants displayed an understanding that motivation facilitates learning. For experts, this motivational function was connected to *all* types of learning, while for the public, motivation and engagement were parts of “real-world” learning, but were less a part of people’s picture of school learning.
4. **Learning is limitless.** The idea that opportunities for learning are “cross-contextual” and extend over space and time was an important element of the expert story. This understanding was also evident in interviews with members of the general public, although this understanding was compartmentalized and restricted in its application to thinking about “real world” learning. Understandings of school learning, unfortunately, were based on more bounded conceptions of learning space and time.

It is interesting to note that the overlaps described above, while positive, are either based on recessive cultural models or on more dominant ones that are strongly associated with real-world learning and not readily generalized to the scholastic variety. As such, while they represent promising features, they are of limited utility as communications tools until further research can explore tactics to cue and invigorate the more recessive models, and break through cognitive barriers between school and real-world learning.

A second set of overlaps appeared during analysis. On the surface, these overlaps appear promising, but closer analysis suggests that they actually represent communications challenges.

Problematic overlaps in understanding:

1. **Compartmentalization in systems and minds.** Experts acknowledged that the current system of education is built on a highly compartmentalized model of learning — one that bounds, restricts and clearly delineates “outside” from “inside” school experiences and contexts. Our research shows that this *explicit critique* parallels the public’s more *implicit cultural construction* of the concept of learning. This is clearly not a productive consonance. However, this confluence does go one step toward explaining our findings. This common *experience* of compartmentalization might have given rise to and be continually reinforcing the compartmentalized cultural models of learning documented here.^{xvi}

2. **Digital media to accelerate learning.** Both experts and the public focused on ideas of *speed* in discussing digital media. This is one aspect of the public’s default position that can easily be capitalized on to convey this part of the expert core story. However, in the expert story, the issue of speed represents only the very tip of the iceberg for how digital media can be used powerfully as a learning tool. The challenge is how to communicate this positive affordance to the public while not activating the public’s perception that this is *all* digital media is good for — “faster and fancier books,” as one informant notably put it. In short, while this overlap suggests a “low-hanging fruit” for communications, it must be used strategically so that it doesn’t limit public thinking about other important affordances of digital media for learning.

3. **Learning as individualized.** Both groups spoke of and emphasized the fact that individual students learn differently and that learning is “individualized.” How that individualization is understood and framed, however, differs substantially between experts and the public. For experts, the potential to personalize learning presents an opportunity to increase student engagement and encourage self-directed learning projects that require supervision but not direct instruction by teachers. For the public, though, individual learning styles and interests represent a challenge to successful education. Transforming the public’s thinking about the potentials of digital media in learning will require their embrace of an alternate vision of education and learning, one that affirms that students can all learn critical skills and knowledge via diverse trajectories — what might be called a “many paths to the mountain top” approach to education and learning. Cultivating this transformation in public thinking represents a substantial communications challenge, and raises questions about the utility of this overlap as a domain for communications efforts.

In addition to both the productive and problematic overlaps discussed above, our map-the-gaps comparative analysis revealed a key set of gaps between the ways that experts and Americans think about these issues. Below, we take each one of the gaps and discuss its communications implications with greater specificity.

Gaps in understanding:

1. **Temporal perspectives on learning and skills: Forward versus backward facing.** Interviews suggested that experts are looking *forward* in time with respect to our educational system, and are focused on the new challenges that face students, the new skills required to meet them, and the teaching and learning practices necessary to help them do so. Members of the public, however, have a reverse perspective with respect to time, skills and learning, believing that today’s “uncertain times” call for “getting back to the basics,” to a time when skills like literacy and numeracy were more effectively taught and learned. This gap in perspective represents a key stumbling block in communicating about the potential of digital media to help students prepare for their futures and learn critical 21st century skills. This difficulty was previewed in our interviews when lay informants responded to concepts like “21st century skills” and “learning to prepare for the future” with palpable push back and frequent calls for a return “back to the basics.”

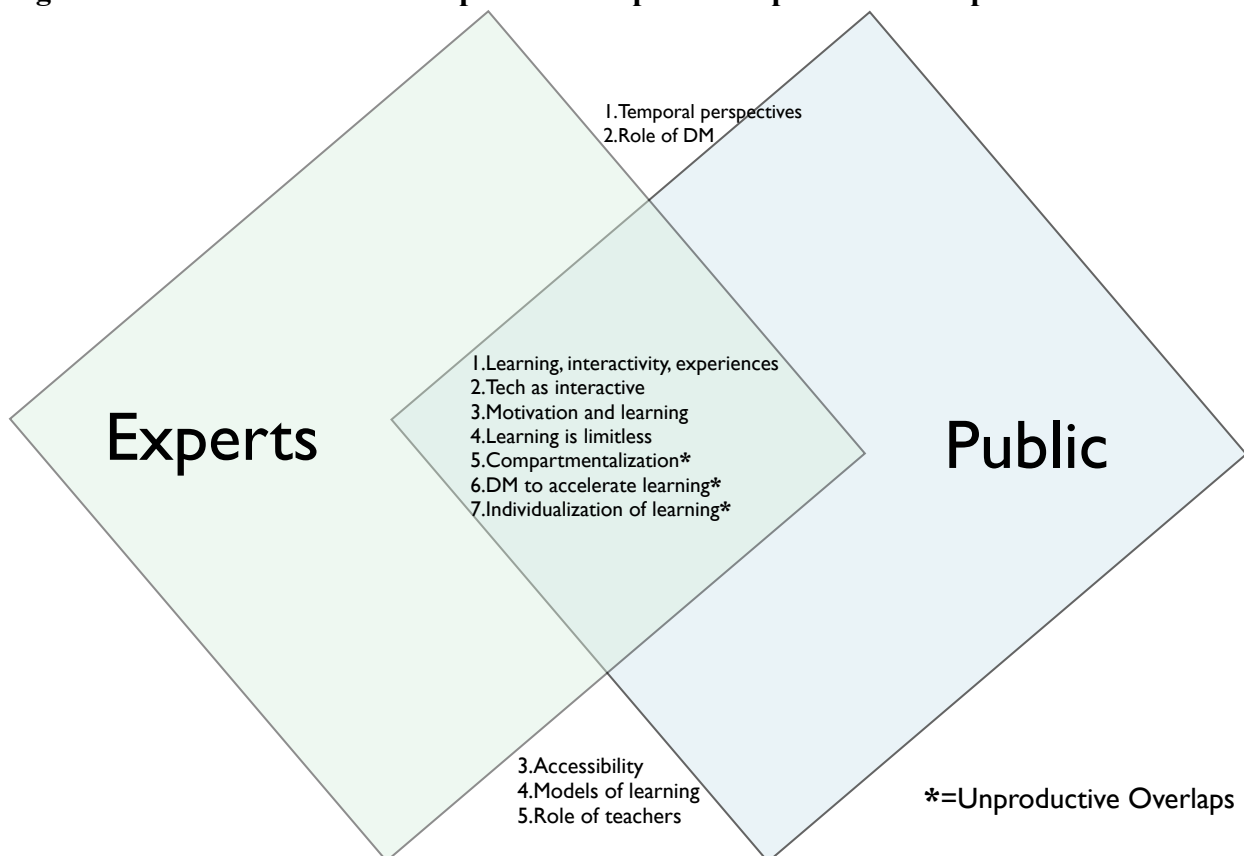
This pattern of response suggests that use of the temporal perspective in communications must be engaged with caution, and points to the need for careful reframing research around this issue.

2. **The role of digital media: Function versus frivolity.** Experts overwhelmingly focused on the notion of “digital media as a learning tool” and saw digital media as the means to an end — learning. Interviews with non-experts revealed an understanding of digital media as itself an end — something to be enjoyed in and of itself. Furthermore, these lay interviews suggest a very different conception of the level at which digital media shapes and affects life and learning — largely attributing to these media and technologies a surface, tertiary and peripheral role as “gravy” — making things “a little faster and easier,” but not fundamentally affecting the way that life or learning happen and work.
3. **Accessibility: Increase versus limit.** Experts focused squarely on “addressing the digital divide” and on increasing access to digital media and its technologies. The public’s assumptions about the dangers of digital media and the job of education to limit distractions structured a dramatically different perspective on access. For our public informants, access to digital media is something that must be restricted and curtailed rather than actively promulgated. Armed with this assumption, the public is cognitively predisposed to resist calls to increase access and availability of what are implicitly modeled as dangerous technologies. Considerable future research will be required to figure out how best to communicate this key part of the expert message. The research presented here suggests the public will require a fundamentally different way of viewing digital media — as a resource rather than a scourge — in order to embrace the programmatic use of these media in schools.
4. **Assumed models of learning: Active versus passive; skills versus content.** The experts interviewed emphasized that learning works best when students are engaged and activated and are themselves the primary agents of learning, and when the focus is on the skills rather than the specific content learned. This expert understanding is at odds with the public’s conventional model of in-school learning, where a generally passive student receives content from a provider, the teacher. For the public, the teacher is the primary agent in the classroom, and the learning taking place is in the content learned rather than methods for learning itself. Communications will not be optimally effective until this fundamental gap is addressed and filled.
5. **The role of teachers: Mentors and guides versus the center of the educational universe.** Experts maintained a pivotal role for teachers in their re-envisioned model of the educational system, attributing to these professionals the role of *mentor* and *guide* to engaged, motivated and self-directed learners who have been freed and encouraged to explore and study their own passions and interests. In this expert model, the student rather than the teacher is the central agent of learning. Public informants revealed a dramatically different conceptualization of the role and purpose of the teacher in the learning process — with the teacher as the focal purveyor of both content and motivation. Communicating the experts’ re-conceptualized role of teachers will require significant

work given the strength, durability and pervasiveness of the teacher-centered cultural model of learning and education.

Figure 7 below summarizes both the overlaps and gaps between expert explanations and lay cultural models.

Figure 7: Schematic of the Conceptual Overlaps and Gaps Between Experts and the Public



CONCLUSIONS

The research described in this report presents several key recommendations for communications, but its most significant contribution is in establishing a deep appreciation of the challenges inherent in reframing the issue of digital media and learning. To use our working analogy, this report has laid out the cognitive landscape that Americans travel when faced with information and communications on the issue of digital media and learning. In our view, it is highly unlikely that new, better-connected and more traversable routes of perception and understanding can be created without first knowing the lay of this land.

The field of digital media and learning faces an uphill battle in communicating its perspectives to the general public. The compartmentalized and oppositional nature of the cognitive landscape of learning, as well as the firm line that demarcates American models of learning from those of

digital media, constitute very real communications challenges. Without addressing these challenges directly, communications will be seriously compromised in their effectiveness, or worse, will reify patterns of thinking that currently inhibit the translation of the field's message and dampen support for its recommendations.

Successful communication will need to provide Americans with alternate ways to think about what learning is, in particular school learning, as well as more productive conceptions and definitions of digital media and its potential applications to learning.

Communicators will want to use framing devices — including metaphors and analogies — that allow Americans to see the power and promise of digital media *and* learning in a familiar, concrete and synthetic way. Reframing both areas and providing a more effective working model of their synthesis will be the focus of the next phase of FrameWorks' communications research.

While this research represents the first phase of a much larger investigation, several preliminary recommendations and future directions have become apparent. We present these here as *preliminary communications recommendations*:

1. **Connect digital media with the power of “hands-on” learning.** Members of the public currently associate scholastic learning primarily with “book” learning, even as many spoke to the power and efficacy of the “hands-on” learning that often occurs outside of the classroom. Many experts identified the “hands-on” affordance of digital media as one of its strongest features. The public's positive modeling of “hands-on” learning suggests a communications opportunity if digital media can be constructively linked with it.
2. **Focus on invigorating recessive models.** Because of the promise of several of the recessive models identified here, communications should deliberately activate these available but latent patterns of understanding. For example, providing and describing examples of digital media's *interactive capacity* is likely to cue the more recessive models and structure productive understandings of the role of digital media in classrooms and in in-school learning.
3. **Bring out-of-school learning into the classroom — but not explicitly.** Among the major challenges highlighted by this research is the division between in- and out-of-school learning that defines the American perspective. While breaking down that division will be a major thrust of upcoming FrameWorks prescriptive research, there are steps that advocates and communicators can take *now*. Efforts should be made to bring out-of-school learning into classrooms, but — and this is key — *without explicitly juxtaposing in- and out-of-school types of learning and contexts*. Such explicit comparisons are likely to reinvigorate and reify the compartmentalized perspective by confirming existing beliefs in two types of learning. Communicators should avoid discussions and communications that explicitly reference “types of learning” or that implicitly foster that perception through examples that fall easily into the compartments delineated in this report.

- 4. Invigorate the “boundlessness of learning” model and bring it into the classroom.** We hypothesize that the model of learning as potentially limitless opens people up to think about new methods, sources and locations of learning. A skillful invocation of digital media’s boundary-defying and multi-locational affordances might open new ways of thinking about potential roles for the media in learning. At the very same time, however, communications will need to tread carefully around the public’s fears on these very same issues regarding personal boundaries, pervasive use and privacy protection.
- 5. Provide examples of digital media and its use in classrooms.** Advocates can also begin to construct and use examples of, first of all, what exactly the field means by digital media. These should be unconventional examples that do not allow the public to default into interpretations of these materials as passive or completely visual. In addition, examples should be offered of these media and their enabling technologies being used in classrooms in ways that activate student engagement and interactivity, to provide the public with visuals for how these technologies can integrate with and facilitate dynamic forms of learning. We realize that such examples are currently being used by the field and do not mean to suggest that this is a new direction. Rather, our intention in this recommendation is to highlight that this current strategy appears effective, even as a myriad of other, deeper cultural challenges necessitate the development of further communications strategies.
- 6. Avoid acknowledging the other side.** Communications should avoid the common practice of recognizing the opposing perspective as a mean of delineating the desired view. In this case, the research highlights several dominant understandings that have the power to go “viral” and crowd out other ways of thinking that communications should steer clear of in their rhetorical strategies. For example, communications should avoid acknowledging the dominant “dangers of media and technology” perspective. Our research has shown that this perspective, and the myriad of assumptions that support it, is both robust in its articulation by the public and counterproductive to their thinking about a constructive role for digital media in learning. Even if discussing these notions as *fallacy*, communications will activate these assumptions and allow them to be applied in making sense of information.
- 7. Shift the roles of teachers.** A tall but important task in reframing the issue of digital media and learning will be to ascribe to teachers a different role in the learning process. This will be difficult given the strength of American cultural models that position teachers as the linchpin of learning and the gatekeepers of content. Only if the public can envision a scholastic setting where students are engaged and supported but self-directed learners will they begin to accept a new role for teachers. In the absence of empirically tested reframes, our initial advice is to provide carefully constructed examples of schools and classrooms that have transformed the learning environment in a way that has excited students as learners and thereby made the “teachers as mentors” model the most productive and effective one for student advancement.

APPENDIX 1: RESEARCH METHODS

We were careful to recruit a sample of civically engaged persons for this project in order to increase the likelihood that our informants could speak to the issues at hand with some degree of knowledge and opinion. Because cultural models interviews rely on our ability to see patterns of thinking — the expression of models in mind — through talk, it is important to recruit informants who are more likely to actually talk about the issues in question, but who are not experts or practitioners in the field. Moreover, to help ensure that participants were likely to have ready opinions about these issues without having to be primed by asking them directly about the target issue^{xvii} — in this case, digital media and learning — the screening procedure was designed to select informants who reported a strong interest in news and current events, and an active involvement in their communities through participation in community and civic engagements.

Cultural models interviews require gathering what one researcher has referred to as a “big scoop of language.”^{xviii} Thus, a sufficiently large amount of talk, taken from each informant, allows us to capture the broad sets of assumptions that informants use to make sense of information. These sets of common assumptions and understandings are referred to as “cultural models.” Recruiting a wide range of people allows us to ensure that the cultural models we identify represent shared, or “cultural,” patterns of thinking about a given topic.

As the goal of these interviews was to examine the cultural models Americans use to make sense of and understand issues of learning, digital media, technology and a concept of “digital media and learning,” a key to this methodology was giving informants the freedom to follow topics in the directions they deemed relevant and not in directions the interviewer believed most germane. Therefore, the interviewers approached each interview with a set of general areas and topics to be covered but left the order in which these topics were covered largely to the informant. In this way, researchers were able to follow the informant’s train of thought, rather than interrupting to follow a set and pre-established course of questions.

Informants were first asked to respond to a general issue (“What do you think about X?”) and were then asked follow-up questions — or “probes” — designed to elicit explanation of their responses (“You said X, why do you think X is this way?” or “You said X, tell me a little bit more about what you meant when you said X,” or “You were just talking about X, but before you were talking about Y, do you think X is connected to Y? How?”). This pattern of probing leads to long conversations that stray (as is the intention) from the original question. The purpose is to see where and what connections the informant draws from the original topic. Informants were then asked about various valences or instantiations of the issue at hand and were probed for explanations of these differences (“You said that X is different than Y in this way, why do you think this is?”). In this way, the pattern of questioning began very generally and moved gradually to differentiations and more specific topics.

Informants were first asked a series of open-ended questions about learning that provided them the opportunity to speak to whatever associations came to mind — about the meaning of the term

“learning”: *how* does a person learn; *what* do they learn; and what the *results* of learning might be. Following a series of follow-up probing questions, a similar line of questioning then focused on the idea of “digital media,” which was referred to using a variety of different terminologies and examples to assure that informants understood the domain that they were being asked to respond to. These questions were followed by questions and probes about the connections between these domains and what a concept of “digital media and learning” might refer to and look like. Informants were also given several vignettes that included examples of digital media being used for learning and were probed for their responses to the stories and the embedded examples. They were also questioned about their understanding of specific skills which have been theorized as being particularly ripe to address through the inclusion of digital media in curricula (for example, critical thinking, creative thinking, teamwork). Questions of definition, organization and responsibility were distributed throughout the interview

As every interview has to begin somewhere, we started from the position that the order of questions was likely to have some biasing effect on the responses offered. For example, we suspected that discussions of learning would bias those of digital media and lead to more frequent connections between the two concepts that would not otherwise have been made. However, this biasing effect — the fact that learning questions preceded those about both digital media and relationships between the ideas — was used to test a specific hypothesis — that getting people to think and talk about learning would allow them to connect digital media to learning implicitly in their discussions of the latter and more explicitly in response to direct questions about these connections. In other words, the interview used the unavoidable biasing effect of question-ordering to test a specific framing hypothesis. As it turned out, even given this advantage, links between learning and digital media were few and far between and when made, were pejorative. Despite our opportunistic harnessing of the biasing effect, there is no easy or absolutely “clean” solution to this effect in interviews. That said, consideration of these effects was built into the analysis and in this case they were found to have negligible priming or biasing effects. Furthermore, some of the biases associated with question-ordering can be overcome by the fact that the object of analysis in cultural models work is implicit and tacit assumptions, rather than explicit views. Additionally, an advantage of the multi-method, iterative design of Strategic Frame Analysis™ is that subsequent research, using both other qualitative methods and quantitative experiments, will allow FrameWorks to triangulate results, examining possible biasing effects and verifying the results presented here.

APPENDIX 2: THEORETICAL FOUNDATIONS

The following are well-accepted characteristics of cognition and features of cultural models that figure prominently into the results presented in this report and in FrameWorks' research more generally.

1. *Top-down nature of cognition*

Individuals rely on a relatively small set of broad, *general* cultural models to organize and make sense of information about an incredibly wide range of *specific* issues and information. Put another way, members of a cultural group share a set of common general models that form the lens through which they think and make sense of information pertaining to many different issues. Or as Shore notes, "Culture doesn't determine reality for people. It provides a stock of conventional models that have a powerful effect on what is easily cognized and readily communicated in a community. Cultural codes socially legitimate certain ways of thinking and acting. They also affect the cognitive salience of certain experiences."^{xix}

This feature of cognition explains why FrameWorks' research has revealed many of the same cultural models being used to think about seemingly unconnected and unrelated issues — from education to health to child development. For example, FrameWorks' research has found that people use the *mentalist* model to think about child development and food and fitness — seemingly unrelated issue areas. For this reason, we say that cognition is a "top-down" phenomenon. *Specific* information gets fitted into *general* categories that people share and carry around with them in their heads. Or, again as Shore notes, "You could reason from the part to the whole."^{xx}

2. *Cultural models come in many flavors but the basic ingredients are the same*

At FrameWorks, we often get asked about the extent to which the cultural models that we identify in our research and that we use as the basis of our general approach to social messaging apply to ALL cultures. That is, people want to know how inclusive our cultural models are and to what extent we see/look for/find differences across race, class or other cultural categories. Because our aim is to create messaging for mass media communications, we seek out messages that resonate with the public more generally and, as such, seek to identify cultural models that are most broadly shared across society. We ensure the models are sufficiently broad by recruiting diverse groups of informants in our research who help us to confirm that the models we identify operate broadly across a wide range of groups. Recruiting diverse samples in our cultural models interviews often confuses people who then think we are interested in uncovering the nuanced ways in which the models take shape and get communicated across those groups, or that we are interested in identifying different models that different groups use. To the contrary, our aim is to locate the models at the broadest possible levels (i.e., those most commonly shared across *all* cultural groups within a large social group) and to develop reframes and simplifying models that advance those models that catalyze systems-level thinking. The latter does not negate the fact that members of different cultural groups within a larger cultural group may respond more or less enthusiastically to the reframes, and this is one of the reasons why we subject the reframes that we recommend to our clients to rigorous experimental testing using randomized controls that more fully evaluate their mass appeal.

3. *Dominant and recessive models*

Some of the models that individuals use to understand the world around us are what we call “dominant” while others are more “recessive,” or latent, in shaping how we process information. Dominant models are those that are very “easy to think.” They are activated and used with a high degree of immediacy and are persistent or “sticky” in their power to shape thinking and understanding — once a dominant model has been activated, it is difficult to shift to or employ another model to think about the issue. Because these models are used so readily to understand information, and because of their cognitive stickiness, they actually become easier to “think” each time they are activated — similar to how we choose well-worn and familiar paths when walking through fields, and in so doing these paths become even more well-worn and familiar. There is therefore the tendency for dominant models to become increasingly dominant unless information is reframed to cue other cognitively available models (or, to continue the analogy here, other walking paths). Recessive models, on the other hand, are not characterized by the same immediacy or persistence. They lie further below the surface, and while they *can* be employed in making sense of a concept or processing information about an issue — they *are* present — their application requires specific cues or primes.

Mapping recessive models is an important part of the FrameWorks approach to communication science and a key step in reframing an issue. It is often these recessive patterns of thinking that hold the most promise in shifting thinking away from the existing dominant models that often inhibit a broader understanding of the role of policy and the *social* aspect of issues and problems. Because of the promise of these recessive models in shifting perception and patterns of thinking, we discuss them in this report and will bring these findings into the subsequent phases of FrameWorks’ iterative methodology. During focus group research in particular, we explore in greater detail *how* these recessive models can most effectively be cued or “primed,” as well as how these recessive models *interact* with and are *negotiated* vis-à-vis emergent dominant models.

4. The “nestedness” of cultural models

Within the broad foundational models that people use in “thinking” about a wide variety of issues lay models that, while still general, broad and shared, are *relatively* more issue-specific. We refer to these more issue-specific models as “nested.” For example, in our past research on executive function, when informants thought about basic skills, they employed a model for understanding where these skills come from, but research revealed that this more specific model was nested into the more general *mentalist* cultural model that informants implicitly applied in thinking this issue. Nested models often compete in guiding or shaping the way we think about issues. Information may have very different effects if it is “thought” through one or another nested model. Therefore, knowing about which models are nested into which broader models helps us in reframing an issue.

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 science-based 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.

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior permission of FrameWorks Institute.

Please follow standard APA rules for citation, with FrameWorks Institute as publisher. Kendall-Taylor, N., & Lindland, E. (2010). *"It's just a fancier book": Mapping the gaps between the expert and the public understandings of digital media and learning*. Washington, DC: FrameWorks Institute.

© **FrameWorks Institute 2010**

ⁱ As Shore notes, "One of the advantages of seeing culture as models, is that it allows us to view culture less as a finely integrated barbaric than as a field of which models come into all sorts of relations with each other. This view of culture opens the door, I think, to admitting into cultural analysis the ambiguities and ambivalence engendered by the interplay of multiple and sometimes conflicting cultural models." Shore, B. (1998). *What culture means, how culture means*, p. 30. Worcester, MA: Clarke University Press.

ⁱⁱ A key component of the larger communications project is to develop and test alternative ways of naming and defining this field based on the understanding of the ways that Americans think about both the constituent concepts as well as the connections they do and do not draw between these domains.

ⁱⁱⁱ In general this is a burgeoning group of scholars with a wide range of specializations and backgrounds from engineering to education and anthropology to video game design. Overall, the goal of the field is to explore the changing roles that digital media play in our lives and the way that this evolving medium can be harnessed to improve learning and education.

^{iv} See: Glaser, B.G., & Strauss, A.L. (1967). *The discovery of grounded theory: Strategies for qualitative research*. Chicago, IL: Aldine Publishing, and Strauss, A.L., & Corbin, J. (1990). *Basics of qualitative research: Grounded theory procedures and techniques*. Newbury Park, CA: Sage Publications.

^v Of the articles identified in the database searches, only those that made explicit mention of children, youth and/or adolescents and were included in analysis. Furthermore, only those articles that explicitly mentioned ways in which digital media and technologies influence children's learning and/or development were included analysis. Finally, those articles that discussed media generally, without referring to any type of digital media specifically, were not included in analysis as it is unlikely that these articles would reflect the academic understanding of digital media specifically.

^{vi} The occupational screening measure rests on a fundamental relationship between personal experience and cultural models that Shore describes, "... cultural models are brought to life in relation to personal experiences. My concept will be a pastiche of personal and cultural models. In many cases my personal models of marriage are likely to be more salient to me than any conventional representations. This is especially true when one understands a concept through long and deep experience." Shore, B. (1998) *What culture means, how culture means*, p. 38. Worcester, MA: Clarke University Press.

^{vii} Quinn, N. (2005). *Finding culture in talk: A collection of methods*. New York, NY: Palgrave Macmillan.

^{viii} For description of grounded theory analysis, see: Glaser, B.G., & Strauss, A.L. (1967). *The discovery of grounded theory: Strategies for qualitative research*. Chicago, IL: Aldine Publishing, and

Strauss, A.L., & Corbin, J. (1990). *Basics of qualitative research: Grounded theory procedures and techniques*. Newbury Park, CA: Sage Publications. For description of social discourse analysis, see Strauss, C. (2005).

Analyzing discourse for cultural complexity. In Quinn, N. (Ed.). *Finding culture in talk*. New York, NY: Palgrave Macmillan, and Strauss, C. *Who belongs here and what do we all deserve? Americans' discourses about immigration and social welfare*. Unpublished manuscript. For description of cultural models analysis, see Quinn, N. (1987). Convergent evidence of a cultural model of American marriage. In Holland, D., & Naomi, Q. (Eds.).

Cultural models in language and thought, pp. 173-194. Cambridge, MA: Cambridge University Press.

^{ix} Specific changes advocated included:

- Ending bans on digital media in schools such that these media can be brought into curricula and course syllabi in a central way and their powerful affordances can be put to good use.
- Changing seat-time policies, which currently require that students spend a minimum amount of time behind a desk in a classroom, such that students can engage in more active and experiential forms of learning, including outside of classroom and school boundaries. These might include activities like using a GPS to gather location data on flora and fauna across a range of city parks, or spending time in a museum or university research lab for days or weeks during a semester as part of a larger team research project.
- Granting credit for outside school activities, such as those taking place in an after-school program, at a local library, in collaboration with university researchers, with a museum exhibit team, or in other institutionalized learning settings. As one expert describes it, we need an "opening up of the schools" to reward and encourage the important learning that is happening elsewhere.
- Providing alternate assessment mechanisms, such that these different forms of learning occurring in other institutional settings can also be assessed as valid and valued accomplishments for educational advancement.
- Challenging textbook dependency, such that course curricula need not be organized primarily around shared textbooks, but rather that a more individualized and opportunistic approach can be adopted that makes use of multiple sources — online, expert, text-based, archival, laboratory and otherwise.

^x This content and application distinction parallels one made by Quinn between the "Structure" and "Agency" of cultural models. For a discussion of this distinction, see Quinn, N., & Holland, D. (1987). Culture and cognition. In Holland, D., & Quinn, N. (Eds.). *Cultural models in language and thought*, pp. 3-40. Cambridge, MA: Cambridge University Press.

^{xi} Chart, H., & Kendall-Taylor, N. (2008). *Reform what?: Individualist thinking in education: American cultural models on schooling*. Washington, DC: FrameWorks Institute.

^{xii} The basis of consumerist thinking is that the world works like a rational market where events occurring around us can be understood as interactions between rational producers and consumers who think in terms of "bottom line" profits, individual benefits and personal interests. Put another way, Americans frequently apply cost-benefit type thinking in how they understand issues; a "what do I get for what I give?" type of thinking.

^{xiii} Peer discourse sessions are used to map and describe the public discourse on a given issue. These sessions also provide data that allow FrameWorks to examine whether reframing the issue with the use of particular frame elements — such as values and simplifying models — shifts public conversations to more closely align with expert understandings of the issue. That is, the peer discourse sessions are the bridge between the descriptive and prescriptive phases of Strategic Frame Analysis™.

^{xiv} Cognitive theory would suggest that this is likely not the case. One of the basic tenets of script theory is that assumptions tend to parcel, or cluster together in coherent assemblies of related and practiced meaning structures. What this suggests is that activating any part of a script, or practiced composite of assumptions, effectively cues the larger set of which the constituent element is part. This suggests that attempts to pull out the "focus" aspect of this understanding is likely to co-recruit the less productive elements of this cognitive structure. For more on script theory see the following references: Schank, R.C. (1990). *Tell me a story: A new look at real and artificial memory*.

New York, NY: Charles Scribner. Schank, R.C., & Abelson, R.P. (1977). *Scripts, plans, goals, and understanding: An inquiry into human knowledge structures*. Hillsdale, NJ: L. Erlbaum Associates.

^{xv} Linde, C. (1987). Explanatory systems in oral life stories. In Holland, D., & Quinn, N. (Eds.) *Cultural models in language and thought*, pp. 343-366. Cambridge, MA: Cambridge University Press.

^{xvi} Quinn, N. (2005). How to reconstruct schemas people share, from what they say. In Quinn, N. (Ed.). *Finding culture in talk: A collection of methods*. New York, NY: Palgrave Macmillan.

^{xvii} Priming informants with the content can be problematic in these interviews, as the ability to identify and describe cultural models relies on getting “top of mind” answers and explanations from informants, rather than carefully thought-out and pre-constructed responses to the issue in question. If primed with the focus of the interview, informants tend to “prepare” by doing “research” on the subject, yielding results that are actually not representative of their own understandings and explanations of issues.

^{xviii} Quinn, N. (2005). *Finding culture in talk: A collection of methods*, p. 16. New York, NY: Palgrave Macmillan.

^{xix} Shore, B. (1998). *What culture means, how culture means*, p. 31. Worcester, MA: Clarke University Press.

^{xx} Shore, B. (1998). *What culture means, how culture means*, p. 32. Worcester, MA: Clarke University Press.