A FrameWorks Institute eZine

Opening Up the Black Box: A Case Study in Simplifying Models

This eZine addresses a critical gap in public understanding that often affects communications efforts on children's issues: the average person's vague and misleading impressions of early childhood development and the causal factors that shape it. At the same time, the eZine is about the concept of "simplifying models" and how they can help or hinder public learning about any specific social issue. From the ozone "hole in the roof" and so-called "greenhouse" gases to international cooperation as "teamwork," our communications routinely rely on these simple translators to convey far more complex ideas, including expert scientific knowledge. Since not all simplifying models are equally effective in advancing the essential policies that advocates are trying to promote, it is important to spend time thinking about the models we currently use, their implications for public policies, and the development of alternative models. In this eZine, we use FrameWorks' recent research on early child development to demonstrate how ineffective models can disperse understanding and accountability. We then explain the basic principles of simplifying models and briefly discuss some of the alternative models that we are now investigating. Importantly, we conclude the piece by asking you to think about the models you've seen in practice, or used in communications, and to convey them to us so that we can take these into further testing.

Mental Shortcuts
As several recent eZines have pointed out, good communications takes account of the "mental shortcuts" people use to make sense of a topic - pre-existing stories, images and ideas that help us quickly understand the facts. Gun control, for example, may be "about" public health, or "about" personal freedom; framing the issue means encouraging an audience to choose one mental shortcut over another.

In some cases, though, communications problems arise because an important type of mental shortcut is *missing* - one that captures the key conceptual content of an issue. Most people have only a fuzzy picture of how global warming works, for example. The absence of a clear mental model keeps people from processing information on the topic that is put in front of them, and keeps them from becoming engaged with the issue.

In cases like these, part of the communicator's task is to put a picture in the public's mind, where none existed before.

The Missing Shortcut: the Case of Early Child Development

Recent research by the FrameWorks team has shown that the issue of early childhood development (ECD) falls in this second category. In one phase of this research effort, Cultural Logic conducted a series of interviews with Americans who have no special expertise with children's issues, in order to explore their understanding of ECD. The results were striking.

Even highly educated Americans tend to think of the process of ECD as closed, private, and invisible - not something that concerns anyone outside of a child's family. What's more, many Americans barely have a sense of the causal mechanisms involved in ECD. Just as they don't think about how digestion works, let alone cellular metabolism, they have minimal access to a working model of the basic mechanisms by which children develop.

In other words, most people have only a very fuzzy sense of how ECD depends on various circumstances and processes - particularly those that are mediated by the brain - which ultimately shape the child's repertoire of social, emotional and regulatory capacities, in addition to cognitive skills.

The causal mechanisms identified by experts that lead to one developmental outcome or another are for most people invisible, inaccessible, and "out of mind." People are simply not used to thinking of early childhood development as a complex causal process that requires various "catalysts" and is influenced by many interacting factors.

On this topic, as on many others, the "vacuum" in people's understanding does end up getting filled, one way or another. People tend to default to several patterns of thinking which are much more familiar. These cognitive or cultural *models* are simple understandings that may operate on an unconscious level (and are not necessarily consistent with each other, since they may be active at different times, triggered by different contexts). Further, these habitual patterns of thought are easy for people to fall into even though they know better on an intellectual level - and they often run directly counter to the goals of children's advocates.

"Black Box" Models of Development

One common model, for example - which we call "The Ticking Clock" - treats early development as a default, automatic process which "just happens" unless some terrible mishap interferes. According to another important model ("Private Causation"), early development occurs entirely within the closed bubble of the family, and depends little, if at all, on anything that happens outside the home. Other important models include:

"Self Causation": If children behave well, listen, and try hard, they will be more successful, like little Horatio Algers. This model dovetails with notions like free will, individualism and personal responsibility which are prominent in American culture.

"Chance Causation": Each developmental story is unique and involves its own difficulties and challenges, as well as improbable (read, unpredictable and unavoidable) twists of fate.

Each of these various (more or less unconscious) models of ECD holds a kernel of truth, but also obscures or distorts the facts. It may exaggerate parents' power to ensure good outcomes; it may obscure the importance of supportive interactions and stimulating environments; it may also hide the role of economics, social policies and other broader factors. People following these default patterns of reasoning may feel that the natural role for adults/society is to *identify* the kids with potential (and those without) and deal with them accordingly. Or they may conclude that families should not be "interfered with." They are also likely to fall back on the idea that kids inherit all their essential qualities, and their fates, from their parents. More generally, many of them reinforce a "Parental Deficit" model, in which bad parenting is the root of nearly all ills.

In short, as long as people have no clear models of early childhood development, the "black box" models rush in to fill the void. Or, equally discouraging, the whole idea of development may be pushed off people's radar screens. The Center for Communications and Community has recently demonstrated that the manner in which children's issues are covered on local television news is likely to focus adults' attention on children's physical safety; indeed, only 3% of all news coverage in the large sample they collected addressed developmental issues. If development takes place within the black box - beyond the understanding or awareness of most Americans - even well-meaning people and potential allies are likely to fall into habits of thought that prevent them from fully engaging with the issue.

The Difficulty in Promoting "School Readiness"

One very practical implication of the developmental black box is that the issue of School Readiness has trouble gaining a foothold among people who don't live in the world of children's issues.

The term has gained tremendous currency among advocates, and serves as a shorthand for a broad set of issues and policy initiatives that insiders take for granted - from lead paint abatement to mental health programs. School readiness is a simplifying model but not one that is currently capable of conveying the same understanding to the lay public that it does to experts.

In principle, the idea of school readiness should be compelling to the American public as well. Americans believe that schools serve an important practical function and agree that education is important both to individuals and to society. Nonetheless, FrameWorks research has demonstrated that school readiness is not a concept that moves most Americans. There are several reasons for this lack of traction:

First, most people don't really think about school readiness. It's not an organizing principle in their minds for thinking about children's issues (as advocates would like it to be). They understand that children need certain knowledge, qualities and abilities in order to do well as they start school, but the concept of "school readiness" is something like "things you keep in the trunk of your car" - people can come up with examples, but no shared understanding easily comes to mind.

Even worse, the concept can be offensive to some people, when it is taken to imply that kids are unwilling, or congenitally unable to learn. (See the focus groups conducted by M. Bostrom for FrameWorks.) Obviously, these people haven't grasped the message that school readiness is about the degree to which a child's experiences have allowed her to develop certain skills and capacities.

The public's cool response to "school readiness" means that even some of advocates' apparent victories might be more illusory than real. School readiness language has proven to be effective with one of advocates' important audiences - the legislators who make decisions about spending priorities. It allows them a way of talking about the popular issue of Education using the popular frame of Investment. But this may be a very short-lived gain - when a legislator stands up in a public meeting and uses the term, only to meet with apathetic or confused responses, or even hostile backlash of the kind FrameWorks has encountered in focus groups, how long will the term - and all the associated policy initiatives - be likely to last?

If people have no clear understanding of ECD - if it is a process happening inside a "black box" and outside of their awareness - they can never fully appreciate what it means to be ready for school. ECD is the missing link between a child's various circumstances and that child's readiness to do well.

Make no mistake - when we say that school readiness is not "working" as a simplifying model, we do not mean to reject the policies or to suggest that advocates need to choose between the policies that comprise school readiness and only choose those most available to the public. We agree with the need to bundle the policies advocates wish to promote conceptually into a single organized package. Our research simply shows that the package that is working for experts - school readiness - is not working for ordinary people because it lacks the critical informing pre-requisite of an understanding of early child development.

It's not surprising that people's motivation on the issue is disappointingly low, since it is harder to engage with an issue when you lack understanding of it, or have a confused, contradictory set of understandings. (This is exactly what FrameWorks has previously found on the global warming issue, for example - average people know the term, and generally believe in the phenomenon, but usually lack engagement due to a very scattered and incomplete understanding of the issue.) The same seems to be true here - advocates need effective ways of talking, and teaching, about early childhood development in order to make discussions of school readiness meaningful and motivating.

Simplifying Models as Teaching Tools

Most advocates know that the job of teaching the public a new way to think about an issue is to use plain language and common sense, to "boil down" the issue to its simplest terms, often using familiar and concrete images. In fact, you are probably already using some of what we call simplifying models when you talk about early childhood development. For example, advocates often refer to the "circuits" that are established in the brain as children grow, or to kids being "programmed" in certain ways. These computer-based metaphors are ways of conveying something about the extremely complex process of brain development, based on people's previous experience with computers.

Vivid Analogies

Numerous studies in the cognitive sciences have established that people typically rely on analogies in order to learn complex, abstract concepts. These concrete analogies are simplifying models - they help people organize information into a clear picture in their heads, including facts and ideas that they have been exposed to, but never been able to put together in a coherent way. In science classrooms, for example, it is common to use simplifying models like "the heart is a pump," "the eye is a camera," "the cell is a factory," "the kidney is a waste filter," "photosynthesis is like baking bread," etc. (For a study confirming the pedagogical power of vivid analogies, see cognitive psychologists Dedre and Donald Gentner's paper, "Flowing waters or teeming crowds: Mental models of electricity," in D. Gentner and A. Stevens, Eds., *Mental Models,* 1983).

The same principle allowed the public to quickly internalize the idea of an "ozone hole" - this is a simple, vivid way of thinking about something that is not really a hole, but a localized thinning of the ozone layer in the atmosphere. The image calls to mind a hole in the roof, a problem that any responsible person knows must be dealt with. It also anticipates the opposition argument - that we need to focus on jobs rather than the environment. The "hole-in-the-roof" model establishes these as false trade-offs: If you go to work, you come home and find the damage is greater than when you left. So the model does not allow the opposition to sequence or prioritize jobs over environment.

Literal Simplifying Models

Not all simplifying models need to be based on metaphors, however. For example, Consistency may serve as a simplifying model for conveying the fact that a consistent network of supportive relationships builds a child's capacity for trust and self-confidence. In itself, this is not enough to teach people what they need to know about ECD, but it is an example of a simple message that helps people grasp and remember one important part of the picture. The anti-tobacco movement provides a success story of a simplifying model that is not metaphorical. Advocates achieved great victories by framing tobacco as a "defective product" - not a metaphor, but a new (literal) way of thinking about the issue. If tobacco stops being a "vice" that people choose to enjoy despite known risks, and instead becomes a product whose defects lead to sickness and death, it becomes much easier to place responsibility on the manufacturers rather than addicted users.

Simplifying Models Gone Wrong

Not everything that could be considered a simplifying model is an effective tool. In this section we discuss several ways in which simplifying models can fail to take you where you want to go.

"Old News"

Some simplifying models simply might not convey much new information. For example, it is common to talk about children being "shaped" or "molded" by their experiences, as though they were clay. This is a simplifying model, but it is so common and familiar, so accepted as an obvious truth - and so general - that it is unlikely to grab people's attention or lead them to any particular new insights.

"I don't get it"

Other simplifying models go nowhere because people don't grasp them and therefore don't internalize them. Consider an example from the environmental movement. When environmentalists needed to communicate to the public about the dangers of global warming, they did this by boiling down the complex science to a simple, yet scientifically accurate metaphor, the "greenhouse" effect. The result was, surprisingly, that very few people caught on to what they were talking about.

FrameWorks research found that only a tiny minority of Americans understand the basic mechanisms of global warming, and few even try using the analogy of a greenhouse to explain them. There is a simple reason for this breakdown of communication: Most people have no experience with greenhouses; and if they do, they are likely to associate them with comfortable, protected places where things grow and bloom. So, even though the simplifying model that experts and advocates chose was accurate, and received wide exposure, it was largely ineffective.

If the job is to educate the public, as opposed to a classroom full of motivated students, a simplifying model has to be especially "catchy." After all, it will have to survive dissemination via sound bites, print ads, word of mouth, and other brief communications. An effective simplifying model should:

Be learnable through very brief exposures

Be easily conveyed to others once learned

Be easy to present to the public in multiple ways, including both verbal and visual

This helps us understand why "greenhouse effect" is not an effective simplifying model for global warming: In a classroom setting, an audience would be shown (and have time to think about) how a greenhouse works, and perhaps even a chance to practice what it had learned. In the real world, however, either you immediately "get" the image or you don't - if you don't, the image will be rejected and no communication will occur.

Incompatibility

Simplifying models can be rejected even if they are understood. For example, comparing raising a child with manufacturing a car might be a way of expressing the complexity of the process, but it is also likely to strike people as incongruous, ridiculous or even offensive. It doesn't take into account the fact that thoughts about kids are strongly tied to feelings like tenderness and nurturance.

Misleading Implications

In the worst case, a simplifying model does more harm than good, by leading to the wrong implications and conclusions. A successful simplifying model must capture the essence of an expert understanding, rather than reinforcing common misimpressions.

The various "black box" models of development could be considered simplifying models - they allow people to quickly feel that they understand the issue of early childhood development, by showing it to them through the prism of something familiar. But as we saw, each of these has a pernicious rather than productive impact. "Little Horatio Algers" gives people a simple narrative they can use to think about development and life trajectories, but it obscures rather than highlighting the key role of environmental factors.

For policy issues, of course, the standards for simplifying models are especially high. They must effectively explain the problem in such a way that they automatically set up the policy solutions that advocates wish to promote. They must also anticipate and inoculate against opposition arguments. This is why simplifying models, applied to social issues, must be tested against a battery of exemplary policies and opposition arguments,

in order to prove truly effective.

What Would An Effective Simplifying Model for Early Childhood Development Look Like?

The challenge is clear: Not only are some of facts about early childhood development complex and unfamiliar, but they may also contradict ideas that people already hold and are very comfortable with. A simplifying model should ideally meet as many as possible of the following criteria if it is to have a positive impact on public attitudes towards the issue. Some of these are about the knowledge that needs to be conveyed, others are about the realities of the communicative situation that advocates find themselves in, including existing attitudes that must be taken into account.

A simplifying model should convey the idea of the "Total Environment": A child's developmental outcomes reflect his or her environment in an infinite variety of ways. Everything about a child's environment matters - from chemicals in paint to interpersonal relationships.

It should suggest, at least indirectly, that people besides parents have an impact on children's outcomes.

It should convey the idea that the brain is more like a tool that is being "built" and refined than a vessel that is being "filled" with increasing levels of knowledge.

It should point out connections between the child's mind and her body - in particular, development of the brain is the mechanism by which experiences of all kinds are translated into developmental outcomes such as skills and personality traits..

It should be compatible with the idea that development is a simultaneous, multi-track process. Physical, Intellectual, Social, Emotional and Regulatory development are all critical and all interconnected.

It should convey a positive vision of ECD, rather than just pointing to possible problems.

It should be compatible with the idea that children keep developing even after the "critical period" - i.e. it shouldn't imply that past a certain age it's "too late."

It should be compatible with people's nurturant feelings towards children. (Consider the "car manufacturing" metaphor above. This is also a potential problem for the common "computer" metaphors.)

It should be usable by practitioners such as advocates and legislators - e.g.,

it should be compatible with a focus on policy.

It should convey urgency, and prevent people from postponing or sequencing ECD behind other seemingly more pressing problems or waiting for economic conditions to improve.

There is obviously no simple way of conveying all these points or meeting all these standards, but a checklist like this is, at the least, a useful tool for thinking about communications on the issue.

Examples of Alternative Framing

In this section we briefly discuss two examples of simplifying models that show some promise for communicating some basic principles of early childhood development, along with illustrations of how they might be used in a communications piece. Directions like these will be tested to determine what impacts they can have on people's thinking (see below).

Nutrition metaphor

Everyone agrees that it's imperative to feed kids. This idea is sometimes extended metaphorically to loving them, "nourishing their hearts and souls." It can also be extended further to "feeding their minds." Furthermore, nearly everyone agrees that it's acceptable to intervene in order to feed kids, even if their parents are not doing a good job - i.e. the importance of nutrition outweighs any objections of "interference in the family," or "parental responsibility."

Young children need a steady diet of supportive and stimulating interactions in order to grow and develop their capacities.

Early childhood development is a natural process, but that doesn't mean it automatically "goes right" - just as some growth processes require vitamins, others require smiles and hugs, or practice interacting with challenging things - like shoelaces.

A person's personality and cognitive skills are largely products of their early diet of interactions and other experiences.

Success is a vitamin that every kid must take in order to thrive during his or her school years. (Mel Levine)

Examples

Babies as "plants in a garden"
Young children are like tender young plants - their growth and wellbeing directly reflect

both the attention they receive and the ambient circumstances (the "air" and "soil") around them. Everything in their environment counts. This framing directly takes on the "closed system" approach (especially common among Conservatives), in which the family is a sealed, autonomous unit. It also combats the simplifying "fax" model of parental inheritance, in which parents' knowledge and/or character is directly passed on to their kids.

Just as a garden plant's growth is affected by weather conditions like sunlight and temperature, our kids' development depends on the conditions in communities and neighborhoods - conditions that are beyond their parents' control.

A daycare setting where children are safe and clean is good but it's not enough - like plants in a garden, growing children also need attentive care.

Children's wellbeing depends on adults other than just their parents - aunts and uncles, professional caregivers, pediatricians, and community leaders are all part of the "environment of relationships" that helps a child grow in a healthy way.

A person reflects the conditions they grew up in, just as a garden plant does.

Examples

TalkBack Testing

Using a technique developed by Cultural Logic, based on principles of cognitive and social sciences, these and other simplifying models will be evaluated to see which ones are most easily understood by lay people, and which are most likely to prove persuasive. In either formal or conversational settings, subjects are presented with prospective simplifying models, and then their resulting understandings and ability to express them are assessed in a variety of ways. For example, we may test whether they absorb the idea that all sorts of environmental factors outside the home influence development, or whether subjects are comfortable using a metaphor suggested to them.

On one recent FrameWorks project, Cultural Logic spoke with more than 400 people in various locations around the country. Subjects were offered a simplifying model of the environmental topic that was the focus of the project, and we then looked for evidence of their ability to reason more effectively about the issue. Many of the subjects were videotaped talking about the topic both before and after their brief exposure to the simplifying model. We were gratified to see the dramatically increased understanding and fluency that subjects were able to achieve in only a few minutes - in many cases it was clear that a "light had gone on" that would allow the person to grasp new information and

engage with the issue from now on in a way they could not have before. In follow-up testing of public education materials (in small group formats) we again saw people "pick up" the simplifying model and use it naturally in conversation to explain their opinions. This kind of result shows us that a particular model can really work for advocates. By measuring and comparing subjects' acceptance of and facility with different messages - as they try to explain and reason about the issue - we can make predictions about how effectively particular messages will be absorbed and used, once they are disseminated to the public.

Conclusion & A Request

Communicators in the early childhood arena already recognize that there is value in helping people understand the mechanisms that transform a child from an infant into a walking, talking member of the community. The research conducted by the FrameWorks team reinforces this intuition and takes it further: We have found that the gap in public understanding is even greater than people who have dedicated their lives to the field might realize, and that the consequences of the gap are profound. The good news is that there are ways to open the public's mind to the diverse causal factors that lead to successful early childhood development.

We conclude this eZine by asking that you share with us any simplifying models you've seen, heard or used to communicate early childhood development - using the criteria presented in this eZine to identify simplifying models if you're not sure. They may be models you have used yourself, or ones you have come across - in conversation, the media, books, expert presentations or even proverbs and homilies. What strikes you as a good way to explain ECD to ordinary people? In effect, we are currently prospecting for the best alternative models we can find, with the goal of taking them into testing and finding out what their real effects are on people's thinking.

Please follow standard APA rules for citation, with FrameWorks Institute as publisher.

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