

IN DEFENSE OF REINVENTING THE WHEEL

(Or, "Notes on the Power of Process")

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"It will help us avoid reinventing the wheel". I suspect most of you have heard this phrase used to help justify a project that features the transfer of information about a model or materials or a method that has been tried out elsewhere and found to be successful. Some of you have probably even employed the phrase to help justify your own projects. Does it have a familiar and logical ring?

I would like to use this phrase as a starting point to think about the models of development that are often implicit in what we do and to think about the processes involved in creating and carrying out projects. I would like to explore with you what seems to be behind this phrase, offering some reasons why I think it misguides us and why I think "reinvention of the wheel" may actually be a useful principle and practice to follow rather than something that should be avoided.

I hope my presentation will challenge each of you who have been involved in developing or carrying out a project or program to look again at the way in which you have gone about your task. Lest that seem threatening, I should say that in the process I am also challenging bases for my own work over the last 15 years or so -- work that has focussed on collecting, synthesizing and disseminating information about programs of early childhood care and development that may be pertinent to planning and programming for ECD in the South (or in the "Majority World," to use the most recently coined euphemism).

So why question what seems to be a sound and accepted doctrine? What are the possible advantages of reinvention?

Why is it that we want to avoid reinventing the wheel?

Looking behind the phrase to see what is implicit in it, I find at least two widely held beliefs:

- First, there is a belief that we can scientifically derive universal principles and use them to create universally useful technologies. The wheel represents a universally applicable technology which fits with and can be explained by scientific principles and which has been shown repeatedly to work. There is no need for reinvention. Moreover, the assumption is that a wheel is a wheel is a wheel, wherever it is found.
- Second, there is a belief that we need to be efficient in our use of limited resources. This belief has been tied to a model of development in which efficiency is defined in economic terms and is related primarily to the use of resources in the best way at lowest cost to achieve desired outcomes. Economic growth serves as the primary measure of successful development. From this perspective, trying to reinvent the wheel is an inefficient process because it takes time and energy and material resources that could better be applied elsewhere. And, in line with our first set of beliefs, we know that the result will be the same one that is already available to us without having passed through the process of reinvention.

Let us look a little more deeply at each of these beliefs.

1. Our belief in science.

To oversimplify a bit, the belief that we can discover and apply universals derives from an experimental model of constructing knowledge. This model has carried over from the natural sciences into the social and behavioral sciences.

However, this way of "knowing" has come under attack, particularly as it is applied to the discovery of principles and processes related to social action. Why? First, we know from experience that a scientifically derived and proven technology that works in one culture often does not work in another. We know that the same idea or method or technology may work in different cultures, but in entirely different ways. Accordingly, we have begun to discard the naive notion that a method or model or materials can be **transferred** from one place to another and **adopted entirely "as is"**. So, we have shifted to the notion that technologies should be **transferred but adapted**.

In spite of the modification from adoption to adaptation, the assumption persists that we will be more apt to get things right and we will be more efficient as we move to action if we start with proven ideas or models imported from elsewhere, i.e., with a wheel. And, there is a strong suspicion that if we try to begin a project from the beginning, without building directly on the scientific results and evaluated experience of others, we (or more often, they) simply will not get it right. Instead, the programs developed will not work, have little or no effect and perhaps even do more harm than good. In short, we should not be so presumptuous as to think we can invent something better or more appropriate than the wheel that has been shown, experimentally, to work. So, we begin with the wheel and we adapt it.

But there is another reason why this experimental scientific tradition of knowing is under attack. That is because the experimental model leaves aside a way of knowing that draws from an on-going social process of constructing knowledge through the accumulation of everyday experience. That is an important omission for two reasons:

- First, by suggesting that the only true and accurate answers we have are those derived from science, we set aside principles and solutions that emerge from experience and that are captured in "traditional wisdom." The recognition of traditional wisdom as a legitimate source of knowledge has gathered force over the last several decades. If one looks at developments in agriculture and medicine since 1980, for instance, one sees that the knowledge of local farmers and of herbalists and curanderos is increasingly turned to as legitimate, and sometimes superior, knowledge to that produced by scientists. I remember with amusement a visit to a farmer's plot in Cali, Colombia during which the farmer showed how his variety of corn was doing much better on his plot than the "new and improved" variety that had been pressed upon him as better by the scientists from the nearby international agricultural research operating with significant external funding. The scientists had to admit they had not taken into account all the factors that the farmer

had. His traditional wisdom was contextualized, their science was not.

This same recognition of the value of traditional wisdom has not carried over into the field of child care and rearing where science still seems to have a formidable hold. And, there is a continuing and strong presumption that when practices shown to be of scientific value are in conflict with practices derived from traditional wisdom, the former must be right and the latter wrong. In the world of international development, the strong tendency has been to put faith in scientific findings, while closing the mind to traditional practices.

- Second, by turning to established science and starting with the principal that we need not reinvent the wheel, we deprive people of participation in a process of invention; of establishing their own principles, of trying out their own methods, of creating their own materials. It is this omission that is, to my way of thinking, potentially the most serious because the **power of process** is undermined.

I turn, now, to the second belief, centering on efficiency in the use of scarce resources.

2. Our belief in efficiency

For several decades, the predominant way of thinking about the way in which the world develops (at least within the community of international organizations) has put economic development at the center, with economic development defined in terms of growth. Although there seemed to be some moderation of the model during the 1970s and 1980s, the introduction of social and cultural variables into the model did not bring about a fundamental shift. These variables were used to explain why economic growth lags; they did not become goals of development in and of themselves. Meanwhile, the economic recession of the 1980s hit, bringing a structural adjustment response that has swept through much of the world, re-focussing attention on economic outcomes. With that re-focussing, efficiency, defined in economic terms, is still central to development thinking. The idea of "not reinventing the wheel" is certainly consistent with this model.

As economic and social inequities have increased under programs of structural adjustment, however, the economic growth model is being challenged. Rhetoric in the international community is shifting slowly to what is being labeled a "human development" model. Moreover, a concern for the "sustainability" of development projects is being added to the mix, in part as a result of environmental demands and in part because of the too common experience of failed development projects which fall apart once external assistance and resources are withdrawn. In this new (or rediscovered?) way of thinking, participation and empowerment become key words alongside equity and poverty alleviation and justice and democracy.

To my way of thinking, these shifts bring into question the automatic acceptance of an argument that we should avoid reinventing the wheel. Why? Let us turn to some possible reasons **for** reinventing the wheel.

In defense of reinventing the wheel

1. **In the process, we may find out that we do not need or want a wheel.** Where programs of social action are concerned there is always more than one way to do things, even when basic goals are agreed upon. Some ways will be more effective in one context; others in others. But if we begin with the wheel that has been provided by others as the technological solution, we will always be restricted to solutions that are associated with the wheel. We cannot, for instance, consider other forms of meeting a need that may be more appropriate to our setting. For instance, if the goal is to get from one place to another, it may be more appropriate in some settings to walk.

2. **We may discover a better wheel.** If we begin with other's versions of the wheel that may not be what we think our wheel should look like. For instance, if we begin the process of creating a child care project with a notion that our "wheel" should be a home day care program, we are restricted. Why not allow us to reinvent our wheel for our world? The wheel that gets "reinvented" will not be the same. Moreover, if we know our world well and have a good process for reinvention, we may come up with a superior wheel, adjusted to our conditions. I recently saw a triangular "wheel" on a vehicle. The wheel did not revolve; rather, a metallic band rotated around the triangular frame. This arrangement gave greater traction -- along the same lines as a caterpillar tractor, but with more maneuverability. For certain contexts, this worked better than a traditional wheel, even in adapted forms.

3. **It is our wheel and we understand how it works.** If someone gives me a solution, it is not my solution even if it seems to work. I am not the owner. This fact should carry weight because knowledge is a very personal good. I am more likely to use and support a particular technology if I feel it is mine and if I have had a hand in creating it so that I understand it thoroughly. I will help to promote it and to see that the idea gathers force.

Because it is my wheel and I understand how it works, I will not use it indiscriminately. This is important when conditions change or as projects grow larger and require adjustments.

Because I understand how my wheel works, I will also know how to maintain it. Maintenance is important if we wish to sustain projects and programs.

4. **Reinvention opens opportunities for recapturing or incorporating traditional wisdom.** Reinvention, with its emphasis on the social construction of knowledge, helps us to recognize the validity of traditional wisdom and of accumulated experience. The process of thinking through what we want and need and how to construct that technology brings out experience that may not be included in the received wisdom of science.

It may help us to discover a lost variant of the wheel. Sometimes the knowledge about a particular way to do something disappears over time. It is not that the technology is bad, but changing conditions no longer support it.

Many forms of artisan work are in that category today. They are being replaced by machines and synthetics, not because the new techniques produce a better product (indeed, many of the new ones are built on the principle of limited life or wastage whereas the previous ones were built to last) but because they are more efficient and respond to a changing set of values. Gradually, the knowledge of the technology disappears. Or, in the case of childrearing, we see that time-honored practices are disappearing. Effective practices, such as breast-feeding on demand or particular forms of toilet training or massage disappear, sometimes because the tempo of life changes and the old forms are no longer possible to sustain, but often because a new technology appears, a product of "science," to take its place (bottles and baby formula; potty seats) and to make life "easier."

Or, the system of knowledge transmission falters. For centuries, the skills and technologies that were needed to take care of young children were passed on from mothers to daughters through established systems of informal education in which mothers supervised their daughters as they cared for younger siblings and then helped their daughters directly with the care of their first child. In many parts of the world, this educational option and technology is being lost or changing conditions have made the option impossible. Older siblings no longer care for younger children because they are in school. Daughters give birth in the city but the mother stays in the countryside. We are faced, then, with a need to reinvent education for parenthood.

Sometimes we make modifications and more modifications so that what we knew as a wheel no longer has the properties of a wheel and does not function as a wheel. We need to reinvent. For example: the extended family has served as an important source of material and social support for its members in the past. Care for the very young and very old was often shared among many family members. But slowly, changes have occurred in family structures, with the extended family replaced by nuclear families. At the same time, some of the functions that the extended family covered (including large elements of childcare) are not adequately covered. I would argue that there is a need to reinvent the extended family, even if that family does not look exactly like the consanguinal extended family that we knew historically.

5. Thinking in terms of reinvention helps us toward sustainable development. If we hold fast to the notion that economic efficiency and science can solve our problems, we will not achieve sustainable development. At root, the problem is one of human values and relationships. In this vein, I think that opening the process of defining social programs to a process that allows reinvention can help us seek sustainability.

There are, I believe, two senses to "sustaining" development. The first sense derives from the ecological movement and focuses on preservation of natural resources. The focus is on modes of development that allow us to live without using up our natural resources or irrevocably destroy the beauty and natural complexity of our world. A consumption mentality, development tied to economic growth, economies built on planned obsolescence or waste, and a notion of "efficiency" tied to these values and practices do not make it easy to achieve this kind of sustainability. But we seem to be trying. In that effort, however, we must ask whether our faith in universal science and technology to produce a solution, sometimes gives us a false sense of security, permitting us to continue to rationalize actions and to continue with our consumptive

ways. In this process, we have yet to appreciate that "traditional wisdom" has a great deal to offer. We have yet to appreciate how much the problem is a matter of the values and particular goals to which the idea of efficiency is linked. The most efficient way to live without destroying resources will be very different from the most efficient way of living tied to unlimited consumption and production. We need, therefore to redefine or reconceptualize what we mean by efficiency; detaching it from economic growth and consumption (something classic economics allows but which economics in application rarely follows).

A second sense of "sustaining" development is much more operational and derives from the frustrations that many people have felt as projects and programs wither and die once external resources are withdrawn. This is not a matter of using up natural resources. It may be that projects are not sustained in time because an adequate local resource base (material and human) was not developed. That, alongside political squabbling or appropriation of a project, is the most usual explanation. However, I would argue that in many cases projects fail because they were imposed, in the name of efficiency, and were based on a transferred technology that was not appropriate to or accepted by a community which had little or no participation in the process of putting it in place.

I would argue, along with many others, that if we expect projects and programs to be continued and nurtured over time, then we must open them to a process of reinvention, even though that may seem to be repetitive and drawn out and labor intensive. I would argue that, in the long run, this process will actually turn out to be more rather than less efficient than a process of transfer and adoption and adaptation because, as argued above, having gone through the process raises the probability that the wheel invented will be "owned" and understood and used and used well and maintained over time. If we accept, but then abandon, someone else's wheel after a short time, we will have wasted resources. That is not efficient.

6. Emphasizing reinvention can help people to grow and is empowering: it is consistent with goals of human development. The process of reinvention helps people to grow and development along the way, as individuals and in groups. It provides empowering benefits that are often different from the immediate project outcome benefits that guide most program work. It brings out talent, builds capability and provides motivation. It satisfies social and psychological "human development" needs that go well beyond the need to survive. It aids learning by allowing people to make and learn from their own process of trial and error. It helps instill pride. These potential outcomes of participation in a process of invention and reinvention are not normally taken into account when economic efficiency is at the center of one's thinking.

7. Finally: **There is joy in invention.** To create is itself good and should be recognized as such, giving meaning to life.

All of this should lead, in my opinion, to an emphasis in social and human development projects on participation and open processes which do not begin with pre-determined models, tested and applied in other contexts.

Reinvention and the diffusion and use of knowledge

The previous discussion could be very worrisome for those of us who have invested a great part of our lives in science and-or in disseminating the results of science and experience. It raises a difficult question: **If reinvention should be the order of the day and if that should begin with our own experience (as a group) and be centered in a process of social construction of knowledge, in context, is there a place for "outside" knowledge and experience in our planning and programming?**

I do not think that what I have described is inconsistent with the provision of knowledge from "outside" to help a planning or programming process. On the contrary, accumulated knowledge and experience of others can play an important role as communities or nations construct and "reinvent" their own technologies and solutions. How does that work?

1. Provide suggestions and ideas, not models. There is a great deal of difference between providing information that is designed to tell people what they should do and providing information that will suggest a variety of possible alternatives or complementary ways of approaching a problem. There is a difference between providing models or "messages," with their ring of truth, and presenting ideas or topics for discussion.

Models of action that have been successful elsewhere can be useful to stimulate thinking and discussion of groups involved in a process of invention and reinvention. They can help to stimulate thought that allows participants to go beyond current ways of doing things, without, however, discarding experience and practices from the past.

2. Knowledge can motivate and assure. It is always encouraging to know that others have similar problems and have sought satisfactory solutions that work in their particular settings. That provides hope. Without hope we are often caught in inaction. The results of others may even engender a certain constructive competition to find a better way of solving the problem at hand.

3. The knowledge and experience of others can provide checks on our progress. As we go, we like to be able to check on our own progress, to see if the directions taken and the models reinvented are working. That can be done by reference to our own goals and expected results. But it is often useful to see whether what we have done is similar to others and is encountering similar levels of success (as we have defined it) or similar problems. If we find that our wheel is not working as well as others, given similar goals, we should not despair, but we should stop to consider why differences exist and should ask ourselves if we may have taken an unwanted detour along the way. Because processes have a human element, they are subject to being captured or derailed by individuals or groups who have personal interests at heart. Making reference to other experiences can be helpful in building pressure to reset the compass.

4. Accumulating knowledge and experience may, over time, provide us with guidelines. Guidelines are different from models. Guidelines have more to do with how

processes are organized and carried out and less to do with the specific materials or models that are invented as a result of a participatory process of constructing programs.

In brief, and in sum, let us encourage reinvention, not disparage it. And, for those of us who are dedicated to accumulating and disseminating knowledge, let us help that process, along with sensitivity and humility, with respect for contextualized processes of local creation, and without imposing our own version of truth in the name of efficiency. In that vein, I hope this presentation, with its obvious biases and social origin, will stimulate discussion and new responses in our search for truly "human" development.