

Development Discussion Papers

**Research, Reform, and Reflection:
The Three R's
of Educational Policy Analysis**

Haiyan Hua and Conrad Wesley Snyder, Jr.

Development Discussion Paper No. 705
June 1999

© Copyright 1999 Haiyan Hua, Conrad Wesley Snyder, Jr.,
and President and Fellows of Harvard College

Harvard Institute for
International Development

HARVARD UNIVERSITY



Research, Reform, and Reflection

The Three R's of Educational Policy Analysis

Haiyan Hua and Conrad Wesley Snyder, Jr.

Abstract

Research, reform, and reflection are the constellation of actions that characterize a dynamic organization. In rudimentary form, they monitor status, maintain or retain the status quo, and engender increased compliance to existing objectives. The organization adapts to changes but does not develop, and the policies languish. When research, reform, and reflection function at a higher level, beyond providing feedback within the current boundaries of operation, they contribute to continued development and increased capacity. Support for an effective policy environment comes from research that connects to action, reform that responds to demand and is enriched by change information, and reflection that explicates methodological assumptions and creates substantive dialogue. For policy analysis, we propose analytic frameworks at the macro argumentation level and the empirical methodology level, plus a perspective on strange loops. When policies emerge or evolve from such active and open scrutiny, the possibilities for the creative management of complexity expand.

JEL Classification: I20

Keywords: EMIS, educational reform, educational policy, policy analysis, learning organizations

Haiyan Hua is a Ph.D. from the Harvard Graduate School of Education, where he specialized in educational planning and policy analysis. He is currently Development Associate of the Harvard Institute for International Development.

Wes Snyder is a Ph.D. from the University of Pennsylvania in measurement, evaluation, and techniques of experimental research. He is Research Professor in Education at the University of Montana and Faculty Associate of the Harvard Institute for International Development. See HIID Development Discussion Paper No. 690 (March, 1999) for more work in this area.

Research, Reform, and Reflection

The Three R's of Educational Policy Analysis

Haiyan Hua and Conrad Wesley Snyder, Jr.

The purported purpose of educational policy analysis is to provide those individuals or agencies responsible for the development and review of policies with the critical research information that can help them craft better policies and link those policies more effectively to actual practices. So often, policy rhetoric appears appropriate and associated with good principles for action, but practice ends up independent of policy. Educational research establishes what is actually going on in the educational program. A mismatch between policy and research findings signals the need for reform, either of the policy or the program. Reform may equate with “implementation” of seemingly minor guidelines, re-establishing actions, or creating more dramatic intrusions and interventions in the educational program. Resistance to policy may indicate problems in the policy or side-effects not previously anticipated. Research assists the process of reflection on past reforms and suggests future developments. Research, reform, and reflection are not linear activities. They are integrated responses to the complexly organized system of problems faced by educational organizations. We look at ways to make them more useful and create a more dynamic organizational capacity to take on the complexities of education.

To be useful, educational research must be aimed at relevant problems and issues, carried out in timely fashion, based on reliable and valid methods (good warrants), and informative enough so that action can follow. In education the actions are not singularly defined. Because of the weak link between technology and outcome in the practice of education, usefulness pertains to sets of policy options that may be effective under certain conditions. Generalizations decay (as Cronbach pointed out) and many findings are situationally dependent in educational research. Accordingly, at the macro level, education is plagued by low correlations between the critical elements of practice. Research and policy are weakly linked, and often, neither influences action as much as we might expect. The reasons are not mysterious. Research alone is not very useful. It must be well done (which is not easily nor widely accomplished); it must be effectively communicated; and it must connect to good managers and policy-makers who can build the intellectual bridges essential to linking research to policy. Unless all these elements are present, then research rests in the backcloth of development, at best, awaiting “discovery” under better conditions.

Research, reform, and reflection are separated here for the discussion. They can occur in any order, even simultaneously; they are interdependent but are present in varying degrees; and they are essential elements of a good policy environment that not only inform action but are part of it.

RESEARCH

Research has various meanings: investigate, inquire, explore, study, scrutinize, and examine are a few related meanings. In each we are searching through our experiences to better understand our situation. Sometimes we ask casual questions about things—this is not research. The search must be systematic to qualify as research. We investigate with rigor, objectivity, thoroughness, and accuracy. Only in this way can we hope to unravel the complexities of some educational policy.

Education is one of the more complex human and social endeavors of a thriving society. In exploring the complexities of education, there are three R's to keep in mind. Not only reading, 'riting, and 'rithmetic, but also *research*, *reform*, and *reflection*. We need to understand as much as we can about the process of learning in order to modify an educational policy and its enactment in educational programs. Education is a formal part of society's mechanisms to preserve the qualities of the society and develop conditions for a collective high quality of life. Learning, as conceived in the context of schooling, is carried out along selected lines and in large groups to ensure wide penetration of society's meanings, rituals, and values. It entails much more than individual experiential learning; it includes the directed process of teaching, where there are clear (hopefully) intentions about the knowledge, understanding, and thinking processes that are considered important in the society and accordingly, the instructional program. If a society does not carry out research, then reforms in the technology of education must be borrowed from those that do. If we do not reflect upon our reforms and carry out research to understand and value what happens in our social intrusions, then we are doomed to an impoverished society. Research is a necessary part of continued development.

Only by researching our programs and activities can we competently reform and reflect on the policy agenda that underlies the formal schooling process. Policy is a “blunt instrument” for reform but it is the sustaining base for an education system. Reform results from the complex mix of research and values. Only those aspects of the program that find their way into policy will be sustained. In fact, that is precisely why policy is not the edge of reform. As the word implies, policy is about the politics, values, and negotiations that maintain the existing system. Policy changes, if decreed without the consultative process, must ultimately work their way through an even more difficult engagement process, potentially marked by defensiveness and distrust. Policy must emerge from a research program, wide-ranging experience, and the opinions and values of the various stakeholders. The research program serves to offset the biases and deadends of experience and opinions. Policy grandly reflects the extant system rather than portends its future possibilities. Without research, policy will either be inert and ineffective or misleading and degenerative.

RESEARCH AS QUESTIONING

Importance of the Question

A man lies on his deathbed, surrounded by his wife and four children. Three of the children are good-looking and athletic; but the fourth and youngest is ugly and awkward.

“Darling wife,” the husband whispers, “assure me that the youngest child really is mine. I want to know the truth before I die; I will forgive you if ...”

The wife gently interrupts him, “Yes, my dearest, absolutely, no question, I swear on my mother’s grave that you are his father.”

The man then dies happy.

We advance our knowledge by asking questions. The answers build our understanding of our world, and with understanding, we can eventually use our knowledge to enhance our situation. Because we want the best answers that we can get, research methods are employed to systematize the way in which we consider the question and the claims.

Questions have to have importance for us if we are going to spend time and resources to investigate them systematically. Not only must they have personal importance, but we hope that they have broader significance as well. We seek to answer questions that can help us, and that can possibly help others. Research is therefore laden with values at the outset. We decide or someone decides what to research based on some estimation of importance of the question. If we choose or frame the question poorly, then we may be disappointed in the usefulness of the answer. And of course, most questions are very complex and require multiple answers.

In a simple and rational world, there would be simple, straightforward answers to questions. However, our world is complex. Education reflects these many complexities, as we try to learn about it. Sometimes there aren’t “answers.” Sometimes we don’t even know what questions to ask. Knowing the right question is not a trivial matter. In fact, some would argue that the key to good research is asking the right question(s). The rest is technique and methodology only. Without a good question, we can’t get a good answer.

For the husband in our story, he took some risks seeking this new information. The answer could have been unsettling. But, fortunately, he asked the wrong question!

After the husband dies, the wife mutters under her breath: “Thank goodness he didn’t ask about the other three!”

The husband took a risk but got an answer that was comforting. This may have been best in this situation. In education, however, we need to ask “tough” questions and continue to probe so as not to be complacent. Truth is hard to uncover and sometimes hard to swallow. And the question asked influences the answer gained. We “buy” facts with assumptions and we need to continually question our facts and their associated assumptions. Only in an open context are we likely to better cast our questions and probe more deeply into the area of inquiry.

Research as Questioning

- Research as questioning.
- Examine your values. What are the implications for action? You can ask three kinds of questions about activities in terms of your values:
 - Understanding = (Why)
 - Monitoring = (What and How)
 - Evaluating = (How Well or Effective)

In education, there are generally three categories of questions that we ask. When we seek to understand something, we ask “why.” Why does this phenomenon exist in this form? Why does this policy work in this way? We seek the underlying mechanisms to explain what we see or theorize. This is sometimes labeled “pure” research. We want to understand the principles or laws of the phenomenon. Even in applied research, we frequently ask why questions so that we understand the sequences and relationships that underlie observed outcomes. The “why” of applied research is frequently less clear than the pure research answers. We often have to combine rigorous methods with more qualitative, case studies to project the richness needed to hypothesize about deeper understanding. We are never as certain in education as we can be in the easier(!) research areas of the hard sciences.

When we seek to know what is happening and how something is going, then we ask “what” or “how.” Although we may know something of a policy's implications, we may now wish to know what actually happened when the policy's program was implemented. How is the program doing relative to some benchmarks or criteria that were set up to monitor progress? This is labeled *monitoring*. We want to assess formatively our progress and document the status of events.

When we seek to know how effective a program is, then we ask “how well” are things going or how well are we doing. Values become important because we make a judgment based on the evidence presented in the research. We decide if something is “good” or “not so good” or “bad.” We place a value on the answer that we derive from the research. This is called *evaluation*. We summarize the status of the policy.

Both monitoring and evaluation are key processes in policy analysis. They support good management, and management is one of the key features of an effective organization. Given that there are usually no easy or simple answers in complexly organized systems, like education, management is the only way to weave through the pitfalls of spontaneous crises or exploit opportunities to make progress. An effective policy research system supports the planning, implementing, and evaluation needs of management.

Questioning is a powerful inquiry process. The capacity to ask good questions and to frame them so that they can be answered is the distinguishing characteristic of a good researcher.

Research as Questioning

- Important questions arise from our values. What values are evident in a policy? Are we doing things that will contribute to the realization of our values? What can we do better?
- We can refine our inquiries as we go along; there is no definitive study, no “magic bullet.” As we learn to ask questions, our questions improve and we also learn how to answer them in better ways. The very acts of questioning and reflecting on the answers help us to better understand.

In forming the question, we set up a mock argument. We do this to see if we shall understand the answer to the question and that the answer will be convincing in terms of its evidential power. We decide what hypotheses we might expect to be true and what hypotheses we might expect to be false. Then, we seek to falsify a particular hypothesis we believe might be true. We do this to minimize biases by ensuring we build the best counter case we can, and because the philosophy of science has indicated that, to some extent, we are better able to falsify claims than to verify claims. That is, any particular hypothesis might be true, but other hypotheses might also be true. There's greater confidence in the argument when a hypothesis is false.

Once we have our answer(s), then we reflect upon them in terms of everything that we know. Writing research is a creative activity, bringing together what we anticipated and what happened into a coherent picture of the policy, phenomena, and situation implicated. Education is complex, and there are appreciable dangers in underestimating that complexity. The fit of information into a coherent explanation is an intellectual task that goes far beyond the results of the empirical research. Reflection is critical to our own understanding and the final quality of research.

We sometimes think of research as a mechanical process. Many training programs have been set up to “train” researchers. High quality research is more likely based upon extensive experience, and its creative elements are not easily mechanized into some recipe. Even a cooking recipe varies with the talent of the cook. Research is much more complex. There are no “magic bullets” or full-proof recipes. We are likely to find patterns and trends of impact, but they must be placed in a “story” about the policy or program. Only within the full context does the richness of meaning come through, and the ability to create the full story develops over time and through its own critique and reflection.

Most educational research is action research, improving or reflecting upon an individual, program, school, district, region, or systemic component. There will be an explicit or implied action associated with the research. More than likely, in fact, we shall be monitoring or evaluating what we, ourselves, are doing—self-evaluation. Some research might seek deeper explanations from time to time, but that work will primarily be done at the university or in terms of some particular theoretical propositions. Most research in the agencies of education will be applied. Contextualizing the results through case studies and experiences will provide richness in educational research.

One of the reasons we value research in a particular area is the possibility of action associated with the findings from that research. We want to improve our situation or the situation in general. To be clear about this we must be clear about the implications of the research and be prepared to act on the findings (reform, and then reflect, of course). This is action research. Each of us is naturally an action researcher. We do this everyday in informal ways. We call it *action research* when it is systematic.

Education is complex. Our knowledge about it is frequently fragile.¹ That is, we don't have knowledge of some things; other knowledge we have isn't generally used, even though available; some things we think we know but underestimate their complexity; and some knowledge is ritual and unrelated to real effects in the classroom. By continually asking questions about policies and about education in general, we strengthen our knowledge. We do this by asking many simple questions and examining the patterns of answers and claims. We also try to understand the links and relationships that are inherent in a complex field where findings are so embedded in context.

Rarely will a single study yield useful information. We need a complex of studies, each probing some aspect in depth but linked at some level to another study. In order to understand policies and their related actions, we need a *program of research*. The program is a set of studies related to a particular focus or a particular policy. A policy is made up of a series of assumptions. Each assumption presents a challenge for some research project. Only the collection of research projects that cover the larger set of assumptions will fully inform us about the policy. The studies may not be complex in separate renderings. It is the pattern of results and insights that will tell us about our policy.

- *Monitor the health of education systems:*
 - Do we know educational production cycle?
 - Do we know what makes learning possible and what makes it happen?
 - Do we know effectiveness, efficiency, and achievement of our schools?
 - Do we know our goals, targets, existing status, indicators, variables, projected discrepancies, and cost implications?
- *Identify problems and recommend strategies to solve them:*
 - System level - Are there any "middle ground" in the following policy areas?
 - Centralization versus decentralization
 - Market mechanism versus planning mechanism
 - Competition versus cooperation (team work)
 - Curriculum: inputs versus processes ⇒ outcome (intended, implemented, attained)
 - Decision-making based on previous experience versus on research data/information
 - School/classroom level - How can we measure what we want to achieve?
 - Creativity versus experiential knowledge
 - Student-centered versus teacher-centered
 - Learn facts versus learn to know
 - Open-ended versus close-ended inquiry
 - Evaluate to appraise versus evaluate to punish
- *Evaluate the past performance and achievement, and their attributes - Can we carry out these policy studies?*
 - Cross-sectional assessment (baseline variations and discrepancies)
 - Longitudinal assessment (progressive gain/loss and school contribution)
 - Within-unit and Between-unit assessment (comprehensive diagnostic of effectiveness)
 - Qualitative assessment (learn what is going on)
 - "Policy effect" assessment (experimental design)
- *Plan and project the future educational demands, needs, and requirements:*
 - Educational projection (modeling)
 - Sensitivity analysis (decision tools)
 - Resource allocation

Managers and analysts should always be knowledgeable about the educational visions and goals of their program and the systematic steps in activating them, and they must also be aware of the need for constant evaluation to ensure that what is implemented is consistent with the vision/goals. They should ask many questions to help them plan, manage, and reflect. The questions and issues in the figure above pertain to an effective policy analysis system. The intent of these questions is to illustrate the parallel research program that needs to accompany the policy program. Policies without continual questioning become empty rhetoric.

These are the questions we ask ourselves about our policies and the associated programs. For example, interventions can fail if the timing is wrong. Do we know the production cycle of the system? What happens when? Failure to take the activity cycle of the system into account can increase the problems confronted. In a curriculum development project, little effort was expended by the planning team to consider start times and scheduling. Two problems resulted. The project's curriculum materials came too late for the Ministry's funding cycle, so they had to be

¹ These distinctions in fragile thinking are drawn by David Perkins, *Smart Schools* (New York: The Free Press, 1992), pp. 25-27.

supported (in non-sustainable ways) by project investments, using money that could have been used more effectively somewhere else in the effort and expending national funds on materials that would not be used in the intervention. And the materials were available too late for the start of the school year. This was despite enormous efforts to produce them quickly. Teachers, therefore, set up other regimens and were reluctant to introduce the new materials after adopting the regular materials. Some were adaptable but the overall effect was much less because of the lack of consideration given to the production cycle of the system.

While we monitor the system, we are “action-oriented,” not passive researchers. We must identify problems and devise, recognize, or discover strategies to address these problems. Sometimes this means compromising a policy. For example, maybe full decentralization of an education system is not possible at the present time due to insufficient capacity in the distant units. Or, perhaps our policy is concerned with equity. Equity is not well served when handled at a local level, without the larger perspective afforded by the central Ministry and influence of a wider range of stakeholders. These analyses are linked with evaluation studies that look at policies across the system so that we can better plan future needs and understand the implications of policies in terms of those needs.

Action Research for Education

- **Research**
 - When we want to know something, we ask a question.
 - Research = disciplined inquiry (applying systematic methods).
- **Action Research**
 - When we want to do something to improve our own situation, we ask questions about what we are doing and look for ways to improve our actions.
- **Collaborative Action Research**
 - We undertake research that is of common interest to a group of colleagues and the identified area is within our collective scope of influence. This is generally the operative mode for policy research.

Action research is something that applies at all levels of what we do. The word *research* is applied to disciplined inquiry that applies systematic methods to our quest. We preface *research* with the word *action* when the inquiry has an explicit or implied action that will follow the research, as it does in policy analysis. If we want to improve our teaching methods, as a teacher, we might collect some information about how well the students are following the lessons, what kinds of things they are getting, and what kinds of things they are missing. Are they making good progress and is everyone benefiting? We use this information to monitor our activities and eventually, we make an evaluative judgment about the effectiveness of our method. The action is the consequence of our findings. We might alter our methods, abandon them, refine them, or recommend them to others.

At the policy level, there might be more questions that are asked simultaneously. Action research would then become collaborative, either in its conceptualization or its implementation or both. In *collaborative action research*, we share a common interest with our colleagues to better understand the policy and related programs, monitor their results, and/or evaluate the effectiveness of the policy. The action is usually on a large scale. Policies penetrate the entire system, and the questions pertaining to those policies also must cover the entire system.

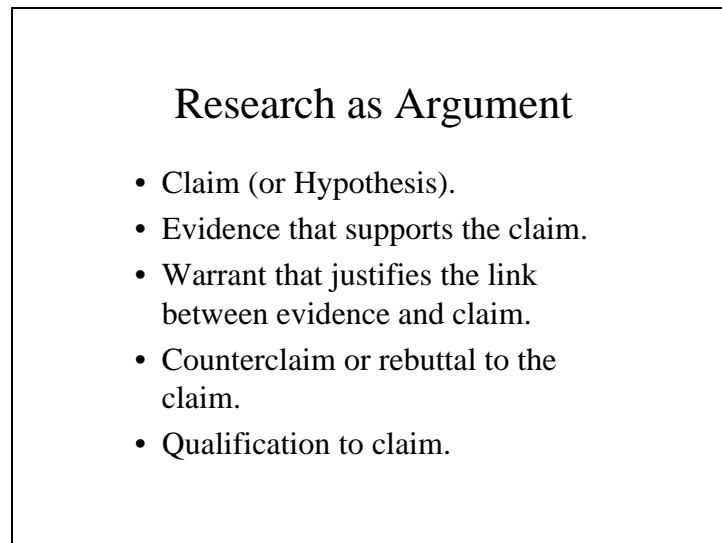
In the *change* literature, we find that simple, small interventions and large, complex interventions fail more often than good-sized ones that are viewed as important enough to engage but not so complex that they change the workload.² As an example, in one country with poor teaching, highly structured materials were introduced to “program” the classroom activities. The teachers were no longer required to develop their own lesson plans. Everything was provided. Materials were supplied for all the requirements in classes on mathematics and

² David Perkins, *Smart Schools* (New York: The Free Press, 1992), pp. 204-230.

environmental science. Many skeptics thought that the teachers would resist such a substantial change to their instructional agendas. But implementation went very well, even with little training. The materials enlisted at least two teaching methods for each class session, the students liked the activities in the lessons, and there was less work for the teacher. The program was well regarded (and students from these structured classrooms displayed modestly higher performances on curriculum-based tests than the less structured classes). The keys to implementation appeared to be structure, lower workload, and classroom appeal. Lower workload gave the approach the opportunity because implementation wasn't difficult, and the structure and student motivation assured the continuation of the program. An evaluation of this kind of program and the policies it entails would be an example of collaborative action research, where many people are involved in the program assessment, and the action pertains to various aspects of a policy for dealing with impoverished schools or teacher skills.

RESEARCH AS ARGUMENT

In order for the research to have some usefulness (either as applied or theoretical), it must convince someone of its validity and importance. This is not always easy. Everyone has their own conceptions of meaningful information, and in a complex activity like education, there are many points of view, each with some validity. When we ask our questions about a program or an activity or methodology, we need to convince both ourselves and our intended audience that the findings are worth attention. So we structure the research in terms of its central and peripheral arguments.



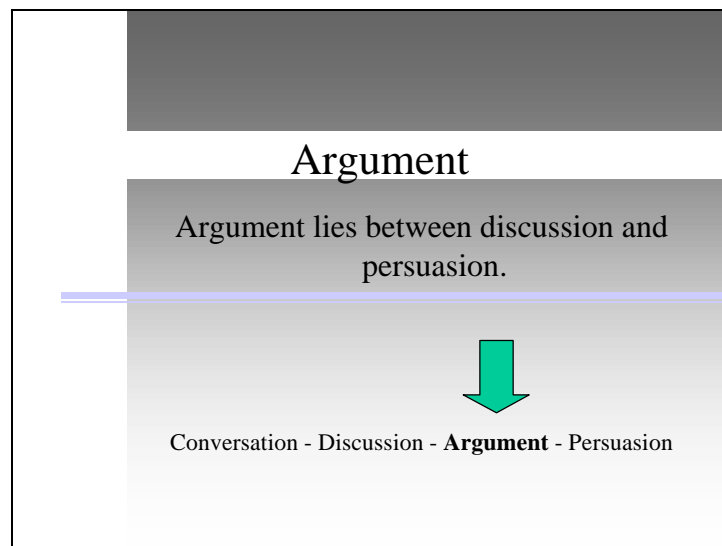
Philosophers have studied the structure of arguments for a long time. This particular rendition is borrowed from Stephen Toulmin, *The Structure of Argument*.³ He proposes that the argument is built around a claim or set of claims. We have certain expectations for the results and we make those expectations explicit, usually in the formal form of hypotheses. Then we seek evidence about these claims to find out if the claims are true or false. To be convincing, the warrant ties the evidence to the claims. We critique other counter proposals or claims in the process, hopefully isolating the claims we are studying. Finally, we qualify our remarks about the claims in terms of our confidence in the results.

Good researchers are convincing. Their reports state the claim(s) clearly; they provide the best evidence they can muster; and they link it as well as could be expected to the claims. Counterclaims are handled in terms of counter-evidence. Although we frequently associate research with quantitative skills, the endgame in research is essentially a creative act. Two individuals with the same evidence may not equally mount the same quality arguments. To be an effective researcher, you must be able to structure the argument well.

³ Stephen Toulmin, *The Uses of Argument* (Cambridge, UK: Cambridge University Press, 1958).

Preparing arguments is a practiced skill. Apprenticeship with skilled researchers can help illustrate ways to present evidence and ways to think about the coherence of a presentation. Many of the exceptional educational researchers today have studied with other fine researchers. Additionally, of course, you have to do research in order to know how to do research. It is not a sideline activity. It must be thoughtfully practiced and once completed, critiqued by skilled colleagues. Skills in research do not emerge from talking or listening about research. This is why some policy-makers are unable to fully appreciate research. They have never fully engaged the process of asking questions, framing an argument, and collecting data and evidence to form some conclusions, however tentative, about the "real" essence of the policy. It's much easier to avoid the tough questions, insist on compliance, force reform and ignore the complications, and continue to emphasize ideas based only on biases and ill-informed attitudes. This is the burden of education. People "think" they know, and yet its complexities mean that no one can know without serious and constant inquiry. Education requires effective management, and that entails good information and a continuous flow of information.

The complexities of research are not always given any attention. Think about a question that you might have about an important educational policy. Lay out the specific claim(s) you would like to explore. Think about what evidence you could collect to mount a convincing and valid study. What are the weaknesses in the evidence and what are the strengths? Try to specify all the counterclaims that exist for this inquiry. How will your evidence relate to their validity? Even this simple thought experiment will reveal the intricacies and difficulties of research.



Conversation is casual and ranges across topics with no particular focus. Discussion has a focus but is not necessarily systematic and takes no particular position. Persuasion takes a position without necessary regard for the evidence. Argument falls somewhere between discussion and persuasion. It is more systematic, accurate, and precise than discussion, and it advocates a claim or falsification of a claim. It is more objective, logical, and balanced than persuasion, although an argument does seek to persuade, by weight of evidence.⁴

In the formulation of an argument we collect data or information. These data can be qualitative statements or quantities of some attribute. The purpose of the data collection is to refine our argument (providing better evidence) to better answer our question(s). This builds accuracy and precision through our rigorous search of the available information. Persuasion then rests on the acceptability of the warrant. If we have good evidence, then we are concerned about its relevance and validity for our argument. We must "worry about the warrant."

For example, we may have good evidence that a particular teaching strategy works in the laboratory under strict controls of extraneous influences. But is the strategy going to be as effective or effective at all in the classroom? If the claim relates to applicability in the classroom, we view the evidence as only weakly connected to the claim. The lack of ecological validity or situational relevance is a common weakness of the warrant in education.

⁴ Vernon L. Taylor, *The Art of Argument* (Metuchen, NJ: The Scarecrow Press, 1971).

If the research process is so complicated and ignoring evidence so easy, what motivates anyone to do research? The problem is that few are motivated. Look at the enormous number of interventions carried out under the aegis of some project with an associated donor agency. Although more recently, there are claims about lessons learned from each experience, the information about a project is mostly lost except to the immediate participants and little documentation or systematic inquiry is encouraged. In fact, in some cases, research is actively discouraged, even considered a waste of time or a useless side activity. We know enough about the change process to appreciate the need and usefulness of better knowledge but few policies or programs are investigated. Educational research needs its own argument! Sadly, few research findings are used, and the dissemination of research information takes a very long time. It isn't a surprise that many policy-makers eschew the usefulness of research. Research is hard to do, costly in time and resources, situationally dependent, and only slowly understood, if its relationship to practice can be established at all. But the consequences of doing without it are all too evident in the long lists of ill effects of interventions and the uselessness of action based on little or no feedback. The current state of affairs goes something like this:

- Research is an essential component of effective management.
- Little research is done or used in education, and even less is available or supported in educational development.
- Therefore, management continues to be less effective than could be the case in education and almost totally ineffective in development contexts.
- Given the low capacity for management in development contexts, the need to reduce uncertainty is even greater than in those situations where management has the training and experience to respond effectively.

Argument

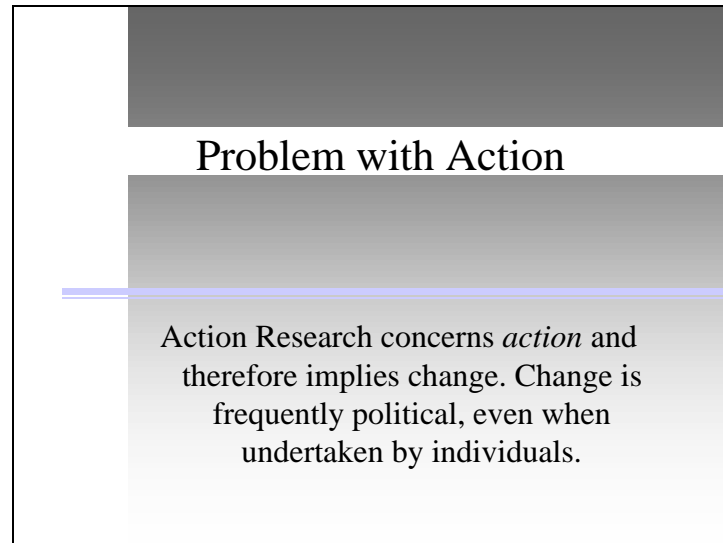
- The purpose of data collection is to refine our argument (better evidence) to better answer our question.
- In action research, the argument is often with ourselves to convince ourselves about our actions (or our potential actions through policy) and their links to improved activity.

If the policy team at a Ministry or agency includes researchers, then the prospects to do and use research are more promising. The idea of collaborative action research is that it must be programmatic, part of a larger monitoring and evaluation process that regularly investigates policies and their enactment, and entails action as an outcome. The focus should be on the collection of better data to answer our critical questions about the practice of education. Education is too important to leave to whim and fad.

Schooling serves many social functions. Children are kept in a safe place (although not always safe) while parents work or look for work. Children have a place to meet new friends and learn about others as part of their socializing experience. And children are kept out of the labor market until they mature, are better able to take care of themselves and not be exploited, and do not saturate the market with cheap, unskilled labor. While doing these things, schooling is also one of the main mechanisms for the transmission of information and the creation of opportunities to explore and think so that these young participants can continue to educate themselves. All of these functions of schooling are important. It would be a foolish society to ignore the importance of education. Research is a necessary part of ensuring that our educational programs contribute positively to the immediate and future quality of life of this society and others with whom we must interact. Cast in terms of action, research is proactive. We are

building the arguments for what we do in and how we think about one of the key agencies of our society. Knowing the importance of educational research is not sufficient to promote it to a prominent place on a national agenda.

Once we recognize the importance of education, the role of research, the need to link research with action, then we must build the collaborative mechanisms to ensure the connections for action based on the monitoring information reach deeply into the organization. Collaborative action research requires effective collaboration. In order to have credibility for and within the organization, the arguments that underlie the research must have rigor and persuasiveness. It isn't easy to penetrate an organization's actions meaningfully.



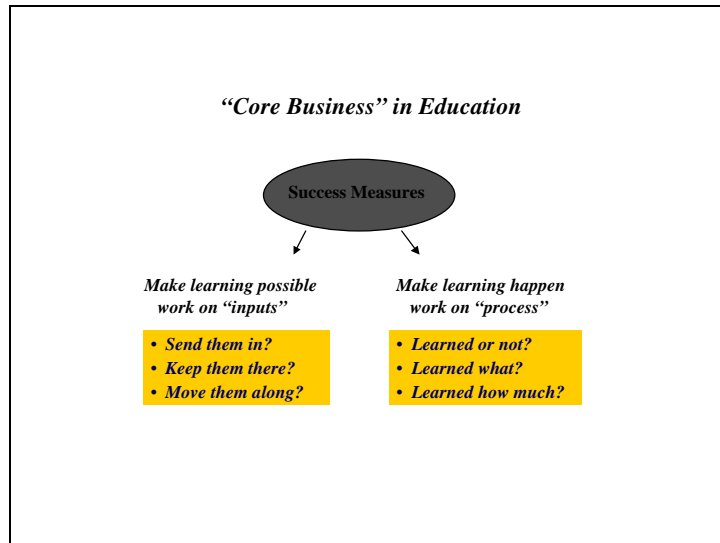
Knowing in practice is largely tacit knowledge. We are not fully aware of what we do and how we do it. Practitioners often reflect on their intuitive knowing in order to cope with unique, uncertain, and conflicted situations of practice. Our call for greater research is to learn more about the knowledge of the practitioner, both for others and for ourselves. We need to check this knowledge and we need to pass it on to others if it is valuable. We recognize that the analysis of practice and the testing of the veracity of its assumptions can be threatening, but education is of such complexity that we must always be willing to consider new possibilities and face the changes entailed in taking up new ideas and innovations. Tacit knowledge is frequently inadequate in its elementary form. We always hope to render good practices into the unconscious repertoires of teachers and policy-makers. But there's another challenge facing the use of research and its implications for action.

Action research implies *action* and therefore, portends change. Change is frequently political, even when undertaken by individuals. The institutions that we are part of have to accept research and open themselves to reflective practice. Without this conducive atmosphere, research is confined to questions of limited value or depth. An organization must be capable of examining and restructuring its central principles and values, converting reflection to action where the occasion merits change. Of course, research is of use even in static organizations. It provides description of the status. Over the long run, research may even promote an open atmosphere so that reflection and action become more acceptable and comfortable to those concerned. Research works best in a *learning organization*, but it can also open an institution. Information is a powerful ingredient for democracy, and an essential element in an effective educational program.

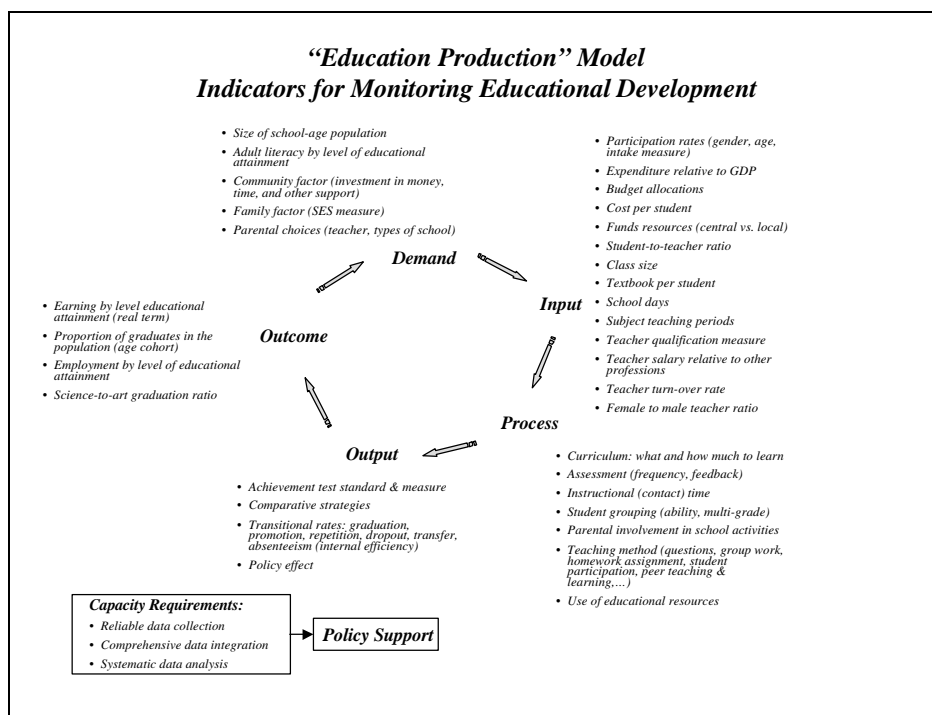
REFORM

How does research relate to reform? With the increased success of manufacturing in many countries across the world, the metaphor of production found its way into education. We thought about schools in terms of their throughput and efficiency. We also began to talk about inputs, processes, and outputs. Equations that related these components were called *production functions*. The language and meanings still pervade our discourse in education and educational development. Despite the inadequacies of this rendition of education, the notion of production has increased the recognition of the importance of research and given many leads as to the focus of that research.

Within the production frame, the "core business" of education becomes (1) making learning possible by increasing participation, decreasing failures, and decreasing repetition, and (2) making the learning happen by improving teaching methods, focusing content, and arranging, spacing, and sequencing what is taught. Policies are framed in accordance with the core business, and the output is measured by acceptable success measures. For many reasons, the success measures have been restricted to counts of participation, failures, repetition and tests of what was taught or should have been taught. These simple measures hardly incorporate all facets and aspects of education but they have served to provide many insights into the problems and possibilities in mass education.



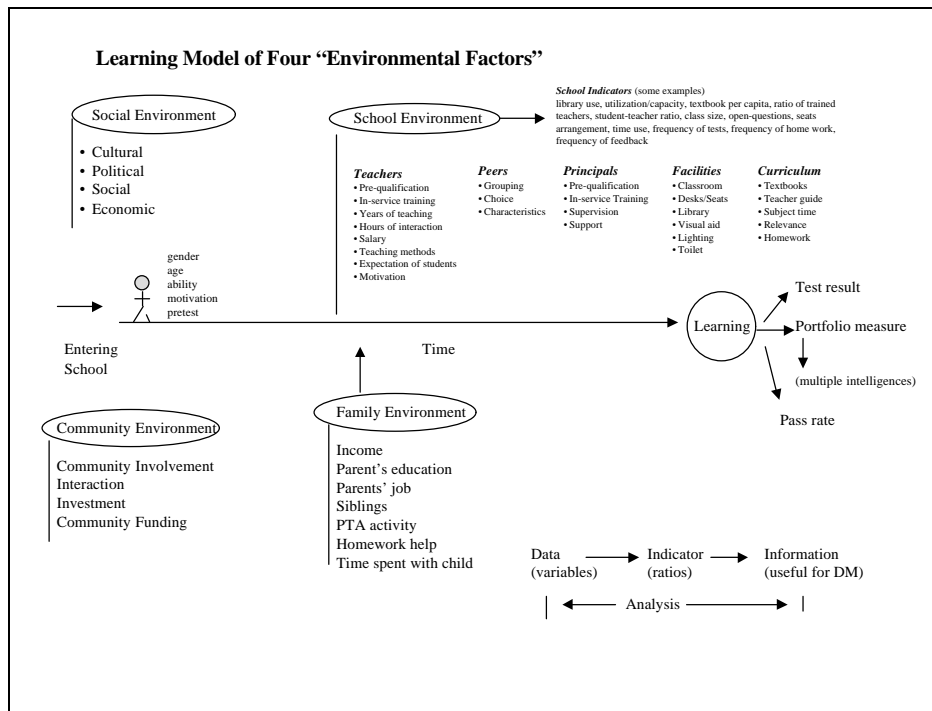
The education production model has been elaborated considerably over time. Many more indicators of development have been included and the complex links to policy have become better understood. The production model has been productive! Analytic methodologies fit this model well, and this has supported increased research into key educational areas.



Policy support rests on reliable and regular data collection (usually in the form of an education management information system (EMIS)), comprehensive data integration (bringing together various information systems), and systematic data analysis. Research within this framework has revealed many sources of influence. Policy doesn't occur in isolation. We need to understand the environmental factors that underlie the learning process. Policies have to work within or alter these environmental factors. Even within the relatively straightforward conceptual model of a factory-like process, we can see the complexities that begin to unfold in schooling. Analytic methodologies are hard pressed to fully deal with these complexities, and reforms based on these models have many challenges to confront. Dealing with reform without research is rationally unthinkable.

Reform emerges from the decisions that are made about the system. As indicated, the backgrounds and biases of the policy-makers and the quality of information available addressing management-concerns influence decisions. Unfortunately, most research information has little impact in policy development. As pointed out by Reimers and McGinn (1997; p. 8):

We now have a general model of how schooling produces student learning and an enormous volume of research to illustrate the model's claims. The model is still primarily the intellectual property of researchers. It could be said that we know how to make schools more effective and efficient. The question is whether the *we* that knows are those who make decisions.



The complexity of the learning process for the student is considerable. As depicted in the frame above, the student enters the schooling system with numerous background attributes. Many of these background factors loom as the largest contributors of academic attainment, particularly in resource-rich communities and schools. Over time, the interactions of the social, community, family, and school environments with the child shape a new adult, a new citizen for the society. Education is complexly organized, ensnarled webs of influences that are ill structured.⁵ Complexly organized variables are:⁶

- Highly interdependent, such that what happens outside the school is related to what happens inside;
- Complicated, such that each domain has many aspects (e.g., form and content) with important relationships among those components within the domain;
- Dynamic, such that each subsector of education is part of an ever changing system;
- Ambiguous, such that there is no single correct view about the key influences or their relationship to the other elements of the system;
- Political, such that there will always be competing claims about education and what's important; and
- Limited by system constraints, such that the resources, capabilities, and bounded rationality of the local context must be taken into account.

The model highlights the complexities faced by any research or policy framework. How the model is used will depend on the political environment in the organization. Fullan⁷ has suggested that we need an entirely new mind-set that includes moving from the destructive politics of fiat or resistance to the constructive politics of uncovering, crafting, and pursuing what is valuable. Neither central decision-making nor local decision-making seems to work without reservations. We tend to come up with simple answers for reform, and these can exacerbate the situations they are intended to help.⁸ The only way to increase the utilization of research (reflecting the best practices that we know) and capture the benefits of constructive politics (reflecting the will to try things and the support to test them and talk about alternatives) is to build local capacity so that variations on policy or policy interpretation can occur as

⁵ R.O. Mason, and I.I. Mitroff, *Challenging Strategic Planning Assumptions: Theory, Cases, and Techniques* (New York: John Wiley and Sons, 1981).

⁶ H. Rirrel, "On the planning crisis: Systems analysis of the 'first and second generations'," *Bedriftsokonomien*, Number 8, (1972): 390-396. (Cited in Mason and Mitroff, 1981).

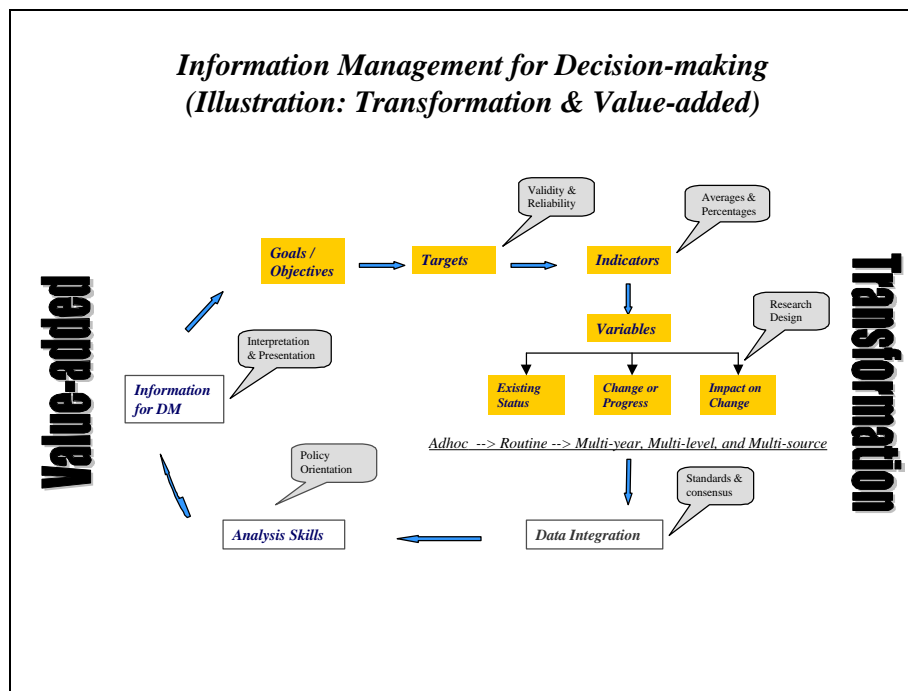
⁷ Michael Fullan with Suzanne Stiegelbauer, *The New Meaning of Educational Change* (London: Cassell, 1991).

⁸ Conrad W. Snyder, Jr., *Strange Loops in Education Development Discussion Paper No. 690* (Cambridge, MA: HIID, 1999).

close to the source of action as possible. Education is so complex that it can't be effectively managed from afar. Variations are needed at the point of policy development or policy implementation. That means that good management is needed both centrally and locally. Fullan (p. 348) goes on to explain the nature of control and communication that prevails:

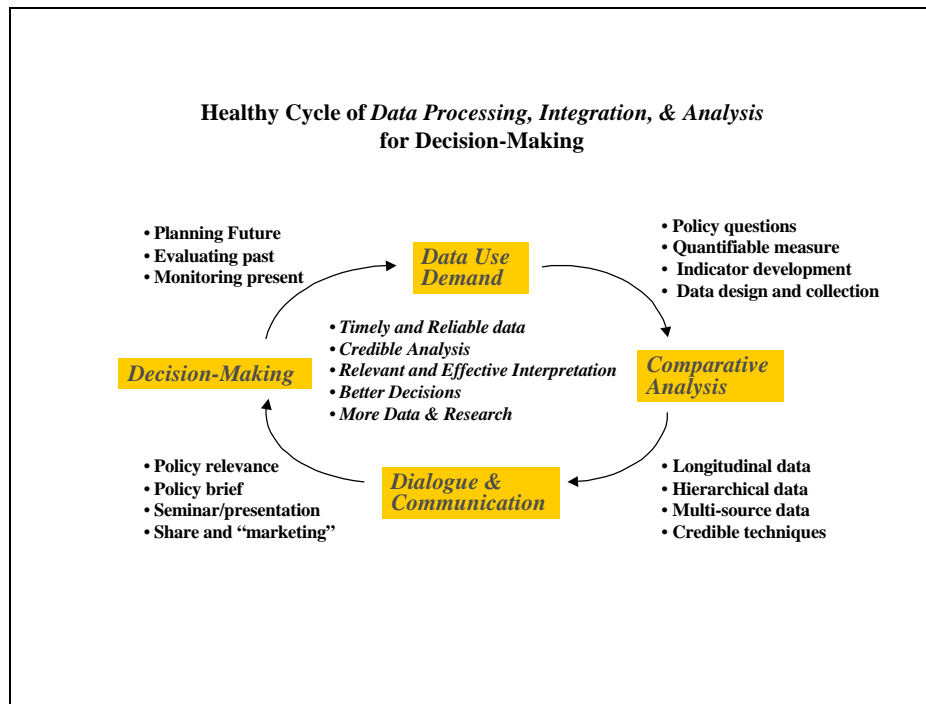
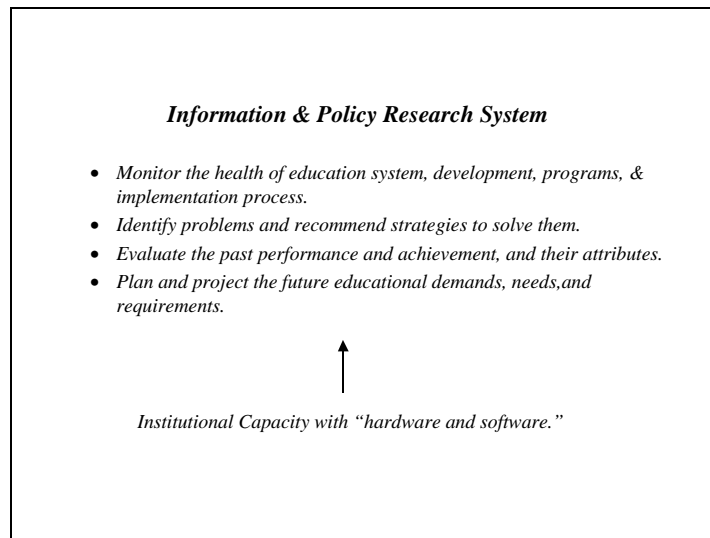
Uncontrolled variation is prevented because the process of interaction and negotiation ... operates in a checks-and-balances fashion. Sustained interaction around the goals and means of reform generates more ideas in the aggregate, but it also limits random individual variation. Norms of collaboration and continuous improvement enable us to pursue reforms through drawing on and contributing to the pool of ideas and solutions. The emphasis on figuring out alternative solutions close to home (albeit drawing widely on ideas) reduces the propensity to seek or accept ready-made external solutions.

To effect capacity development, both the individual and the institution require attention. If we are to move from singular and unilateral solutions to varied, multifaceted, synergistic options that can evolve under local scrutiny, then the individuals who make up the educational institutions require wider connections and continuous education. They must be combined in partnerships and alliances to bring significant resources and capabilities to the complex problem set. Reform is difficult. Ambiguities, uncertainties, disinterest, conflicting values, and paradoxes complicate it. To deal with this complexity, Fullan goes on to say that we must "explicitly think and worry about the change process." Thinking and worrying are not passive activities. For an effective system, there must be feedback that is meaningful and thought provoking. This is not mere monitoring. We probe the contexts and practices of the reform to fully expose the policies to review and reflection.



On the transformation side, we attend to all facets of change so that our targets are well marked by good indicators and their resulting operationalized variables. At each step in the transformation from notion to data, we need to check our assumptions and be sure that the indicator is indicating what we think. Many well-developed education management information systems handle these technical issues sufficiently to yield good data as the output. The problem is that few educational agencies can either change the data into useful information or process the information. Value is added to the system only when the information is useful. The value-added by the information system, if used, in this next phase of development is considerable. This is where the capacity to produce information is institutionalized and the information becomes the basis for policy review and reflection. When the capacity of the

institution is sufficient, then we can use the information and policy research system monitor the health of the educational program, identify problems, reflect on past accomplishments, and plan a possible future.



To be useful, educational research arises out of the demands of an effective management and decision-making process, rather than supplied without recognized reason. This has been hard to accomplish. Many education management information systems produce far more information than is used. This doesn't imply information overload; the information isn't given attention—it's ignored. Without demand, information largely goes unused. Research arises under two different organizational environments that feature some demand function: (1) demand based on crisis, and (2) demand based on the activities of a learning organization. In the first, the problems emerge suddenly, without warning, and usually too late for thoughtful attention. In the second, the problems are anticipated

to some extent or appropriate information is available to better understand emergent consequences. In the creation of a healthy cycle of analyses under demand conditions, the complexities of educational research can be better addressed in the design of information systems, and the information coming from that process is likely to be more useful and more deeply informative. Creating demand is not straightforward, but reform does require it, if only reformers and policy-makers recognize the need.

Two Types of Situations For Policy Research

- *Problem(s) emerged or discovered (often pressure from the top). Short term or one-time deal (passive analysis approach/strategy). The usual results are:*
 - “sloppy job,”
 - “bad product,”
 - less likely to be used,
 - high risks,
 - and high costs.
- *Routine check-up, systematically and constantly monitoring the health of the system (proactive analysis approach/strategy). The usual results are:*
 - development of a continually useful early warning system,
 - establishment of an organizational learning system,
 - more credible information that is more likely to be used,
 - smarter decisions, and
 - savings in the long run.

REFLECTION

If an organization is a learning organization, there will be mechanisms in place that encourage the sharing of information and ideas that emanate from reflection and action research. The organization will seek development and self-improvement. There will be an openness in attitude and an enthusiasm for better ways of doing things. The organization will actively support research and encourage risks in the consideration of ideas and programs. The politics of change are important if research is to have an impact. No single research study should shake an institution but programs of research that uncover new possibilities should at least be considered. We must all work toward opening our organizations to dialogue and debate. Change must be feasible.

The notion of a learning organization found prominence in Argyris and Schön work.⁹ An organization is a political entity and collective task system that brings together the actions of many individuals through adherence to a set of rules for some accepted purpose. When an organization tests and restructures its activities in accordance to an implicit or explicit theory of action that it espouses, we refer to the process as learning, as we would in the individual case. In its simplest form, *single loop* learning, the organization detects and corrects errors so that it honors its policies and continues toward its objectives, possibly in more effective ways. *Double loop* learning depicts a more effective and capable organization that detects errors and corrects its actions in areas that may require the modification of norms, policies, and objectives. Clearly double loop learning is required for policy analysis to be effective. To improve policy analysis, *Deutero-learning* is required, where the organization is capable and open enough to inquire into the learning system that it advocates and employs in detecting and correcting its errors. Many educational institutions engender inhibitory mechanisms for either double loop learning or Deutero-learning, and yet these processes are necessary in order for an organization to modify its governing norms and assumptions to adjust to a dynamic environment and continue to reach its objectives. Because the natural development of a single-loop learning organization into the kind of organization that can utilize an effective policy analysis system is unlikely, model organizations are rare, particularly in education.

⁹ Chris Argyris and Donald A. Schön, *Organizational Learning* (Reading, MA: Addison-Wesley Publishing, 1978).

Reflective Practitioner

- The institution must be an organization conducive to reflective practice -- an organization capable of examining and restructuring its central principles and values, converting reflection to action.

One would think that education institutions, such as education ministries and schools, would be "learning organizations." But they are not typically good examples of what they profess to promote. Ministries of education are bastions of tradition, myth, and ceremony that resist change with great tenacity. John Meyer points out that education is not the tightly bound system we ideally conceptualize. It does have a common vision worldwide that is encapsulated in the modern education project of resource rich nation-states:

The overall structure of this vision—organized around great conceptions of the nation-state as moving toward progress and justice—is entrenched on a worldwide basis. Both the nation-state model, and the particular professions that define and justify the nature and content of mass education within this model, has had worldwide hegemony throughout the modern period.¹⁰

This vision entails good school buildings, adequate numbers of schools, well-designed and equipped classrooms, highly qualified teachers, good management, appropriate curriculum, valid examinations, and students organized in proper form for the system. In its highest version, the educational program is learner centered and encourages the individual growth and development of each child. Legitimacy is connected with correspondence to the vision. But this is rhetoric and it is *loosely-coupled* to the enactment of that vision within national agencies and schools, as this example from Lesotho illustrates:

The Lesotho commitment to the modern schooling form cannot be over stressed—it has led to very high rates of school enrollment in comparison with similar countries. It is also difficult to overstate the extreme difficulties, which are such that the modern form seems quite unrealistic in practice. Every required resource is in very short supply. Most of these resources are to be supplied from the local economy, which is one of the most impoverished in the world. The resources needed to build enough schools and classrooms are missing, as are those needed to furnish and maintain them. Teachers cannot be trained and employed in sufficient numbers. Up-to-date textbooks, and especially other materials, cannot be consistently produced and distributed. Students are ill prepared for schooling, frequently unable to attend regularly, and often unable to pay for clothing and fees.

The difficulties involved do not lead domestic or international forces to give up the modern educational project. They lead to much decoupling between the ideal model and actual practice. And they lead to more and more efforts at centralization and central control to remedy the perceived problems. It is clear to all participants that long-run improvement will require central resources (or international ones passed down through the center) and controls. No one can

¹⁰ John W. Meyer, "Introduction" in John W. Meyer, David H. Kamens, and Aaron Benavot's *School Knowledge for the Masses* (Washington, DC: The Falmer Press, 1992), p. 2.

envision, in the impoverished Lesotho local context, that local resources and capacities could do the job.¹¹

In reform, we are up against the modern education project that holds the traditional organization and operations in place and in opposition to dramatic change. Take a look at questions and arguments that could be proposed for important educational policies that might alter, in considerable ways, the way schooling is done. Examine each of them in light of a known organization and its likely response to different kinds of research findings. How would you be viewed if you proposed such research? How would the findings be received? How would you disseminate results and stimulate further debate? The answers to these questions reflect the openness of the organization that you have in mind. The usefulness of research decreases with organizational intolerance. Because most organizations are not learning institutions, research has not been used as much as it might.

Donald Schön established the notion of the *reflective practitioner* in the lexicon of professional education.¹² In education, the methodology of the field is multi-disciplinary, complex, and unstable, so education has a dubious hold on professionalism. It retains legitimacy by virtue of the presumed link between the content of education and the scientific investigation underlying the disciplines that establish the content. We are uncertain what skills are really necessary in the professional practice of education, what actions are linked to what outcomes, and can we train anyone to do it (whatever *it* is). Schön has labeled excellent practice in education as artistry. Artistry depends less on teaching someone to be professional than coaching them in the traditions of the art, as John Dewey (1974, p. 151) pointed out:

The customs, methods, and working standards of the calling constitute a 'tradition'...[The student] has to see on his own behalf and in his own way the relations between means and methods employed and result achieved. Nobody else can see for him [or her], and [s]he can't see just by being 'told,' although the right kind of telling may guide his [or her] seeing and thus help him[or her] see what [s]he needs to see.

Artists can pursue many paths to fully utilize their talents. The problem for mass education is that we need many artists to run the educational program. In emerging economies, many teachers have had little experience with formal training or coaching in their profession. They learn by doing (but without guidance in the profession). The traditions arise from their own experiences in schooling or are imposed and controlled by the social milieu of the school in which they practice. New teachers, who have been "taught," haven't really learned, so they quickly abandon all but the rhetoric of modern instructional approaches and succumb to the pressures and benefits of the school's traditions. Their actions are legitimated by the world projections of what a teacher is supposed to do. Modern reforms have not yet reached the status of worldwide constructions. Until they do, many reforms will be going against the incentive systems within education.

Research becomes a legitimizing agent for new practices. That is both its power (usually blunted by its inability to communicate) and its danger (rapidly recognized by political beings in the system). Schön characterizes Professional learning as the *ladder of reflection*. We can adapt this to the reform process (read from bottom of list to top for the ladder):

- Reflection on reflection on description of educational practice.
- Reflection on description of educational practice.
- Description of educational practice.
- Educational practice.

Even at the bottom rung, we have a process of reflection-in-action. Each action enacts reflection. We describe what we do by reflection, and then we reflect on that. To engage educational research in this process of professional learning, we must learn to reflect. This isn't an automatic response to action or we should say that systematic reflection is not automatically a highly valued associate of action. Many individuals do not prize reflection (except in its minor forms of occasional consciousness about what is going on) but rather favor getting on with it and doing something. This is an existential, instinctual action, influenced by the context, but uncomplicated by thoughts about it. To increase the use and expertise in reflection, it may be useful to start with simple questions and simple

¹¹ John W. Meyer and Conrad W. Snyder, Jr., with Lynn Evans and Kay Leherr, *Impact of Primary Education Program Policy Initiatives on Lesotho Primary Education* (Maseru, Lesotho: Primary Education Project, 1996), p. 9.

¹² Donald A. Schön, *The Reflective Practitioner* (San Francisco: Jossey-Bass Inc., 1983).

methodologies. If organizational tolerance grows with the individual, then more difficult questions can be tackled and the research tied to potential actions. This is the hope for policy analysis!

Fernando Reimers and Noel McGinn have investigated the relationship of knowledge and action. Historically, two answers have emerged: (1) Plato's notion that the most rational (the philosophers) are given the power to determine action and others are forced to comply for their own good; and (2) various individuals are provided with the logical rules and empirical findings around which action inevitably follows and the process proceeds logically and rationally. They summarize a third view that could be considered a reflection-in-action perspective:

...[W]e can only know the determinants of others' behavior by sharing those antecedents. In this perspective, knowledge is generated through action and shared knowledge comes best through shared action (and reflection on that action).

Knowledge in this perspective is a construction. It is the result of reflection on action, of sharing the result of that reflection, of creating common meanings about the processes, which account for the action, and of alternative ways to organize collective action. Knowledge and action are inextricably linked in this perspective. Reflection upon action leads to knowledge that leads to action. The leap from personal knowledge to organizational knowledge requires dialogue.¹³

Reflecting

- Start with simple questions, and build them as experience and confidence grows or help is available.
- Ensure a flexible organizational framework for the research and its implications.
- Tie the research to action.

In the Reimers-McGinn framework, reforms emerge from the many levels of action in the education system, from the administrators to the teachers and students. For research to be effective it must operate to the benefit of each of these participants. Change has to occur in all domains in order to be effective. As Snyder¹⁴ has shown, imbalance in the change process coupled with ambiguity or conflicts in intentions leads to strange loops and transient development. Research has to recognize the complexity of education, but the recognition requires individual and institutional development, which can only be achieved through the practice of research (with modest beginnings).

Let's look at two ways to reflect, the formal technical approach to examine research and reform and the less formal informed dialogue approach. Along the way, we'll explore the ambiguities of educational research that limits inherent rigor and persuasiveness of the formal model.

RATIONAL TECHNOLOGY

If education operated within a simplistic, push-pull environment and a clear, closed system of intentions and actions, then the relationship between technology and outcome might be more substantial. Education operates in the "indeterminate zones of practice."¹⁵ This means that the useful models and frames from the more precise scientific

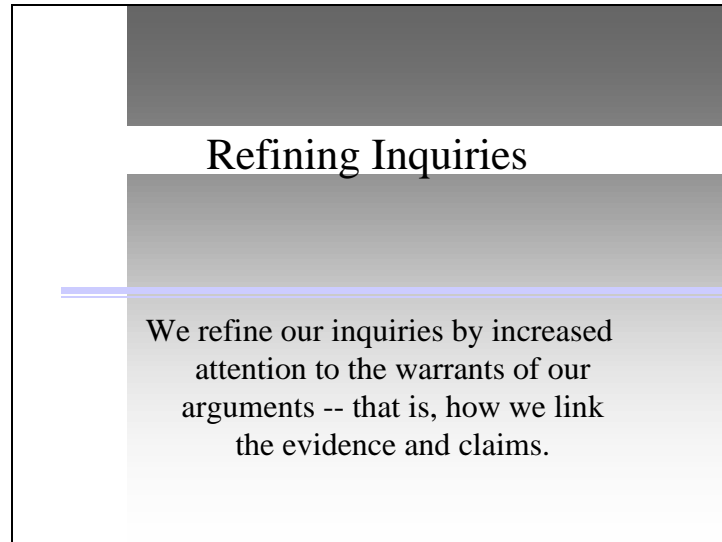
¹³ Fernando Reimers and Noel McGinn, *Informed Dialogue* (Westport, CN: Praeger, 1997), p. 31; p. 38.

¹⁴ Conrad W. Snyder, Jr., *Strange Loops in Education* Development Discussion Paper No. 690 (Cambridge, MA: HIID, 1999).

¹⁵ Donald A. Schön, *Educating the Reflective Practitioner* (San Francisco: Jossey-Bass Inc., 1987), p. 6.

disciplines are flawed when used in education. Their assumptions are not easily met, and the models are too simplistic to fully illuminate the processes they presume to explore. We use them as guides, as approximations. These rational technologies provide useful glimpses of important variable relationships. There are risks in heavy use and sole reliance on formal models of rational inquiry. They must be used creatively, and that's the artistry of research, itself presenting the same ambiguities and uncertainties as the educational practice to which it is applied.

We start with our questions and then refine our inquiries, reflect on that refinement, and then refine again. Each time our reflection engages better ways to collect evidence and connect it to our policy claims. Every policy has multiple claims. Our continued worry over the warrants of our arguments enacts action to improve the argument. These are the formal ruminations over research. As we depict the key features, and apply them to research, we gain further insights into the results and their constructions.



Clearly, the better the evidence, the better we can craft an argument, whether the argument is framed before the collection of the evidence or *post hoc*. We refine our inquiries by improving our warrants, that is, the links of the evidence to the claim(s). Good evidence is only useful if it can be linked to the claim(s).

The evidence refers to the *facts* that we uncover in the process of our search. The warrant refers to the way we derive those facts in terms of our claim. The warrant is our research design or more precisely, our data collection design. It relates how we go about the research so that someone else can relive the experience or do it again. Each design decision impacts on what kinds of conclusions we can draw and how we can link the evidence to the hypothesis.

We want to collect the best data we can. But there are constraints due to budget, time, resources, skills, etc. We need to make the most out of our situation in order to maximize the collection of *good* evidence. Our goal is an efficient and valid research design, one that collects useful information and presents few counter interpretations. The *useful* part of this is the linkage of the evidence to the intent of the study.

We refine our inquiries by improving our arguments. We improve our arguments by improving the data and information available for the analysis and the design we employ to frame that data. Better measures emerge from better understanding of the phenomena we face, and research design is enhanced by attention to the details of the warrants of our arguments.

POEM of Research (Warrants)

- **Purpose**
 - Reason to do the study. The Problem(s) to be investigated.
 - Key concepts deemed important.
- **Obtrusiveness**
 - Your potential influence on the results (interpretive vs. objective).
- **Ecology**
 - Hypotheses: claims.
 - Entities: “things” or individuals studied -- carrier attributes.
 - Local Situations: contextual/environmental variables.
 - Procedures: operations involved in the inquiry.
- **Maturation**
 - Time or phases entailed in the research.

Research is a creative exercise. There is no recipe for good research, although there are guidelines that help us prepare a good design. The rest is *art*. Even within the heart of positivism [e.g., a Skinnerian book on research design by Murray Sidman, *Tactics of Scientific Research* (New York: Basic Books, 1960)], a key variable is *who* did the study. The same study done by two different researchers may yield different kinds of arguments, even if the basic results are the same. But it goes even further. An excellent researcher can get more information out of a research experience and can present that experience in a richer and more useful way.

Interrelationships among Decisions, Analysis, and Data/Information

- *Quality of Decision* is a variable. Different people make different decisions based on the same information. Different people make different decisions based on different information. The quality of the decisions varies.
- *Pace of Decision-making Process* is a variable. It may be long or short; fast or slow; timely or too late.
- *Quality of Data/Information* is a variable. Different sources, collection methods, processing techniques, and analytical skills affect the quality of data/information.
- There is a *positive correlation* between good information and successful decisions. Good quality information should be more helpful for policy-makers to make better policies.
- *Research* is a systematic, feasible inquiry method to generate important, reliable, and quality information that can be very helpful to decision-makers for making better decisions.

Different people make different decisions based on the same information, as well as when confronted by different information. Pace of the decision may vary, and the quality of information available at the time will also vary. Research faces a dynamic context, and it's impossible to foresee all the variation that relates a research program to a policy program. We know that good information is necessary for good decisions, but the generation of "good" information is a creative process.

To remind ourselves of the creative component, we use the acronym POEM to guide us through the development or the critique of a research design.¹⁶ The P designates our purpose. Purpose sets the vision for the research and

¹⁶ Conrad W. Snyder, Jr., *Understanding the Complexities of Human Action* (Brisbane: University of Queensland, 1986).

provides the content guide of the study. A good statement of purpose will tell us the key variables and intent. It sets the tone of the research.

The O designates the obtrusiveness or objectivity that pertains in the study. The E designates the ecology or context of the research, and M the maturation or time phases involved in the experience. Studies can vary in the role of interpretation, the relevance and appropriateness of the context and the extent of coverage over time. Different research problems call for different strategies within the POEM.

Purpose(s)

Why are we doing the research? An essential component of communication and understanding is the explication of intent. We have to understand exactly what we intend to study, and we have to be able to convey that meaning to others. What is the problem or phenomenon we hope to understand? What story will be told in the research report?

Purposes

The reasons

- Why are we doing the study?
- What is the problem that we hope to understand?
- What relationships are of interest and what are the general implications of our research?

The purpose marks the vision of the study. With a clear purpose in mind, we are better able to layout a plan or critique of a study. We know what we hope to understand, and we can communicate that to ourselves (in stating the problem and seeing the implications for action research) and to others (in the report that codifies what was learned so that others may benefit from our research experience).

Frequently the purpose is concisely communicated through the title of a work. In fact, it seems that unless someone can formulate a title, they have not clearly thought through their intents and their design will be fuzzy and possibly, ill conceived. In experimentation, there is the expectation that the purpose will be fully articulated before the study to minimize the interpretive element in perceptions about what happened in the experience. But in education, most studies evolve, and the purpose(s) may change as the experience unfolds. The more latitude in the focus of the study, the weaker the design is likely to be.

The purpose frames the study for those who would seek its information or advice, as well as directs the effort in its inquiry stages. The purpose of a study may change to pursue new possibilities even while exploration is underway, but each systematic investigation has some purpose and the clearer the better from the point of view of rigor. In policy analysis, the scope of the purpose is set by the scope of the policy. But since a policy has many claims and assumptions, the purpose may select some aspect of the policy for study. In each case, the purpose sets the stage for the phenomenon to unfold.

(Meyer Study)

Purpose

- Meyer, J.W. *Organizational Integration in Lesotho Primary Education: Loose Coupling as Problem and Solution*. Maseru: Primary Education Project, 1995.
- Designed to study *organizational integration*--or on the other hand, "*decoupling*"--in the Lesotho primary education system.

John Meyer provides an exemplar study, using theory, observations, and focused data collection to present an interesting account of the policies and practices in a particular education system. So often, we see problems and believe that a "fix" entails the tightening of units, greater control and supervision, and the building of links between units, increasing dependencies and pressures for outputs. Meyer offers a different perspective. Couplings are both positive and negative. He illustrates the "success" of a system through the evolution of preservative couplings or decouplings. His story illuminates our own view of this system through Meyer's depiction. It explains rather than criticizes, and it presents new kinds of possibilities. All of this is accomplished with a very elementary data collection design. We shall look more closely at his approach; the executive summary of the paper is included here:

This study was designed to examine organizational integration—or on the other hand, *decoupling*—in the Lesotho primary education system. The effort was to examine organizational relationships between different parts of the system, and to study the effects of these on schools and classrooms at the local level. To this end, interviews were conducted with educators in various parts of the national Ministry, and with officers in the District Offices. Further, in order to look at effects on the local level, a number of schools were visited, classes observed, and teachers and head teachers interviewed. Since the study focuses on decoupling, visits and observations emphasized schools at some remote from Maseru.

In modern thinking about organizations—perhaps especially educational ones—it is understood that the environments of organizations and organizational systems are likely to be plural, complex, fragmented, and inconsistent. This is especially true of elementary education, which attempts to link up to almost every aspect of, or institution in, a contemporary society.

As a result of links to disparate and inconsistent parts of environments, organizations are likely to be internally uncontrolled or coordinated. The modern term, in organizational theory, is *decoupled*. The implication is that such decoupling might often be necessary and advantageous, if an organizational system is to survive, maintain legitimacy, and maintain the range of necessary linkages with its environment. A second implication is that organizational systems in highly inconsistent environments may survive with very high levels of internal lack of coordination and great ineffectiveness. In such situations, organizational systems may retain some integration by depending on cultural or rhetorical coherence disconnected from actual practice. This is ordinarily the case with education systems, which in every society depend heavily on widespread cultural commitments (now, worldwide) to the central importance of education in modern society.

As an organizational structure, the Lesotho education system has been extraordinarily successful in one sense. Over a long period of historical development, it has built up great support and commitment from many very diverse sources in its environment: local parents and churches, a wide variety of national and governmental bodies, and a disparate but extensive set of extranational agencies (religious, non-governmental, governmental, and international). Elements

of the Lesotho primary education system reflect—historically and at present—all these different sources of influence, resources, and commitment. Given this support, the system and social investment in it have expanded rapidly, and it represents a major institution in a country with few resources.

The same circumstances—multiple external linkages to extremely diverse and inconsistent aspects of the environment—mean that Lesotho primary education is also, in internal organization, extremely decoupled. There are dramatic inconsistencies between locally supplied schools and nationally maintained principles of schooling between different components of the national system, and between all these and the models and resources provided extranationally. A balanced supply of resources is not possible, so that some—dependent on economically weak components of the environment—are extraordinarily lacking (e.g., buildings). Further, coordination of the resources available (e.g., buildings, teachers, students, and materials) is difficult or impossible, limiting organizational effectiveness. Thus outcomes in classroom life and student achievement are often very unsatisfactory. Outcomes in the organizational evolution of more central parts of the system are often unsatisfactory, too, since it is difficult to link components (e.g., teacher training arrangements, teacher supply needs) to each other and to the actual schools and classrooms. These situations, and their outcomes, are discussed.

A central outcome of the structural decoupling, at the school and classroom level, is a high level of ritualization of educational instruction. The core modern meanings of education are rhetorically emphasized and in place, but celebrated rather liturgically, in continued maintenance of a highly rationalized and professionalized model of the education system that bears little relation to practice and indeed receives little feedback from practice in the local world. This can be seen as another—highly rationalistic—form of ritualization. Both the wider Lesotho context and the decoupled elements themselves tend to reinforce the gaps involved, which continue in a rather stable way. The overall system can be seen as an organizational success (in stability, survival, growth, and resources). The same decoupled and ritualized features that make it organizationally successful contribute to the much-discussed failures in process and output.

Obtrusiveness or Objectivity

Unlike casual, everyday experiences, in research, the researcher creates the experience in preconceived fashion. Someone, the researcher or designate, looks in on the experience to document what is happening or talks to people who were present. In each form, there is an intrusion into the experience. Objectivity generally refers to a low level of bias or potential of bias. When an interpretive study is carried out, we know the individual has had a high level of control over the results. They have been filtered through the attitudes and values of the interpreter. We are not surprised if another interpreter reports differently on the same experience because the report is subject to the perspective of the individual.

A father and his son get stuck at a train crossing, panic when hearing a train, can't get out of their car, and subsequently get hit by the onrushing train. An ambulance takes them to the hospital, but on the way, the father dies. At the hospital, the boy is rushed into the emergency operating room. The surgeon, expecting a routine case, comes into the operating theatre, stops, blanches, and mutters, "I can't operate on this boy, he's my son."

Is this a second father, a reincarnated soul, a mistake? Douglas Hofstadter uses this story (abbreviated here) to illustrate the *default assumptions* that "permeate our mental representations and channel our thoughts."¹⁷ Have you figured it out yet? The most plausible sex to assign the surgeon for many of us leads us to confusion in this case (or not for those more enlightened). This is a subtle, if not invidious, example of the effects of our experience on the way we "view" new events.

¹⁷ Douglas R. Hofstadter, "Changes in Default Words and Images, Engendered by Rising Consciousness," *Metamagical Themas* (New York: Basic Books, 1985), pp. 136-137.

Obtrusiveness

The researcher

- Are the data dependent on your own observations or do you have independent checks?
- What role does the inquirer play in the observation or experience?
- What are the social and political intentions of the inquirer?
- Is the study intrusive?

The interpretation by an individual, however, does not automatically indicate a bias. For example, if a large group of individuals were to watch a magician, all of them might be fooled by an illusion, a trick. If one individual “knows” how to interpret the situation, their report would be the only *objective* one. Concurrence by many does not guarantee validity or objectivity. We have to be careful not to conclude that obtrusiveness is either inherently good or bad. We note the level of obtrusiveness to better understand the design and the role of the researcher. Then, we make a separate judgment if personal, social, or political intentions have clouded the likelihood for an accurate account.¹⁸

(Meyer Study)

Obtrusiveness

- John Meyer’s observations; uses external references as independent sources for similar observations.
- Observer is the interpreter of the data. Modern organizational theory used as the frame for the interpretation to counter some subjectivity.
- Politically neutral in Lesotho; weak support for institutional theory. Not intrusive but subjective.

The Meyer study is an example of the researcher as the “instrument.” Meyer’s intellect is the analytic mechanism through which the data are passed. He gets independent observer reports as well to use as verifiers of his own ruminations. This neutralizes potential criticisms of subjectivity.

A second strategy is to rely upon theory as a backdrop for the data. The anecdotes and quotations, as well as comments and observations, are couched within a coherent *institutional theory*. Theory fills in the gaps of observations and places the small sample data within a larger context. By itself, this study would probably be considered weak support for the theory. The theory, in this case, is the frame for the essay on Lesotho.

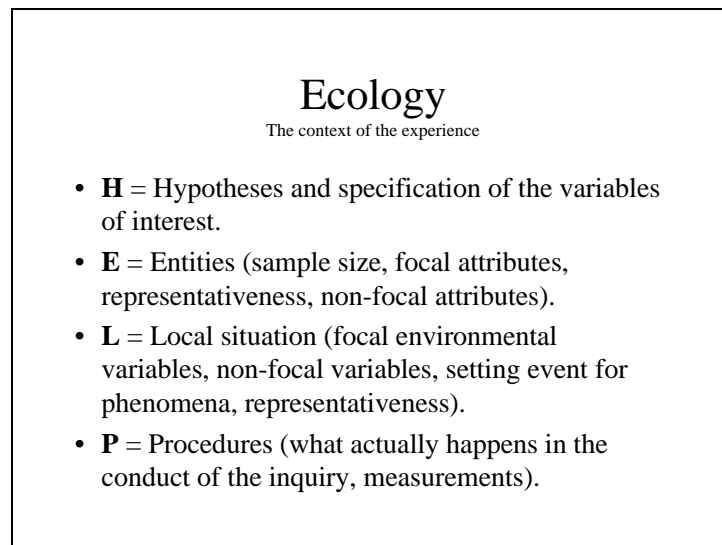
¹⁸ Michael Scriven, “Objectivity and Subjectivity in Educational Research,” in *Philosophical Redirection of Educational Research* by ed. L.B. Thomas (Chicago, IL: University of Chicago Press, 1972).

Meyer presents a short history of Lesotho education in his full text. Conditions precedent for an institutional theory emerge from this historiography. The presence of precursors establishes the relevance of the theory to the study. Interviews and observations fill in the story and provide the material for the discussion of the theory in this context. The combination of methodologies counters claims of subjectivity and serves to entice the reader to consider institutional theory as a reasonable explanation of the conditions encountered in present-day Lesotho education within its particular policy environment.

There are no likely biases due to internal conflicts or allegiances. Meyer is an external consultant and has no particular political or local influence to confound his report. External consultants have less information but more objectivity generally within a particular context. Meyer has not intruded on the generation of the experiences; he has interpreted them *post hoc*.

Ecology

The description of what happens in a study, who or what is studied, and what variables are implicated specifies the boundaries of the research experience. We move from the ideas of the purpose to the actual study itself. For example, the study may intend to investigate the influence of socio-economic status on school achievement but only be able to represent SES in terms of father's occupation. The representation of SES might be inadequate so our research would be limited by this choice. Other work, where more or better representations are available, would check our choice to see if a similar result occurred. These are the kinds of validity questions that we face in ecology. To help the researcher, we have expressed the key components of the research ecology in terms of the acronym, HELP.



H stands for Hypotheses; E for Entities; L for Local Situation or Context; and P for Procedure. In the Meyer example, the expectations arise from the theory but formal hypotheses are formulated within the study itself. This is not a test of the theory as such. The model explicated by the theory is fit over the situation found in Lesotho. Hypotheses are generated based on this fit, and the central hypothesis is: the education system is decoupled with a high level of ritualization in rhetoric and widely discussed failures in process and output but considerable success in attracting resources to continue the existing program.

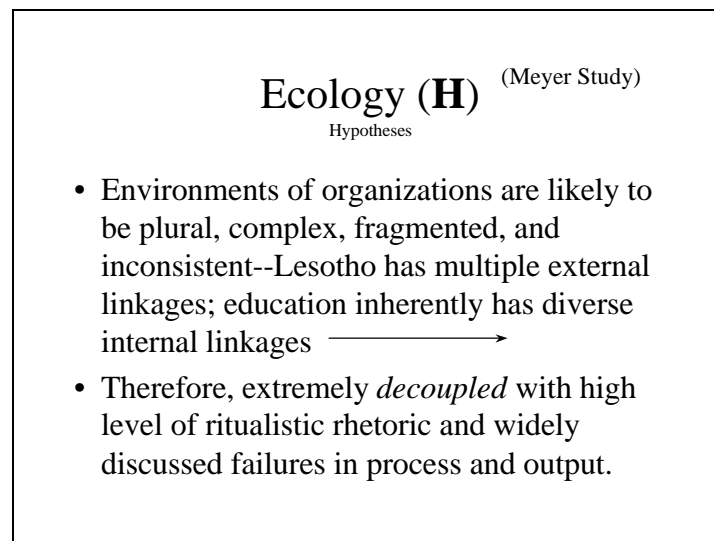
Although many reports conclude that Lesotho education has enduring problems, understanding the sustaining mechanisms of its condition are helpful. Lesotho could be considered a success in institutional terms and very disappointing in technical terms. The Ministry has been able to continually attract local and foreign funds to develop and sustain its programs. There is no indication that these “intrusions” reach into the institutional core to meaningfully change the rituals and myths of the organization. As Meyer indicated in a summary of his report:

A central outcome at the national level is the continued maintenance of a highly rationalized and professionalized model of the education system that bears little relation to practice and indeed, receives little feedback from practice in the local world. This can be seen as another—highly rationalistic—form of ritualization. Both the wider Lesotho context, and the decoupled elements themselves, tend to reinforce the gaps involved, which continue in a rather stable way. The overall system can be seen as an organizational success (in stability, survival, growth, and resources). The same decoupled and ritualized features that make it organizationally successful contribute to the much-discussed failures in process and output.¹⁹

The entities in this study were six primary schools and fourteen classes and teachers. There were also unstructured interviews with six head teachers, seven teachers, three district education officers, and others, but a small sample nonetheless. The sample was selected for diversity in exam performance, geographical location, and church affiliation. At the time of the study there was considerable debate about the roles of government and the churches, as well as the beginnings of some instability in government (leading to later collapse of civil control).

Local context was cast in terms of the key variable, decoupling. Meyer reviewed the literature on schooling available and the oral history of relationships among different entities, within and external to Lesotho. Other variables were implicated in the study as they emerged from the analysis, and they were identified as preconditions for decoupling, so those links were explored in the development of the notion of decoupling. Because this study is model fitting, the emphasis of the text is on the various defining conditions and implications of decoupling.

Procedurally, the research focused on the documents and the on-site interviews. The decoupling argument was built on many smaller arguments that arose within the study. This was a case study of Lesotho using the overlay of institutional theory. It is intended to demonstrate that research can be carried out with few resources and minimal quantitative analyses. There is no substitute in research for general intellectual talent.



Meyer was studying the entire education system of Lesotho, so in a sense there was one entity for this study that had various "faces." In looking at organizational integrity, he roamed inside the entity to hear the voices within the organization. How were they linked? What were their differential viewpoints? So he was studying the very connectedness of the collective. Since organizations are essentially political entities, he examines the different positions that emerge from the "collective." He would likely ask, "Is education a system?"

¹⁹ John W. Meyer, *Organizational Integration in Lesotho Primary Education: Loose Coupling as Problem and Solution* (Maseru, Lesotho: Primary Education Project, 1995).

Ecology (E) (Meyer Study)

Entities

- Six primary schools; fourteen classes.
- Unstructured interviews with six head teachers, seven teachers, three district education officers, three resource teachers, one school manager, One proprietor, and nine Ministry of Education officers, plus aid officials.

Because education organizations rarely reach ideal organizational arrangements, they display, at best, single-loop learning and the inhibition of organizational learning. Still, the information is frequently available if only the mechanisms were functional for double-loop and Deutero-learning activities. Meyer exploits these data sources, both in people and documents.

Ecology (L) (Meyer Study)

Local Situation

- Literature on schooling available in Lesotho and project.
- Oral information on history and relationships.
- Whole section of report devoted to “The Environmental Context of Lesotho Primary Education.” These are the preconditions for *decoupling*.

When we see little use of information, we sometimes incorrectly presume that there's little information. Again, the data are ignored. Meyer captures this fugitive knowledge through interviews and searches of the files in individual and institutional archives.

Ecology (P) ^(Meyer Study)

Procedures

- Reading documents and conducting interviews on-site.
- Decoupling argument is built on smaller arguments based upon the relationships of the preconditions and their impact on schools/classrooms and the national system.

Meyer builds a series of arguments, adding to the weight of his overall argument. He simultaneously "teaches" about decoupling as he displays examples that benefit and disable the education system.

Maturation (Time Phase)

Some phenomena are immediately detectable but others emerge slowly and subtly. Education usually takes time to display its effects and those effects are confounded by many factors. Both the contribution of programs and the attribution of interventions to programs are difficult to unravel. This dimension to educational research causes considerable frustration. In the feedback needs of development, slow, compound effects are not timely and information is not forthcoming for immediate adjustments.

Maturation

The time

- Sampling specification of occasions or time.
- Number of time slices and duration.
- Relation of time available and time needed for emergent phenomena.

The historical context of educational interventions is particularly important. Schooling does not take place in isolation, either immediately or historically. This contextualization causes problems for the interpretation of research findings and the generalization of results to other situations. For Meyer it provides the backcloth for Lesotho's particular organizational forms and responses.

Maturation

(Meyer Study)

- Carried out in September, 1995, in Lesotho.
- Events and processes studied from the documents spanned Lesotho history.
- Study looked for the “impact” of the particular set of events and processes and their legacies. Historiographic in approach, coupled with current interviews and site reviews.

Remember the Argument

The reflection on intervention activities in reform is usefully framed by the POEM categories, set within the larger frame of argumentation. The notion of POEM helps us know what to do and what is happening in a research report. Argumentation helps new meanings unfold as the research continues. The argument drives the contents of the POEM.

Remember the Argument

- Claims
- Evidence
- Warrant links evidence to claims

Evidence → **Warrant** → **Claims**

Three key components of argument are the claims, the evidence, and the warrant. The claims must be clearly stated and answerable; the evidence must bear on those claims and be reliable and valid, as well as comprehensive; and the warrant contains the rules for connecting the evidence to the claims. The popularity and clarity of statistical arguments is easy to explain. Statistical methods carry their own warrants, which have been justified outside the study and are “accepted” by a large proportion of any would-be audience. They are not automatically convincing but they are well established. Problems seem more focused on the quantification of variables rather than the operations of the methodology. The warrant hangs on the link of the procedural variable and the concept implicated in the inquiry. If you can make the leap to quantity, then statistics provides a solid foundation for objectivity, accuracy of

description, and generalization of results. Nothing can avoid the need for conceptual validity. When quantification is involved, there is evidence of thoughtful development, but the development is also the source of concern. When quantification is not involved, then the warrant is more difficult to develop. Qualitative studies are not easy!

The Argument

- *Claim*: Decoupled education system.
- *Sub-claim*: Decoupling has advantages and disadvantages in Lesotho context.
- *Evidence*: History of preconditions for decoupling and current evidence of decoupling. Survival but failures.
- *Warrant*: Modern organizational theory as accepted and the validity of historiography, backed by interview method.

For the Meyer study, the argument is clear and well written, key factors for influential work. Many studies are difficult to read and their value is diminished by this deficit. Perhaps few people understand what is going on in a research report, and they are not willing to invest the time to reach an opinion about the validity of the argument unless the writing engages them in the process.

Meyer's central claim is that the Lesotho education system is decoupled. There are a number of sub-themes that demonstrate why decoupling is an adaptive mechanism for some reasons and problematic for others. The evidence scans the history and present conceptions of the system to provide a deeper understanding of the precedents of decoupling and its sustainability under present conditions. This was a research analysis of policies and practices and not a policy proposal so remedies are less the intended outcome than understanding the education system through the lens of decoupling. A later study undertook the specific evaluation of policies and rendered recommendations for general development policies.

The decoupling in education systems, like that just described, alerts us to the many variables in the quality of information and their use in decisions. We know that different people use information in different ways and even arrive at different conclusions from the same information base. Research provides a way to improve the quality of information, and we know that good information is related to better policies.

STRANGE LOOPS IN THE USE OF RATIONAL MODELS

There are many "weaknesses" associated with the analysis of Lesotho education system just described. This is only one framework that could be applied, for example. And then there are various inferential leaps within the argument, where we make assumptions, to smooth out the story within the framework. The analysis exercise based on POEM reveals the points of uncertainty and ambiguity of a very insightful study. This is not an unusual weakness of an educational analysis. It is hard to conceive of useful research that wouldn't fully exercise the intellect of the investigator(s) and attempt to fully exploit a rich theoretical framework. This study illustrates the power of a theory, especially in applied research. But it also illustrates the vulnerability of research to various interpretations and constructions about its events and actions.

Rational modeling promised final answers, and education has defeated that hope. We "accomplish" *knowledge* through the integration of various facts and processes within the context so that we can apply that knowledge. Knowledge is situated. From data, established through some implicit data theory that provides meanings to observations, to information, created around constructions applied to the data, knowledge is generated from

contextualizing the information to explain the complex of interrelationships that make up that situation. Chris Argyris summarized it this way:

...Learning is not simply having a new insight or a new idea. Learning occurs when we take effective action, when we detect *and* correct error. How do you know when you know something? When you can produce what it is you claim you know.²⁰

Perkins has called this *generative knowledge*—"knowledge that does not just sit there but functions richly in people's lives to help them understand and deal with the world."²¹

How do we know when we know something about education? The problem of most rational analyses is their implicit simplicity. As first pointed out by Campbell and Stanley²² and others, the stronger the integrity of the internal dimensions of the POEM for our disciplined inquiries, the weaker the likely generalizability, the external validity, of the study. There are always tradeoffs. As we gain rigor, we usually sacrifice usefulness in complex problem areas. The reason is that the many facets of education are highly interrelated, that is, complexly organized. Any slice of that complexity necessarily loses some of the relationships and their implications, and simplification can lose the relevance of the variables themselves and affect the behavior of the relationships in a more elementary context. Sometimes we get away with this. In fact, this is our general strategy. Because of our intellectual limits, we have to simplify problem sets in order to understand them at all. Theoretical constructions help us focus on important variables while specifying their probable links and highlighting their implications. But theories are hard to come by!

One of the persistent challenges in building knowledge bases is the avoidance of *strange loops*.²³ A strange loop emerges from a self-referential system, which occurs within a simplifying theoretical framework. It projects the appearance of progress while regressing to the initial state. Uncertainty looms within all depictions of educational events and programs. When cognitive limits meet uncertainty, we invite simplification, and when we reflect upon reflection, and "arguments evolve about arguments,"²⁴ we have the ingredients for strange loops which baffle our theoretical renderings.

It is simply a consequence of representational power—as Kurt Gödel showed—that systems of increasing complexity become increasingly self-referential.

In the *Waterfall*, Escher portrays what happens when we decreased the dimensionality, which in turn increases the complexity represented in the simplified rendition. When looking at the water flow in any particular section of the canal, there is nothing to jar the senses, but when we step back to look at the entire picture, we notice that the "progress" of the water is an illusion of the simplification. We get a strange loop for the flow of water. The same thing happens in educational research when we over-simplify the design without a full understanding of the implications of our dimensional reduction.

If education is already complex, and we promote the use of reflection and participation, where ideas must be replicated and pronouncements are plentiful, are we promoting strange loops? Maybe. It depends on the schemas that emanate from our studies and what we do with them. If they become realities for us, then the schemas can take on an importance that exceed their explanatory power. Each schema becomes self-perpetuating. *Child-centered education* is an example of a powerful schema in the rhetoric of many developing education systems. As employed, in rhetoric rather than action, the schema propagates its theme through policies. When unchecked, and left to the implicit validity of the schema, the schema is an incubator for strange loops. We believe that we're making progress when nothing may be happening. John Meyer found an example in an education system that professed allegiance to child-centered education. Their actions included increased training of teachers in child-centered education. The training removed the teachers from the classroom so that no one was present to practice child-centered education!

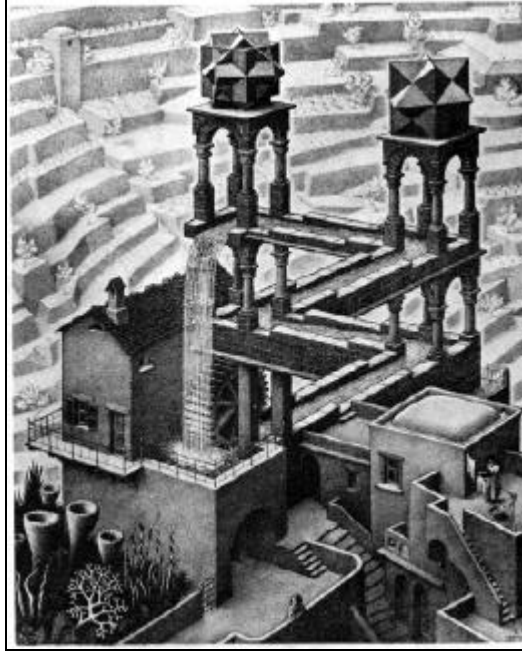
²⁰ Chris Argyris, *Knowledge for Action* (San Francisco: Jossey-Bass, 1993).

²¹ David N. Perkins, *Smart Schools* (New York: The Free Press), p. 5.

²² David T. Campbell and Julian C. Stanley, *Experimental and Quasi-experimental Design for Research* (Stokie, IL: Rand McNally, 1963).

²³ Douglas R. Hofstadter, *Gödel, Escher, Bach* (New York: Basic Books, 1979).

²⁴ Douglas R. Hofstadter, *Metamagical Themas* (New York: Basic Books, 1985), p. 19.



Waterfall, by M.C. Escher, 1961, illustrating a "strange loop" with a reduction in dimensionality.

The problems of reflexivity are inherent in the establishment of policy. Policy, particularly that which arises out of participation and consultation, reflects many levels of agreement and compromise:

If a firm decision is to emerge from such a swirl of conflicting claims, there must be some kind of mental *scheduler*, something that functions like *Robert's Rules of Order*, letting various levels have the floor, scheduling collective actions such as votes, overriding or tabling motions, and so on. In fact, to the best of our knowledge, this is the heart of the perceptual process. But this is the very place where reflexivity tangles crop up with a vengeance!²⁵

Having been derived from integrated decisions, we still hope that policy will set the frame for action. That is, we ask that action follow policy as precisely as possible. Two immediate problems arise: (1) the various polities from which the policy is integrated have different levels of understanding, and (2) when the schemas are borrowed from other cultures and different interpretive frames, there are also different levels of understanding. How do we ensure compliance with policy? In this, we introduce the notion of flexibility. We want the principles underlying the policy to be well represented in practice, even though specific actions may vary widely. In the United States, the Coalition for Essential Schools (CES) has codified this approach. There's an *essence* underlying school actions that are stated in a set of principles to which all participating schools agree. Each school may enact those principles in its own way. Clearly, in the assessment of compliance, we have to decide what constitutes compliance with each principle.

Therefore any recognition program must have at its core a tiered structure precisely like that of government... in which there are levels that are "easily mutable," "moderately mutable," "almost mutable," and so on. The structure of a recognition program—a "choice" program—is seen inevitably to be riddled with reflexivity.

To cope with the issues of strange loops in policy, we need to deal with the *reflexivity* of a policy research system and enable the *recognition* of the various levels of policy compliance. In the example of learner centered education, when we propose such a policy, we are then thrust into the difficulty of deciding what kind of classroom is a learner-centered classroom and what kind needs changing in some essential way to meet the policy. Does the classroom have to be learner centered all the time, most of the time, some of the time? In special ways? There are now lists of learner-centeredness to set a precedent for decision. In practice, compliance is rarely tested. Most systems that proclaim this orientation do so as a guide because any attempt at testing leads to inconsistencies. We can't lay down

²⁵ Douglas R. Hofstadter, *Metamagical Themas* (New York: Basic Books, 1985), p. 86.

the specific rules for the decision without many special cases (inconsistencies) so we operate implicitly, probing, prodding, and iterating to more emphasis on "doing" rather than "listening." Policy is always about choices and its exercise "plows under logical obstacles." To fully escape from strange loops we need some inviolate level. We could refer all decisions of compliance to the immutable rules at this meta level. But that would undo the very dynamic of the organization that we wish to encourage—recall the ideal organization is capable of double-loop and Deutero-learning that enables it to continue to learn and develop (or evolve). It's the very dynamism of the organization that challenges our policies and their enactment. The problem is avoided in many systems (like Meyer's Lesotho) because of purposeful decoupling of policy and action.

Research isn't just about producing information. Reform isn't just about changing the components of the education system so that they are in compliance with a fixed set of policies. And it's not about creating a new set of fixed policies either. Reflection isn't about merely monitoring compliance around some set of immutable rules. Research, reform, and reflection are deeply intertwined in creating a "learning organization" that adjusts to the changing needs of the society. The process is dynamic. The actions within it are pragmatic.

Research goes back to consider experience in a systematic way so that we can understand interrelationships among the important constructs that constitute education to improve what we do. Reform goes back to shape actions to increase compliance to a presumed ideal set of objectives. And reflection goes back to look at the relationships between what we decided (policies), what works (research), and what happens (reform). The noted 9th century cynic, Ambrose Bierce, offers a witty view of these dimensions or their approximates:²⁶

Politics, n. A strife of interests masquerading as a contest of principles.

Reconsider, v. To seek justification for a decision already made.

Reform, n. A thing that mostly satisfies reformers opposed to reformation.

Reflection, n. An action of the mind whereby we obtain a clearer view of our relation to the things of yesterday and are able to avoid the perils that we shall not again encounter.

These definitions are all-too-true for many organizations. Bierce went on to define the *cynic* as "a blackguard whose faulty vision sees things as they are, not as they ought to be. Hence the custom among the Seythians of plucking out a cynic's eyes to improve his vision." Is it the case that Bierce, the cynic, becomes the modern realist? Barbara Levitt and James March point out that Chester's Barnard's 1938 *The Functions of the Executive*, a classic text in organizational understanding and the progenitor of the rational spirit in organizational theory, recognized the limitations of reason and the usefulness, at times, of "good sense."²⁷

A policy analysis system is not the tightly logical network of scientific revelations that we have strived to develop. Its place is as a counterbalance for the extensive implicit knowledge that grows out of the experience of education. The distinctions of knowledge and their sources are artificial, and always subject to our own individual sense of truth, as illusive as that is. If we build a skyscraper metaphor for common sense, the bottom floor is ordinary common sense, and each floor is added by another meta-level of sense-making, until at the top, we find *science*, which at least on first glance meets our ideals and bemuses and confuses those stranded on the first or low level floors.²⁸ In the world of educational policies, ambiguities and uncertainties will feature largely in our organizational lives. When the bounded rationality of our intellect and its extension through theories confronts the complexity of the policy environment typical of education, we find no admittance to the upper floors near and within science. We are left to extend our rationality as far as possible through research, change our environment as we can in response to new knowledge and experience, and then reflect with our meta-level common senses so that we can recognize good choices in policies and actions.

The context for useful research, reform, and reflection is a "learning organization." Peter Senge, the modern guru on learning organizations, has summarized what learning organizations are:

...organizations where people continually expand their capacity to create the results they truly desire, where new and expansive patterns of thinking are nurtured, where collective aspiration is set free, and where people are continually learning how to learn together.²⁹

²⁶ Ambrose Bierce, *Devil's Dictionary* (New York: Oxford University Press, 1999).

²⁷ Barbara Levitt and James G. March, "Chester I. Barnard and the Intelligence of Learning," in *Organization Theory* by ed. Oliver e. Williamson (New York: Oxford University Press, 1995).

²⁸ Douglas R. Hofstadter, "World Views in Collision," in *Metamagical Themas* by D.R. Hofstadter (New York: Basic Books, 1985).

²⁹ Peter M. Senge, *The Fifth Discipline* (New York: Currency Doubleday, 1990), p. 3.

Five Disciplines of a Learning Organization

Peter Senge

- **Systems Thinking** - integrates the disciplines for the development of a coherent body of theory and practice.
- **Building a Shared Vision** - view of the future that builds commitment, not just compliance, and guides the team.
- **Mental Models** - surfacing assumptions and rigorously scrutinizing them.
- **Team Learning** - creating meaningful dialogue to maximize intellectual capacity through the group.
- **Personal Mastery** - clarifying and deepening our capacity and commitment to continual learning.

According to Senge, five technologies, or disciplines, are vital to the growth and development of a learning organization: employing systems thinking, building shared vision, using mental models, creating the dialogue for team learning, and developing personal mastery. As an ensemble they pave the way to competency for coping and creatively dealing with complex systems. The intent is not just adaptation to the changing environment but the creation of generative strategies that manage the dynamic complexity. Policy analysis entails more than the technology of policy research. It entails the creation of an organization capable of extending itself intellectually beyond single-loop learning and strange loop illusions.