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# Action science and organizational learning

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## Abstract

Describes how individuals hold theories which govern their actions and how these theories unintentionally create organizational defensive routines and inhibit learning. Presents an action science approach whereby consultant researchers can help individuals see their taken-for-granted theories, test them and then redesign their action in the light of their learning.

## A learning framework

The framework I will use encompasses learning at the individual, group, inter-group, and organizational levels. Learning occurs whenever errors are detected and corrected, or when a match between intentions and consequences is produced for the first time. There are at least two ways to correct errors. One is to change the behaviour (for example, reduce backbiting and bad-mouthing among individuals). This kind of correction requires only single-loop learning. The second way to correct errors is to change the underlying programme, or master programme, that leads individuals to bad-mouth others even when they say they do not intend to do so. This is double-loop learning[1]. If actions are changed without changing the master programmes individuals use to produce the actions, then the correction will either fail or will not persevere.

## Theories of action

Master programmes can also be viewed as theories of action that inform actors of the strategies they should use to achieve their intended consequences. Theories of action are governed by a set of values that provide the framework for the action strategies chosen. Thus, human beings are designing beings. They create, store, and retrieve designs that advise them how to act if they are to achieve their intentions and act consistently with their governing values. These designs, or theories of action, are the key to understanding human action.

Early in our research, my colleagues and I learned that there were two types of theories of action. One was the theory that individuals espoused and that comprised their beliefs, attitudes, and values. The second was their theory-in-use – the theory that they actually employed. We did not expect that individuals would customarily design and implement a theory-in-use that was significantly different from their espoused theory, nor did we expect them to be unaware of the inconsistency when the theories they espoused and used were different. Therefore, it was a major surprise – given our view of human beings as designing organisms – to find out that there are often fundamental, systematic mismatches between individuals' espoused and in-use designs. It was also a bit baffling to find that individuals

develop designs to keep them unaware of the mismatch. And they do all this when the issues are embarrassing or threatening, the precise time when effective learning is crucial[1,2].

The second major surprise was that, although espoused theories varied widely, there was almost no variance in theories-in-use. We found the same theory-in-use, for example, in North America, Europe, South America, Africa, and the Far East. We also found it to be the same whether individuals were young (12 years old) or old, poor or wealthy, well or poorly educated, male or female, and of any skin colour.

I should like to be clear about the claim I am making. The behaviour of individuals varied widely, but the theory they used to design and implement the behaviour did not vary. For example, the actual behaviour called “face saving” varies widely. But the proposition or the rule that is followed to produce face saving remains the same: when encountering embarrassment or threat, bypass it and cover up the bypass.

One important implication of these findings is that if theories-in-use are few in number throughout the industrialized world, then understanding and facilitating learning should be more “do-able” than many have supposed. A second important implication is related to producing actionable knowledge. Actionable knowledge has been defined as information that actors could use, for example, to craft conversations that communicate the meanings they intend. Actionable knowledge has to specify how to produce meanings but leave actors free to select the specific words. Thus, the theory-in-use defined for face saving is an example of actionable knowledge. It defines the action strategies (bypass and cover-up), leaving it up to the actor to craft the actual words to be used.

### Model I theory-in-use

Model I theory-in-use is the design we found throughout the world. It has four governing values:

- (1) Achieve your intended purpose.
- (2) Maximize winning and minimize losing.
- (3) Suppress negative feelings.
- (4) Behave according to what you consider rational.

The most prevalent action strategies that arise from Model I are the following:

- Advocate your position.
- Evaluate the thoughts and actions of others (and your own thoughts and actions).
- Attribute causes for whatever you are trying to understand.

These actions must be performed in such a way that you satisfy your governing values – that is, you achieve at least your minimum acceptable level of being in control, winning, or bringing about any other result. In other words, Model I tells individuals to craft their positions, evaluations, and attributions in ways that inhibit inquiries into them and tests of them with others’ logic. The consequences of these Model I strategies are likely to be defensiveness, misunderstanding, and self-fulfilling and self-sealing processes[2].

Organizational defensive routines are any action, policy, or practice that prevents organizational participants from experiencing embarrassment or threat and, at the same time, prevents them from discovering the causes of the embarrassment or threat. Organizational defensive routines, like Model I theories-in-use, inhibit double-loop learning and overprotect the individuals and the organization[3].

Organizational defensive routines are caused by a circular, self-reinforcing process in which individuals’ Model I theories-in-use produce individual strategies of bypass and cover-up, which result in organizational bypass and cover-up, which reinforce the individuals’ theories-in-use. The explanation of organizational defensive routines is therefore individual *and* organizational. This means that it should not be possible to change organizational routines without changing individual routines, and vice versa. Any attempts at doing so should lead to failure or, at best, temporary success. If this self-reinforcing process is valid, then researcher-interveners face at least two challenges when trying to help both individuals and their organizations become double-loop learners. The first challenge is that individuals’ senses of competence, self-confidence, and self-esteem are highly dependent on their Model I theories-in-use and organizational defensive routines. This dependence practically guarantees that when individuals are acting to produce double-loop learning, the consequences will be skilfully counterproductive because the

Model I theories-in-use will not allow Model I governing values to be changed. In short, human beings are skilfully incompetent[4]. This message is not likely to be met with joy by the clients or subjects. Indeed, it is likely to create additional conditions of embarrassment and threat. Thus, one of the first messages required for re-education will be likely to trigger the very organizational defensive routines the intervener is asking participants to change. The researcher-intervener must not ignore this dilemma but must see it as an opportunity for learning based on here-and-now data. So far, most of the individuals with whom my colleagues and I have worked have indeed become defensive on hearing this message, but most of them have learned from their defensiveness[2].

The second challenge is that individuals' theories-in-use are so internalized that they are taken for granted. They exist tacitly because they are used skilfully. We call behaviour skilful when it works, appears effortless, and is produced automatically, without much conscious attention to the process of implementation.

Moreover, people customarily define social virtues such as caring, support, and integrity as consistent with Model I. This means that they are not likely to recognize the counter-productive consequences of Model I theories-in-use. To help them recognize their skilful Model I blindness, the intervener must introduce Model II theories-in-use. Model II theories are, at the outset, espoused theories. The challenge is to help individuals transform their espoused theories into theories-in-use by learning a "new" set of skills and a "new" set of governing values. Because many individuals espouse Model II values and skills, these traits are not totally new to them. However, the empirical fact to date is that very few individuals can routinely act on their espoused values and skills; yet they are often unaware of this limitation.

### Model II theory-in-use

The governing values of Model II are valid information, informed choice, and vigilant monitoring of the implementation of the choice in order to detect and correct error. As in the case of Model I, the three most prominent behaviours are advocate, evaluate, and attribute. However, unlike Model I behaviours, Model II behaviours are crafted into

action strategies that openly illustrate how the actors reached their evaluations or attributions and how they crafted them to encourage inquiry and testing by others. As a consequence, defensive routines that are anti-learning are minimized and double-loop learning is facilitated. Embarrassment and threat are not bypassed and covered-up; they are engaged[1,2].

To the extent that individuals use Model II theory instead of merely espousing it, they will begin to interrupt organizational defensive routines and begin to create organizational learning processes and systems that encourage double-loop learning in ways that persist. These are called Model OII learning systems[5].

### Design of the research-intervention activities

There are a few simple goals that follow from the theoretical framework described above that I used to design the research and the intervention activities in the case study:

- Discover the degree to which the clients' theories-in-use are consistent with Model I.
- Discover the degree to which the clients use defensive reasoning whenever they deal with embarrassing or threatening issues.
- Discover the designs (rules) the clients have in their heads that keep them unaware of the discrepancies among their espoused values, their actions, and their theories-in-use.
- Discover the degree to which the clients discourage valid reflection on their actions while they are acting. To put this another way: discover how the clients create designs for action that they do not follow but that they believe they do follow, while they are also being systematically unaware of this discrepancy and are behaving in ways that prevent them from discovering the discrepancy and the causes of their unawareness.
- Discover the defensive routines that exist in the organization and that inhibit double-loop learning. Develop maps of these organizational defensive routines, specifying the actions that lead to limited-learning consequences and cause them to persist even though the directors wish to be free of them.

In order to reach these goals, re-education and change programmes should produce relatively directly observable data about these clients' reasoning and actions. The clients must accept responsibility for creating these data, and these data must be in a form from which the directors' theories-in-use can be inferred (for example, a recorded conversation):

- Encourage the clients to examine inconsistencies and gaps in the reasoning that underlines their actions.
- Surface and make explicit the rules that "must" be in their heads if they maintain there is a connection between their designs for action and the actions themselves.
- View any bewilderment, or frustration that results as further directly observable data that can be used to test the validity of what is being learned.
- Produce opportunities to practice Model II ways of crafting actions that will reduce counter-productive consequences.

### Starting points for intervention

In principle, the kind of research of which I speak can begin with identifying either the theories-in-use or the organizational defensive routines. It does not matter which because one will necessarily lead you to the other. I usually make the choice on the basis of which of the two is more likely to generate the participants' internal commitment to the research and to the eventual intervention.

### The left and right hand column case method

I close with the description of a case study method that we often use to get at theories-in-use and organizational defensive routines. The case method described below is one of several instruments used in action science research. The key features of all the research methods and this case method in particular are:

- It produces relatively directly observable data such as conversation. Such data are the actual productions of action and therefore can become the basis for inferring theories-in-use.
- It produces data in ways that the actors are responsible for the meanings produced. When used properly, the respondents cannot make the research instrument

causally responsible for the data that they produced (e.g. "I didn't really mean that; or I didn't understand the meaning of that term").

- It produces data about the respondents' causal theories, especially those that are tacit because they are taken for granted.
- It provides opportunities for the respondents to change their responses without hindering the validity of the inferences being made. Indeed, the actions around "changing their minds" should also provide data about their causal reasoning processes.
- It provides opportunities to change their actions as well as actions of groups, inter-groups, and organizations over which they have some influence.
- It provides such knowledge in ways that are economical and do not harm the respondents or the context in which they are working.

The form of the cases was as follows:

- (1) In one paragraph describe a key organizational problem as you see it.
- (2) Assume you could talk to whomever you wish to begin to solve the problem. Describe, in a paragraph or so, the strategy that you would use in this meeting.
- (3) Next split your page into two columns. On the right-hand side write how you would begin the meeting; what you would actually say. Then write what you believe the other(s) would say. Then write your response to their response. Continue writing this scenario for two or so double-spaced typewritten pages.
- (4) On the left hand column write any idea or feeling that you would have that you would not communicate for whatever reason.

In short the case includes:

- a statement of the problem;
- the intended strategy to begin to solve the problem;
- the actual conversation that would occur as envisioned by the writer;
- the information that the writer would not communicate for whatever reason.

The executives reported that they became highly involved in writing the cases. Some said that the very writing of the case was an eye opener. Moreover, once the cases were dis-

tributed to each member, the reactions were jocular. The members were enjoying them:

That's just like...  
Great,.....does this all the time.  
Oh, there's a familiar one.  
All salesmen and no listeners.  
Oh my God, this is us.

### Cases as an intervention tool

What is the advantage of using the cases? The cases, crafted and written by the executives themselves, become vivid examples of "skilled incompetence". They vividly illustrate the skill with which each executive tried not to upset the other and to persuade them to change their position. They also vividly illustrate the incompetence component because the results, by their own analysis, were to upset the others and make it less likely that their views would prevail. The cases are also very important learning devices. It is difficult for anyone to slow down the behaviour that they produce in milliseconds during a real meeting in order to reflect on it and change it. The danger is that others will grab the air time and run with it. Moreover, it is difficult for the human mind to pay attention to the interpersonal actions and to the substantive issues at the same time.

Table I shows a collage from several cases. It was written by individuals who believed the company should place a greater emphasis on customer service.

The dialogue continues with each person stating his views candidly but not being influenced by what the other says. To give you a flavour of what happened, here are some further left-hand column comments:

He's doing a great job supporting his people.  
This guy is not really listening.  
I wonder if he's influenceable.  
This is beginning to piss me off.  
There he goes getting defensive. I better back off and wait for another day.

If I presented a collage of the cases written by individuals who support the product strategy, it would not differ significantly. They too would be trying to persuade, sell, cajole their fellow officers. Their left-hand columns would be similar.

### Reflecting on the cases

In analysing their left-hand columns, the executives found that each side blamed the other side for the difficulties, and they used the same reasons. For example, each side said about the other side:

You do not *really* understand the issues.

Table I A collage from several cases

| Thoughts and feelings not communicated  | Actual conversation  |
|---|--|
| He's not going to like this topic, but we have to discuss it. I doubt that he will take a company perspective, but I should be positive | I: Hi, Bill. I appreciate having the opportunity to talk with you about this problem of customer service versus product. I am sure that both of us want to resolve it in the best interests of the company<br><br>Bill: <i>I am always glad to talk about it, as you well know</i>           |
| I'd better go slow. Let me ease in  | I: there are an increasing number of situations where our clients are asking for customer service and rejecting the off-the-shelf products. My fear is that your sales people will play an increasingly peripheral role in the future.<br><br>Bill: <i>I don't understand. Tell me more.</i> |
| Like hell you don't understand. I wish there was a way I could be more gentle   | I: Bill, I'm sure you are aware of the changes (and explains)<br><br>Bill: <i>No, I do not see it that way. It's my sales people that are the key to the future</i>  |
| There he goes again, thinking as a salesman and not as a corporate officer  | I: Well, let's explore that a bit...   |

If you insist on your position, you will harm the morale that I have built.  
 Don't hand me that line. You know what I am talking about.  
 Why don't you take off your blinkers and wear a company hat?  
 It upsets me when I think of how they think.  
 I'm really trying hard, but I'm beginning to feel this is hopeless.

These results illustrate once more the features of skilled incompetence. Crafting the cases with the intention not to upset others while trying to change their minds requires skill. Yet, as we have seen, the skilled behaviour they used in the cases had the opposite effect. The others in the case became upset and dug in their heels about changing their minds.

### Redesigning their actions

The next step was to begin to redesign their actions. The executives turned to their cases. Each executive selected an episode that he wished to redesign so that it would not have the negative consequences. As an aid in their redesign, the executives were given some handouts that described a different set of behaviours. The first thing they realized was that they would have to slow things down. They could not produce a new conversation in the milliseconds that they were accustomed to. This troubled them a bit because they were impatient to learn. They kept reminding themselves that learning new skills does require that they slow down.

One technique they used was that each individual crafted by himself a new conversation to help the writer of the episode. After taking five or so minutes, they shared their designs with the writer. In the process of discussing these, the writer learned much about how to redesign his words. But, the designers also learned much as they discovered the bags in their suggestions and the way they made them.

Practice is important. Most people required as much practice as is required to play a not-so-decent game of tennis. But it does not need to occur all at once. The practice can occur in actual business meetings where they set aside some time to make it possible to reflect on their actions and to correct them. An outside facilitator could help them examine and redesign their actions just as a tennis coach might do. But, as in the case of a good tennis coach, the facilitator should

be replaced by the group. He might be brought in for periodic boosters or to help when the problem is the degree of difficulty and intensity not experienced before.

There are several consequences of this type of change programme. First, the executives begin to experience each other as more supportive and constructive. People still work very hard during meetings, but their conversation begins to become addictive; it flows to conclusions that they all can own and implement. Crises begin to be reduced. Soon the behavioural change leads to new values and new structures and policies to mirror the new values.

This in turn leads to more effective problem solving and decision making. In the case of this group, they were able to define the questions related to strategy, to conduct their own inquiries, to have staff people conduct some relevant research, to have three individuals organize it into a presentation that was ultimately approved and owned by the top group. The top group also built in a process of involving their immediate reports so that they could develop a sense of ownership, thereby increasing the probability that all involved will work at making it successful.

### Conclusion

Action science is about understanding and producing action. Action, regardless of how large and complex or small and simple, requires the execution of a solution, production of the invention in the everyday life in which the problem is discovered, and evaluating the effectiveness of the production.

A second foundation of action science is its methodology. Learning is said to occur when the diagnosis (insights, etc.) and the inventions are actually produced. The methodology used must therefore provide propositions that are generalizable, disconfirmable, and actionable. They must be generalizable to many cases and to the individual case. Otherwise, we would not meet the requirement of action in the world of practice. The methodology must also be disconfirmable under the conditions that typify the world of practice, otherwise we will not know if we are not unrealistically kidding ourselves.

Actionable generalizations are those that inform the user how to diagnose, invent, produce, and evaluate the impact of what they have produced. Actionable knowledge must

not only have high external validity (i.e. a high degree of relevance) it must specify the thoughts and actions required to create the propositions in the real world. For example, trust as a variable has a high degree of external validity. But, the degree of actionability that can be derived from the very research that produces the external validity about trust, is low [6-8].

Meeting the substantive and methodological requirements stated above, requires that research be descriptive, normative, and prescriptive. The descriptive focus is necessary in order to organize and present our view of reality. The normative focus is necessary because the focus on action requires a focus on effectiveness. Effectiveness, in turn, is based on values. Values are ultimately choices individuals-organizations make; hence they are not objective, they are normative. The prescriptive is necessary in order to produce the generalizations in everyday action as well as to develop tests of the validity of the propositions.

The focus on producing and testing the generalizations in the everyday world leads to an emphasis on intervention because the generalizations are about intervening in order to create and to produce.

Most of our interventions are rare events because the intention is to change the features of the *status quo* to facilitate learning in domains where it is discouraged *and* where the discouragement is socially approved through acculturation in social virtues such as caring, support, honesty, and integrity.

We have a paradox; that behaviour which we are taught leads to caring, support, honesty (etc.), also necessarily leads to lack of caring, distancing and designed dishonesty,

and does so in ways that the latter consequences are covered up and the cover up is covered up. A third foundation is that the individual is key to organizational learning because it is the thinking and acting of individual practitioners that produces learning. This, in turn, means that keys to learning are the reasoning processes that human beings use to design, invent, produce, and evaluate their actions. Thinking and acting, in turn, are based on causal reasoning. A key requirement for facilitating the seamlessness from thought to action is to produce generalizations that contain causal reasoning that is rigorous and that actors can use in everyday life. The fourth foundation is that supra individual units such as groups, intergroups, and organizations are key to enabling learning. There is therefore, a high degree of causal interdependency between the individual and the organization.

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