

CHAPTER 1

DOUBLE-LOOP LEARNING IN A CLASSROOM SETTING

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In this chapter I will focus on problems that require double-loop learning. For example, why do human beings appear to design and implement actions that are counterproductive to achieving their intentions? Why, even after they do see the counterproductivity of their actions, do they repeat them in the same and in other settings? Why is it that the context in which this occurs rewards and strengthens these actions even though they violate the norms of effective actions?

THE ORGANIZATION OF THE CHAPTER

I begin with some fundamental assumptions about how human beings strive to make sense of the context in which they are embedded. Next, I present some observations from cases written by participants in our session. Inferences are then made that begin to answer the questions raised at the outset. The concepts of single- and double-loop learning are introduced. A theory of action is presented that explains the problems described above.

Next, I turn to the Joe–Bill case used in the classroom seminar intended to focus on double-loop learning. I describe the dialogue and show how the participants are helped to become aware that they are not skilful at producing double-loop learning. After dealing with their bewilderment, I present an example by the faculty member of a double-loop learning solution for the Joe–Bill case. I conclude with some comments on the underground world in organizations.

SOME FUNDAMENTAL ASSUMPTIONS

Human beings strive to make sense of the context in which they are embedded. Three key activities required are to understand and explain what is going on, to design effective action, and to implement the design. Our task as educators and interventionists is to make sense of how they go about making sense.

I begin with several propositions that are relevant to the analysis. First, all actions that human beings produce they do so by using their mind/brain. Second, human beings hold theories of action that inform their action. Third, human beings hold espoused theories of action and theories that they use to act (theories-in-use). Fourth, in order to develop a valid diagnosis of sense-making process it is necessary to begin with their theory-in-use. Fifth, in order to do so, it is necessary to base the diagnosis upon actual behaviour. Sixth, from the fifth step, we can infer the reasoning human beings used to inform their actions.

THE DIAGNOSTIC METHODOLOGY: THE LEFT-HAND-RIGHT-HAND CASE

One method that has been used with, conservatively estimated, over 10,000 participants is a case method that is called the left-hand-right-hand case. Individuals are asked to write a case about a challenge that they are facing with individuals, groups, intergroups, or organizational behavioural systems. Next they are asked what they would do to begin to solve the problems (about a paragraph).

Finally, they are asked to divide several pages into left-hand and right-hand columns. In the right-hand column they are asked to describe the dialogue that occurred (or would occur if it has not happened). This data represents the actual behaviour as they recall it. In the left-hand column they are asked to describe any feelings and thoughts that they had (or would have) that they did not (or would not) communicate. The objective of this column is to ask the writer to make public what they kept secret.

Both columns exhibit certain patterns that are central to inferring the theory-in-use of the case writer. Examples of the left-hand column are:

1. Don't let the group upset you.
2. This is not going well. Wrap it up and wait for another chance.
3. He is clearly on the defensive.
4. He is playing hardball because he is afraid of losing power.
5. This guy is unbelievable.
6. You are nowhere near as good as you think you are.
7. I am losing her, so I have to go in for the kill.
8. Great, try patronizing me. That won't get you far. He cares about trust. Talk about trust.

These examples help us begin to develop insights into the sense-making processes used by human beings. They appear to focus on three behavioural strategies. They advocate their views, they evaluate their own and others' effectiveness. They make causal attributions about the others' intentions. They keep this information secret from the others. Indeed, they cover up the secrecy.

A second feature is to test the validity of these early sense-making activities. Unfortunately, their testing (that often is implicit) assumes that their evaluations and attributions are valid because they honestly believe this is the case. The reasoning they use to develop their views is based on their own sense-making process. Their logic is self-referential.

If you combine cover-up and biased testing, it is a recipe, as we shall see, for faulty and incomplete learning. When we ask the participants what leads them to believe that cover-up and biased testing are connected to effective action, they provide two interdependent answers.

First they could become vulnerable (for example 'Don't let these guys upset you', 'This is not going well'). If others knew this information they could take advantage of them. The second response is that if they made their left-hand column public, it would make the others defensive. They keep their left-hand columns secret out of caring and concern for the others.

We see a double bind. If they are to behave effectively, it is necessary to test the validity of the left-hand column. But if they do test they are likely to create defensiveness in others and themselves. We can begin to see how human beings act to create the condition described in our questions at the outset of the chapter.

Double binds are complex consequences to solve. They require a level of awareness that cover-ups do not permit. They also require independent testing that self-referential logic does not supply.

Double binds under these conditions produce further double binds. The individual must act as if they are not creating undiscussables. To do so, they must make the undiscussability of the undiscussable, undiscussable. To compound the problem

Left-hand column	Right-hand column
I am going to get attacked, straight out of the box.	I'm so happy to meet you and get to know you. I think we will have a great working relationship and can learn a lot from each other.
What a bunch of crap. I don't want to get drawn into this discussion.	I'd like you to know that I believe in open, direct communication.
Did he say <u>our</u> plan? He must have meant his plan. Doesn't he know I disagree with his decision?	No problem, it seems like we are at a crucial point.
Winning the Nobel Prize will not help the company. Perhaps it is time to expand the development stuff and downsize the research stuff.	I am sure that you all realize that we work in a for-profit industry and must be realistically oriented.

Fig. 1.1 'Skilful spinning': examples

they deny their causal responsibility by using skilful spinning (See Figure 1.1). The spinning blocks the learning required to check the effectiveness of the actions taken. The anti-learning processes are reinforced by the other recipients who infer that the individual is spinning. They too cover up and do not test their inferences. We now have a systematic, self-fuelling, self-reinforcing set of processes that are counterproductive to learning. These results hold regardless of colour, gender, education, wealth, culture, size, and type of organization (Argyris 1990, 1993, 2000, 2004; Argyris and Schön 1996).

The above again reminds us of the puzzle stated at the outset. Why do human beings choose to act in ways that are counterproductive? How do they come to learn to become skilful at acting skilfully incompetent (i.e. producing consequences that are counterproductive to their intentions)? How do they come to learn to live with these conditions by blaming others? How do they come to learn to believe that they are not responsible; indeed to believe that they are victims?

A THEORY OF ACTION

One explanation is generated by a theory called a theory of action. The same theory can be used to develop learning for human beings and for organizations. The theory hypothesizes that human beings produce action by activating designs for action that they have created and stored in their heads (mind/brain). Human beings also develop designs to assess the degree to which they are effective. This introduces the concept of learning defined as detecting and correcting error. There are two types of learning. Single-loop learning occurs when errors are corrected without changing the underlying programme. Double-loop learning occurs when an error

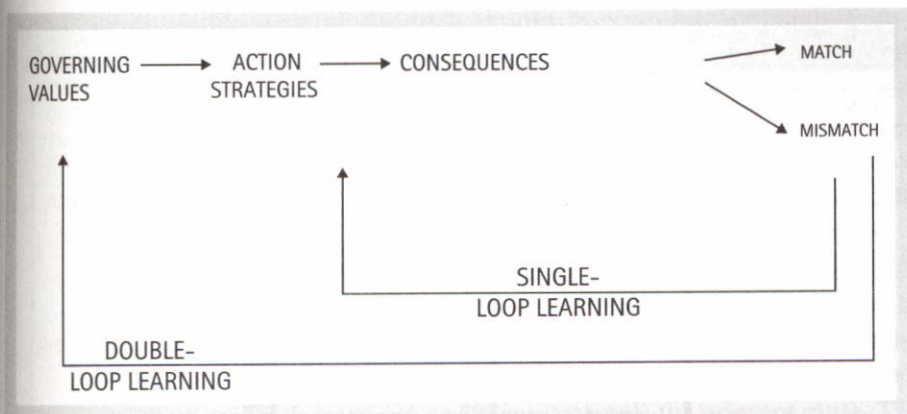


Fig. 1.2 Managerial and organizational learning

is corrected by first altering the underlying programme. For example, a thermostat is a single-loop learner. It is programmed to turn the heat up or down depending upon the temperature. A thermostat would be a double-loop learner if it questioned its existing programme that it should measure heat (Argyris 2004b).

The premiss of this approach is that all actions (behaviour with intentions) are produced as matches with the designs stored in our heads that we activate. These designs are developed by human beings as they strive to become skilful in whatever actions they intend.

If it is true that all actions are produced by activating designs for action stored in our heads, then actions that are counterproductive to our intentions must also be produced by activating appropriate designs stored in our heads. If this is true, the actions that are counterproductive must be consistent with the design that we have activated. If this is true, then even actions that are counterproductive are matches, and not mismatches. Counterproductive actions represent 'errors' that are designed, hence they are not errors.

How do we make sense of the puzzle? One way is to hypothesize that human beings are unaware of the errors that they are producing and the unawareness is skilful. But if unawareness is behaviour then it too must be designed. In what sense is unawareness skilful? One hypothesis is that the theories of action stored in our heads lead to actions that are counterproductive to our intentions and to being unaware that this is the case. We are programmed when dealing with double-loop problems to be skilfully incompetent and skilfully unaware. What kinds of programmes are we talking about?

Model I Theory-In-Use

There are two types of master programmes or theories of action. First, there are those that are espoused. Second, there are those that are used to produce the

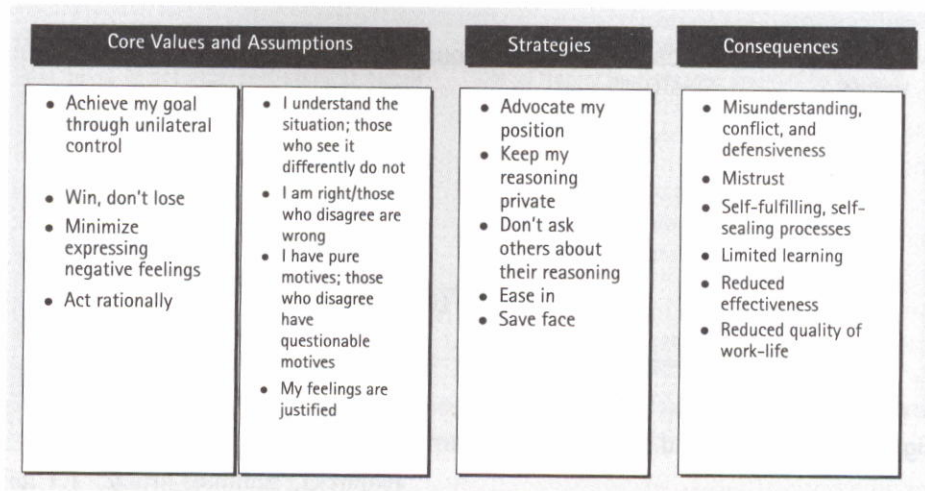


Fig. 1.3 Model I: unilateral control

action (theories-in-use). We have identified a theory-in-use that we have labelled Model I.

Model I is said to be dominant because we have found it to be used regardless of gender, race, education, social status, wealth, age, and size of organization as well as culture (Argyris 1982, 1985, 1990, 1993, 2000, 2004; Argyris, Putnam, and Smith 1985; Argyris and Schön 1996).

The three most prevalent action strategies are, advocate ideas and positions, evaluate performance, and make attributions about causes of the actions of self and others. Action strategies are implemented in ways that are consistent with the governing values, which means enquiry into them is not encouraged nor is testing of claims, such as that the conclusions are self-seeking. Testing is based upon the use of self-referential logic. The logic used to generate a claim is the same logic used to test the claim (for example: trust me, my conclusion is valid because I know the organization, group, or individual). The consequences of Model I action strategies include misunderstanding and escalating error, self-fulfilling prophecies, and self-fuelling processes. These feed back to reinforce the governing values and the action strategies.

The use of Model I produces a defensive reasoning mind-set. Premises and inferences are implicit and kept minimally transparent. The purpose of testing claims or conclusions is self-protective. A self-protective mind-set generates skills that produce consequences that are counterproductive to valid learning and systematic denial that this is the case. The incompetence and unawareness or denials are skilled. They have to be. Otherwise, they would not exist as theory-in-use designs in the human mind to produce the actions observed.

Model I theory-in-use and a defensive reasoning mind-set combine to produce organizational defensive routines. Organizational defensive routines are any actions

or policies intended to protect individuals, groups, intergroups, or organizations as a whole from embarrassment or threat and do so in ways that prevent getting at the causes of the embarrassment or threat. Organizational defensive routines are anti-learning and overprotective. For example, organizations exhibit mixed messages. The theory-in-use to produce them is (1) state a message that is mixed, (2) act as if it is not mixed, (3) make 1 and 2 undiscussable, and (4) make the undiscussability undiscussable.

Defensive routines feed back to reinforce Model I, and the defensive reasoning mind-set. There is a tightly integrated relationship between individual theory-in-use and group, intergroup, and organizational factors. The result is an ultra-stable, self-fuelling, and self-sealing state. Under these conditions, it is difficult to call any factor (individual, group, intergroup, and organizational) the primary cause. They are highly interrelated. If so, then we may predict that if we give human beings a genuine opportunity to help others and themselves to create double-loop learning, they will fail to do so and be unaware of their failure, even if the conditions are ideal for double-loop learning. For example, thirty-eight CEOs came together in a seminar to learn more about effective leadership (Argyris 2000). They were asked to help 'Andy' who sought advice on how to overcome the blindness and incompetence that he admits he exhibits in the way he leads. Thus the CEOs were embedded in a context where Andy seeks help, where the credibility of the leadership of the CEOs is not in jeopardy, and where they do not come together with an organizational history and culture that contains organizational defensive routines. Moreover the context is not hierarchical and unilaterally controlling of their actions, and being without the pressures of everyday work life to act, the CEOs are not required to behave consistently with Model I, whether using defensive reasoning mind-sets or creating organizational defensive routines. Yet they produced these consequences. The same counterproductive consequences occur in the seminar to be described below.

The Joe-Bill Case

The first step is to help the participants to see the extent of their skilled incompetence and skilled unawareness. The methodology that we use has to be able to achieve this objective even though we can predict that the participants are going to be bewildered and baffled. They come to the seminar with the honest belief that they are not skilfully incompetent and unaware. The methodology should make it difficult to deny their personal causal responsibility for these two features. It should also help them to realize that if they are victims it is by their own design as well as the organizational norms and behavioural systems that they create in their organizations.

In this seminar, we used a two-prong methodology. The first was for them to complete a left-hand-right-hand case about a problem that they experienced in

their setting that they wish to resolve. The second prong was to send them a one-page case of Joe and Bill written by Joe (the superior) about a sexual discrimination problem that Bill (the subordinate) was creating in their organization. The case was sent to the participants ahead of time. The participants were asked to help advise Joe on how to deal more effectively with Bill (Joe has stated in his case that the first session with Bill did not go well).

The session began with the faculty member (FM) asking the participants to become consultants to Joe. FM asked the participants to role-play their advice to Joe. FM said that he would role-play Joe receiving the advice. Finally, FM said that it was important for the dialogue to be stopped at any point in time when any participants believed that FM's role-playing of Joe's likely reactions was inaccurate or unfair.

Example of Advice Given to Joe by the Participants

Participant A: advises Joe to make sure that Bill understands the harassment policy.

Joe (as role-played by FM) 'I do not think that Bill will respond positively. As you read in the case Bill doesn't believe that he harasses anyone. Also he doesn't believe that the female co-workers believe that he has harassed them.'

Participant B: advises Joe to tell Bill that you have personally witnessed several of the incidents. 'Make it clear that you did not like what you saw. "Joe, you must find better ways to be specific without violating your promise not to identify the women"':

FM: 'I agree with you. What would this behaviour look like? What do you advise me to say?'

B: 'I don't have the answer. I see problems but I am not sure how to get around it.'

Participant C: 'Joe, were you not offended with what you saw?'

FM: 'Absolutely'

C: 'Then use your feelings as a way into the problem.'

FM: 'What do you advise me to say? After all he says that I am making a mountain out of a molehill.'

C: 'So you feel he will reject your views?'

Participant D: 'Joe would it not be enough for you to tell B that you are personally offended with his behaviour?'

FM: 'I doubt it. He believes my discomfort is invalid because the women see him as being funny.'

Participant D: 'So why not explore with him the difference between his intentions to be funny and what is actually happening?'

FM: 'What do you advise me to say?'

D: 'You might say, "Bill you told a joke by the cooler. You thought it was funny"'

FM: 'Bill would say "correct"'

D: 'Ask him to share his experience honestly.'

FM: 'Again, I need advice as to what I would say to get him to be honest.'

FM: interrupts the dialogue. He notes that, so far, each of the advisers crafted advice with a sense of confidence that it would work. Joe's biggest problem is that he did not find the advice helpful. 'Do my interpretations make sense?'

D: 'yes.'

FM: 'Are you feeling a sense of failure?'

D: 'Just a tad' (group laughs)

FM: 'Please talk a bit about your feelings.'

D: 'I feel stuck.'

FM: (role-playing Joe) 'I also feel stuck. I feel that you are highly motivated to help me. I believe that you are concerned about me. I conclude that I am faced with advisers who are concerned yet who are not helpful. I too feel stuck. It appears that we are creating a set of self-fuelling, self-sealing counterproductive processes.'

Reflections on the Experience

Reflecting on the dialogue we see that the advice given by the participants is consistent with Model I theory-in-use and defensive reasoning. For example:

1. Joe should act rationally. Tell Bill his actions are wrong and they are against company policy.
2. Joe should be in unilateral control. Joe should make it clear that if Bill does not change his actions Joe will not hesitate to punish him.
3. Joe should be cautious about being forthright. The advice crafted by the participants and given to Joe was consistent with easing in. If Bill did not respond favourably then Joe is advised to threaten Bill with punishment, including firing him.

The dialogue produced by the participants also illustrated the predicted consequences of Model I, namely, skilled incompetence, skilled unawareness, the use of self-referential logic to test claims.

Finally the FM helped the participants to realize that although they said they wanted to learn, although Joe pleaded for help, although they were in a classroom setting where their future was not at risk, they skilfully created a setting where as one of them said 'things are going nowhere' (consistent with the Andy case described above).

FM invited, at the outset, the participants to confront FM if they thought that FM, acting as Joe, was unfair. At the end of the dialogue FM asked again if anyone thought that FM role-played Joe irresponsibly. If so, would the individual please

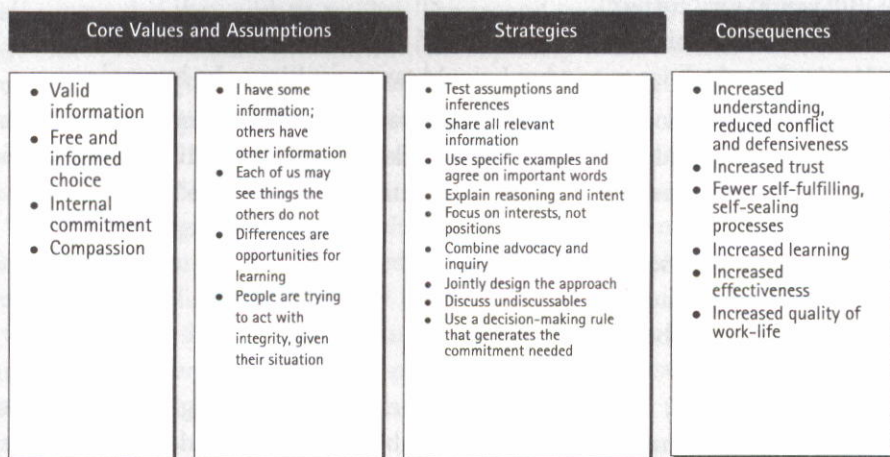


Fig. 1.4 Model II: joint control

say so and illustrate their claims by using Joe's behaviour as role-played by FM. No one volunteered an example. The participants expressed bewilderment because none of them expected that they or the members as a group would be responsible for creating the conditions for failure in double-loop learning. The next question is, how can the participants learn a new theory-in-use that will help them to reduce the stuckedness that they created? The first step is for them to learn a new theory-in-use called Model II.

Model II: Theory-In-Use

The governing values of Model II are valid knowledge, informed choice, and personal responsibility for one's actions. The action strategies are to advocate, to evaluate, to attribute in the service of the Model II governing values and productive reasoning. Productive reasoning emphasizes encouraging enquiry and robust testing of claims in the service of learning. The consequences are the reduction of self-fulfilling and self-sealing processes. These consequences feed back to reinforce Model II governing values and action strategies. This, in turn, produces organizational behavioural systems that encourage learning, especially double-loop learning.

An Example of Model II Strategy

The faculty member then said that he would like to present Model II strategy that Joe could use during his second session with Bill. The strategy is aimed at helping Bill become aware of his defensive mind-set that includes denial and blaming others, test his claims with the use of self-referential logic, and accept his share of personal responsibility.

FM first described his thinking in terms of a seven-point action strategy for the meeting.

1. I should begin the meeting by stating that some of the staff are upset about the comments and jokes that he (Bill) makes.
2. I should strive to do so in as constructive a manner as possible. By that I mean I will begin by describing the problem as I see it and then ask Bill for his reactions (confirms-disconfirms).
3. If Bill agrees then we can move to how he can begin to change and how I can help him to do so.
4. However, I doubt that this will be Bill's response. I hypothesize that he will continue to be defensive and self-protective.
5. My task will be to help him express as much of his defensive reactions as he wishes. The more he does, the more he is likely to produce directly observable data of his defensiveness. It is this kind of data that I can use to begin a constructive dialogue.
6. I will strive to react to Bill's responses by focusing on the impact they have on me. I will do my best not to use the staff's descriptions as evidence that Bill is a problem.
7. I will focus on what I might be doing wrong. I seek to learn. I seek to examine any behaviour, mine or his, which inhibits learning.

FM then role-played how he as Joe would implement the strategy.

Bill, let's review the bidding from the previous session.

1. I began by describing how upset the staff was over your unwanted behaviour. I asked for your reaction.
2. You responded, in effect:
 - (a) Don't worry. My behaviour is always appropriate.
 - (b) If they had a problem with me, they would tell me.
 - (c) If this is a problem it means that no one has a sense of humour.
3. In effect your responses were I was wrong, they were wrong, and you were not wrong.
4. Let us first focus on me. I could be wrong. But it is difficult to learn about my possible errors from your responses.
5. Under these conditions, I want you to know that if your actions continue I will use my authority to 'order' changes or to implement other consequences. I do not prefer these actions. I prefer the actions that would help us both learn how to correct the situation in a way that the corrections persevere.

After the presentation FM asked the participants especially if they had doubts about the effectiveness of this strategy with Bill. Examples are:

1. What if Bill surfaces his fears that if he crafted a constructive response the women might get mad? Is there is a way to prevent their being held responsible for their defensiveness.
2. What if Bill tries and he too gets stuck? Are we not placing him in a vulnerable situation? Could the others take advantage of him?
3. What if Bill decided to mimic Joe? He would not have changed his theory-in-use yet he would act as if he did.

FM responded that their questions were valid. He asked that answering them be postponed until the end of the seminar when they would have had several days of practising Model II using their own left-hand-right-hand cases. He predicted that many of the questions would arise during these sessions

When they revisited these questions at the end of the week they found that they had learned:

1. The first step to prevent the defensiveness of others is to prevent one's own Model I actions and defences from informing their actions. If they become defensive then focus on how they can express these feelings. Begin by assessing the extent to which they unrealizingly acted in ways that helped to activate the defensiveness of others.
2. This also helps the others to see that you can be vulnerable without feeling weak. They may begin to observe how they might act to develop similar competence and confidence in the competence.
3. If Bill decided to mimic Joe, he would soon learn that he has not developed the skills to be able to go beyond Joe's crafting of actions. He will realize that Joe's advice may be fine for a first step but it is not adequate as the others continue their defensiveness. Mimicking may be helpful as a first step in practising (Argyris and Schön 1996). It is inadequate for helping develop new theory-in-use actions that do not evaporate under unexpected or expected hostile responses.

It is beyond the scope of this chapter to describe in detail the activities that the participants experienced while learning and internalizing Model II competencies. Examples are available (Argyris 1985, 1993, 2000, 2004a, 2004b; Argyris and Schön 1996).

CLOSING COMMENTS: THE UNDERGROUND WORLD IN ORGANIZATIONS

At the outset of this chapter, I asked why human beings design and implement actions that are counterproductive to achieving their intentions. Why do they keep

repeating them? My response is that human beings appear to be programmed, through acculturation, to Model I theory-in-use and defensive mind-sets. When they design and create organizations, human beings inevitably create organizational systems that themselves have left-hand columns (underground world of organizational defensive routine). We do not seem to be the focus of the limitations because we focus on moving boxes around and redefining policies. These are important. But they are non-trivially limited in being implemented because of the Model I theories-in-use, organizational defensive routines, and defensive mind-sets.

The second strategy is to attempt to focus on these underground worlds by changing the culture. There are several problems with most of these efforts. They focus on espoused values and beliefs. They assume that the new values and beliefs can be imposed by charismatic leaders who champion these values. The trouble is that the fundamental process for such implementation leads to external commitment. Once the senior executive is gone, the touted accomplishments seem to disintegrate.

Recall that after the *Challenger* tragedy there was a special commission to make recommendations to prevent such a tragedy from happening again. The commission recommended a change in culture. NASA officials agreed. The implementation was top down. Several years later the *Columbia* tragedy occurred. Again the commission recommended changes in the culture. They were similar to the ones 'implemented' a few years before.

Recall ABB. This company was touted for several years as having produced a successful cultural change. The new culture emphasized openness, initiatives, trust, risk taking, and personal responsibility. A few years ago, the *Financial Times* interviewed the new CEO of ABB. He reported that the biggest challenge he faced was to create a new culture that emphasized openness, initiative, trust, risk taking, and personal responsibility. These were the same features the previous CEO had been acclaimed for creating (Argyris 2004a).

Recall 3M. 3M was a corporation acknowledged for several decades as a company that rewarded innovation. Last year, the new CEO told a *Wall Street Journal* reporter that his biggest challenge was to recreate a culture of innovation that had been lost. How do innovative cultures get lost? Why are these causes not foreseen (Argyris 2004a)?

One way to begin to explain all these puzzles is to realize that in all organizations there are managerial components that are above ground and underground. The above ground in organizations is managed by productive reasoning, transparency, and tough testing of performance. Truth (with a small 't') is a good idea.

The underground organization is dominated by defensive reasoning where the objective is to protect the players from embarrassment or threat. It rewards skilled denial and personal responsibility. Truth is a good idea, when it is not troublesome. If it is, massage it, spin it, and cover up.

The underground organization has several fascinating features. It develops even though it violates the current concepts of effective management. It survives even though there are no courses taught to executives on how to help it to survive. It flourishes by engaging the rules and regulations intended to smother it. It is a major cause for individuals using defensive mind-sets protected by organizational defensive routines that guarantee its survival.

These self-sealing processes are counterproductive to a productive reasoning mind-set. They make it difficult to produce trust, openness, transparency, and testing of ideas, all features that I suggest will be increasingly required for the future design of organizations and their management. Individual, group, intergroup, and organizational double-loop learning can help to meet these challenges.

REFERENCES

- Argyris, C. (1982). *Reasoning, Learning, and Action: Individual and Organizational*. San Francisco: Jossey-Bass.
- (1985). *Strategy, Change and Defensive Routines*. New York: Harper Business.
- (1990). *Overcoming Organizational Defenses*. Needham, Mass.: Allyn Bacon.
- (1993). *Knowledge for Action: A Guide to Overcoming Barriers to Organizational Change*. San Francisco: Jossey-Bass.
- (2000). *Flawed Advice and the Management Trap: How Managers Can Know When they're Getting Good Advice and When they're Not*. New York: Oxford University Press.
- (2002). 'Double Loop Learning, Teaching, and Research', *Academy of Management Learning and Education*, 1/2: 206–19.
- (2003a). 'A Life Full of Learning', *Organizational Studies*, 24/7: 1178–92.
- (2003b). 'Actionable Knowledge', in H. Tsoukas and C. Knudsen (eds.), *Organizational Theory*. Oxford: Oxford University Press.
- (2004a). *Reasons and Rationalizations: The Limits to Organizational Knowledge*. Oxford: Oxford University Press.
- (2004b). 'Double-Loop Learning and Organizational Change: Facilitating Transformational Change', in J. J. Boonstra (ed.), *Dynamics of Organizational Change and Learning*. Chichester: John Wiley and Sons, Ltd.
- Putnam, R., and Smith, D. (1985). *Action Science*. San Francisco: Jossey-Bass.
- and Schön, D. (1996). *Organizational Learning II*. Reading, Mass.: Addison-Wesley.