

10

Promoting Reflection and Experimentation



At different times throughout the learning process participants refer to themselves as “being stuck.” But what does it mean to be “stuck”? From the participants’ perspective, it means that they cannot find a move from their repertoire of skills that yields acceptable consequences. They can go no further, and they are aware that they can go no further. But from our perspective individuals get stuck like this all the time, only they have fascinating ways of camouflaging it. To see through this camouflage, the interventionist creates a context in which participants can get stuck, reflect on their “stuckness,” and not hold others responsible for it. Through an iterative process of experimentation, participants act, fail, get stuck, and try to get unstuck, while simultaneously reflecting on these attempts with their peers. Such a process of reflective experimentation reveals what would otherwise remain hidden, and it enables participants to try out new moves that might take them beyond the dilemmas that they discover.

This chapter considers three means by which the interventionist sets this context. The first is by establishing norms

that allow students to get stuck and to see their stuckness, while still keeping the inquiry moving. The second is by taking a stance toward participants' experience that enables them to express and reflect on it so they might begin to reconstruct it. And a third is through teaching concepts that can be used to understand and redesign the actions that get participants stuck.

Establishing Norms for Inquiry

From the outset of the learning process, the interventionist undertakes to enact the rules of action science as norms for inquiry (see Chapter Eight). But in doing so, he faces a problem. As the previous chapter illustrated, participants do not yet know how to enact these rules. Action science rules ask individuals to retrieve and make public their inferences, while participants' rules lead them to jump to abstract conclusions and to lose sight of the steps that brought them there. Other rules require that participants design valid tests, when their own rules tell them to conduct private tests that create self-sealing processes. And still other rules ask that participants inquire into their errors, when their own rules tell them to cover up those errors. If norms materialize out of ongoing activities, as Homans (1950) suggests, then left on their own participants will probably establish the norms of protectionism described in the map, not the norms of reflective experimentation characteristic of action science. This means that initially the interventionist must assume much of the responsibility for establishing these latter norms.

In doing so, he must take into account the ways in which norms are internalized and adopted in action. As a form of social control, norms might be adopted either as internalized moral prescriptions or as external constraints (Ross, 1910; Sumner, [1904], 1982; Durkheim, [1953], 1982; Mead, [1934], 1982; and Piaget, [1951], 1982). While the former results in what Durkheim calls "society living in us," the latter leads to what Piaget calls an annunciatory conception of truth: "The mind stops affirming what it likes to affirm and falls in with the opinion of those around it," and truth comes to mean whatever

view conforms with the spoken word of superiors ([1951], 1982, p. 101). According to Piaget, the form in which norms are adopted depends on the nature of the relationship that produces them. In this view norms are “collective products,” and whether or not they are internalized depends on the nature of this relationship or “collectivity.” Relations of constraint and unilateral control contribute to an external code of moral conduct that results in the conformist notion of truth. Alternatively, relations of cooperation and mutual control contribute to an “interiorization of rules” that comes from public criticism and leads to the making of truth judgments independently of superiors. This latter process results in the free and open inquiry that philosophers since Peirce have regarded as the basis of valid knowledge in a community of scientists and that action scientists wish to enact in communities of practice (see Chapter Two).

As this distinction suggests, the interventionist strives to establish norms through a process of critical reflection akin to Piaget’s notion of public criticism. Otherwise, participants would be obliged to accept the interventionist’s view of reality, and this obligation would undercut the very norms he wishes to establish. The difficulty is that their process is not one that participants can initiate or sustain on their own. At the start they may hesitate to confront the interventionist and shy away from questioning the norms he holds. The interventionist must therefore initiate this process of public criticism without unilaterally imposing its norms. To do so he at once advocates and enacts these norms, while inviting inquiry into them and his actions. To illustrate, we will give a sample of excerpts from the opening session of the spring seminar, with the first excerpt laying the basis for further inquiry:

Interventionist: I sure would like not to be the person who is managing a lot of the interactions, and I realize that has to come partially by my being alert to when I’m overmanaging and by you helping me

Encourages participants to share responsibility for managing the learning process.

Invites participants to confront him when they think he is making errors.

to be alert when I'm over-managing, and I really plead and welcome that. On the other hand, I'll also feel free to make inputs and check out with you whether the inputs are helpful or not. I've got to find some balance. If you find I'm intervening at the wrong time or it's too long or not enough, I need some help.

There will be errors made and I really plead with you not to be bashful about, let's say, confronting me if you see something that isn't making sense, or "slowing down," or "why are we doing this?"

The interventionist recognizes that on the one hand he might make errors in managing the process but that on the other hand participants might be "bashful" about pointing this out. Under these conditions, criticism is apt to be one sided, and the interventionist's dominance will be maintained. He therefore opens the seminar by stating that errors will be made, that he might make some of those errors himself, and that he will need the help of participants in order to learn. By anticipating errors and stating a willingness to learn, he encourages participants to move beyond their "bashfulness" so that they might mutually control the process. At the same time, he recognizes his own responsibility for "being alert" to when he is overmanaging, noting that he will check to see if his inputs are useful. Thus right from the start, he describes and encourages the kind of mutual responsibility and public criticism that can lay the basis for freely choosing and internalizing norms. But the interventionist also submits the norms themselves to critique:

States that he will intervene when he thinks that he can help. Says that he will inquire to see if his interventions are helpful.

Once again invites confrontation of errors.

Communicates that errors are not to be feared.

Encourages confrontation of his own errors, describing what they might say.

Interventionist: I'm interested in insight that facilitates competence. So when you think of trying to help someone and you're trying to provide insight, I'm asking you to think of connecting that somehow with what are the implications of this insight for that human being's increasing his or her competence? To help a person see that they are angry would by this theory not be enough. I realize that there are other theories that say that that indeed is the right thing to do, and if that is what you believe let's experiment with that. Let's try it out. I want to be confrontable on all possible issues.

Advocates the norm "focus on competence."

Recognizes that competing norms exist and invites participants to voice them.

Encourages public tests that might disconfirm the view that insight should be connected to competence, thereby opening up to inquiry the norms of the process.

In this excerpt the interventionist did not shy away from taking an explicit normative stance. He explicitly stated his interests and criteria in putting forth the view that insight was not sufficient and that the focus of participants ought to be on competence. Yet he also recognized that competing theories hold different criteria, so he asked that his own position be challenged and other views considered. In this way he directs the inquiry into values and norms as well as strategies: he advocates a norm, invites others to do the same, and suggests they submit their competing values to experimentation and reflection. Of course, from the participants' vantage point the litmus test comes when they take the interventionist up on what he

espouses and begin to confront him. Ordinarily they do so in the first session, suggesting that they take these invitations seriously. The excerpt given next shows how the interventionist responded to one such confrontation by Vince, who criticized him for “stopping” Carol from finishing her intervention:

Interventionist: That’s helpful, because my view was that [I was elaborating on her comment, not changing the topic].

Welcomes confrontation (“that’s helpful”) and advocates his own view by making his reasoning explicit (in passage not included here).

He then went on to describe the reasoning that led him to intervene as he did:

Interventionist: I am acting in ways that take up what are generic problems in interventions: length, how do you know when you’re helping, what is the nature of inference. I would hope that what I’m doing now I could eventually decrease. If the group would prefer I decrease it early, that wouldn’t be a problem. But I thought I interrupted her in the sense of adding, not taking away. What was it that led you to say it was taking it away from her?

Makes explicit what he understands himself to be doing.

Continues to encourage the group to share responsibility for managing his involvement.

Advocates his own view and encourages inquiry into it by asking for data and reasoning that might disconfirm his view.

From an action science perspective it is not sufficient to encourage confrontation. Once confronted, the interventionist must remain open. As we saw under the rules of action science (Chapter Eight), this does not mean backing down but rather stating one’s view so that it can be disconfirmed and critiqued, while inviting others to do the same. Here, the interventionist

followed this rule in a sequence of steps. He first affirmed the initial confrontation. He said he found it helpful "*because*" it departs from his own view, thereby encouraging continued disagreement. He then made explicit the reasoning that informed his participation in the group. He described the role that he had defined for himself (that of taking up the generic problems in interventions), and he expressed a desire to eventually redefine and reduce this role, as well as a willingness to do so earlier if the group preferred. At the same time, he also put forth his own view of this particular instance while inquiring into Vince's. The interventionist thought that he was "adding" to Carol's intervention, leading him to ask Vince what led him to the inference that he was "taking away" from her.

In this sequence the interventionist thus inquired both into his actions and into the role he defined for himself. The reader might recall Schön's (1983) description of the town planner who constructed a role that generated a perplexing dilemma (Chapter Seven). The planner's role was contingent on its being kept private, and it resulted in his unawareness of the binds that it generated for himself and others. In contrast, the interventionist uses a confrontation of his actions to make public his role and to test whether it might be creating constraints of which he is unaware.

In this way the interventionist acts consistently with the norms he advocates, making them public and inviting participants to critique both the norms and the way he enacts them. This allows participants to choose whether the norms make sense and whether to adopt them or to discard them on the basis of informed criticism. Like Piaget, we have found that those who choose to adopt norms under these conditions internalize them, but at first only as standards by which to evaluate themselves and the interventionist. While such internalization is necessary for establishing norms, it is not sufficient since participants do not yet have the skills that enable them to consistently produce the norms. In this sense we might think of these norms as goals that individuals strive to meet but that remain outside "the boundary of their ability."

Such a perspective raises another aspect of norms that

comes into play when individuals attempt to establish them. As a kind of goal, “a norm can be a mark to shoot for only if it is not too far away from what can be achieved in everyday life. If it gets impossibly remote, . . . it will be abandoned in favor of some more nearly attainable norm” (Homans, 1950, p. 126). According to this description, norms act like the aspiration levels described by Lewin (see Chapter Nine). As long as an aspiration level is challenging yet within reach, an individual will stay at a task; if the individual repeatedly falls short, however, he will experience a sense of failure, lower his sights, and eventually abandon the task altogether. This relationship between norms and aspiration levels thus suggests a dilemma. If the interventionist expects participants to adhere to norms outside “the boundary of their ability,” he may create a sense of failure that will lead participants to withdraw from the learning process. Yet if he does not ask them to adhere to them, they will conduct business as usual and enact norms of protectionism.

One way to manage this dilemma is to “scaffold” participants as they try to reach norms that they cannot yet reach on their own. In doing this, the interventionist helps participants to act in ways that can keep the inquiry moving despite their becoming stuck. To illustrate, we turn to a session in which the interventionist used the norms to help the group move through several iterations of problem framing and experimentation. It began with a group member discovering a problem in one of the cases they were discussing. Specifically, they found that one of the clients was no longer following the consultant’s point, and this discovery raised the generic problem of how to ensure communication with clients. Or, as the group first framed it: How to make sure that a client is following you.

What then unfolded was a series of impromptu experiments that began when one participant, Pierce, came in and suggested the following solution to the problem: Check with the client to see whether he understands. This approach sounded plausible enough; but, in accord with the norm of public testing, it was regarded as a hypothesis to be tested, and the interventionist helped Pierce to take his suggestion through the testing process. To do so, he began by asking Pierce what he

might actually say to the client, and Pierce then role played the intervention: "Mr. Smith, are you following my presentation?" At this point the interventionist elicited the group's reactions, uncovering some counterintuitive results. His peers said that they would be embarrassed to say no and that they wouldn't want to look like "dummies." So what at first appeared to be an obvious solution began to look as though it were part of the problem. Yet if Pierce had not been asked to test his approach, the group might have prematurely thought the problem solved.

Out of this first experiment a new and more complex formulation of the problem emerged. As one participant put it: How do you make sure a client is following you without making him feel stupid? And along with that formulation came a new hypothesis for solving the problem: Help the client to ask questions without feeling dumb. Compared to the first suggestion of "check with your client," this new one specified the outcomes it wished to avoid; that is, those the previous intervention had created. At this level of abstraction the new intervention also sounded promising. The question, however, was whether it could produce the desired result without creating undesired results. In this case the participant sought to find out by role playing his invention and saying to the "client," "This stuff is very difficult to understand in the beginning. I'm sure you're going to have problems. Please stop me when you're not following." The responses were mixed. Some of the initial responses were favorable but vague ones such as "good" and "I like that." But then another participant spontaneously took the point of view of a client, role playing the reaction: "Why are you using language I'm not going to be able to understand?"

This last response raised the issue of who should be responsible for ensuring communication. So far the group members' formulations of the problem had focused primarily on the client's responsibility to let them know when they had fallen short of this intention. No one had focused on the consultant's responsibility for presenting his views in a way that is most apt to communicate them. When their suggestions for doing this were tested, a gap in their framing of the problem was discovered, in this case one that revealed a situation characteristic

of redesigning a theory-in-use. So many rules and norms must be taken into account that it is easy to misapply them or to let one fall out of sight while satisfying another. In effect, the consultant here was trying to establish norms with his own client to ensure communication: Share responsibility (tell me when you're not following) and affirm that it is okay to make mistakes (this stuff is very difficult to understand). But as he applied these norms, he put more responsibility on the client than he took. It is as though he sees the client as more responsible for managing the material than he. For this reason, the consultant's sharing of responsibility is lopsided and his efforts at making it easy to ask questions problematic. His client might feel that it is okay to ask questions but resent having to do so because of the consultant's opaqueness. The consultant might not consider his client stupid for asking questions, but the client might consider the consultant incompetent for putting him in that position.

After the last participant role played the indignant client, a flurry of activity broke loose, and several people simultaneously jockeyed for the floor, ready to try out an approach that might now avoid these outcomes. But the lopsidedness of what was being asked of the client and of the consultant had not yet been explored, so the new attempts failed to solve the problem of disproportionate responsibility. So a third participant role played, "I'll do my best to present it in a way that you can understand it in simplified terms; but if something comes up that you don't understand, feel free to ask." As the interventionist said of this new attempt, its very "niceness" might compound the problem. The client might think, "She says she's going to try her best and use simple terms, so how can I possibly tell her that she's failed or that I don't understand." A second response came in the form of a role play of a possible client reaction: "The problem with high technology people is they present material so that you can't understand it. If it's so confusing, I have my doubts about it." And yet a third possibility is that the client could feel that he must be really stupid if he does not even understand "simplified terms," making it unlikely that he would "feel free to ask."

As a result of these experiments, participants began to see that they were stuck. The only way they could encourage questions was by emphasizing either their shortcomings or their good intentions. Either way, their clients might inadvertently be discouraged from raising questions or confronting them. Once participants recognized this, one person reframed their responsibility by suggesting that “they should think through how to present it, so they’re not using technical overkill,” but no one was sure how to go about this. At this point the interventionist suggested a proposition that built on this reframing: Communicate ideas so that they can be easily recognized by a client, while at the same time heightening their impetus to confront and inquire into the ideas. To illustrate this, he cited the initial unfreezing process they had all experienced. He recounted how he had provided data on their own actions and then drawn from them a short chain of inference, leading to a puzzle that had triggered confrontation and inquiry into his ideas. This new formulation of the problem and how to solve it made sense to participants. They retrieved their own reactions to this process and affirmed that it had evoked the impetus to challenge and inquire.

The impromptu experiments just discussed began with the discovery of a particular problem. The ensuing inquiry then followed a course that took it through three different problem frames and experiments, each one generating new problems and leading to new experiments in action. As this process ran its course, participants encountered a gap between their ideas and the consequences their actions yielded once these ideas were produced. By helping participants to follow the norms, the interventionist was able to help them see their stuckness, while simultaneously keeping the inquiry into it moving.

Let us consider for a moment the implications of what we have discussed so far. On the one hand, individuals have an ongoing opportunity to confront and inquire into the norms of the seminar, and most become committed to learning how to enact them. On the other hand, they start out unable to produce these norms on their own, so they have to depend on the instructor’s help in following them. The process of experimen-

tation that follows is characteristic of the process in which they will continue to be engaged. Participants put forth their ideas, and with the interventionist's help they test them out in action. As their peers report their reactions and reflect on them, they begin to see that their experiments produce unintended results. They keep trying to bridge the gap between theory and action, and they keep falling short. Early on in the process this sparks a mounting sense of failure, as participants recognize that they cannot hold the interventionist or others responsible for these results, since the interventionist has continually probed for his own and others' impact on them. As a result, participants start to look inward to their own responsibility, and they discover that they are creating their own stuckness. Gradually their sense of failure increases, often leaving them feeling anxious, frustrated, and helpless. As one participant put it, they can come to feel: "We're all just spinning our wheels. Does anybody else feel like there's static electricity in this room?"

As these experiences accumulate in the early phase of learning, the participants' willingness to make themselves vulnerable becomes harder and harder to sustain. Frustrated, they enact defenses that deflect attention away from their stuckness. They start to press, "So what's the correct answer?" "Show us the right way to do it." These kinds of requests carry multiple meanings. One is that participants are now aware of a gap but may see it as relatively easy to close (if they could just get the right answer). Another is a wish to avoid a process of reflection on the gaps uncovered in their theories-in-use. And yet a third is a desire to know that there's an alternative—that there is in fact some way to get the spinning wheels engaged again.

Taken together, these three meanings make a simple request complex. Certainly an interventionist should illustrate an alternative for the participants. But if the interventionist gives the equivalent of answers as soon as participants discover that they are stuck, he may create the kind of hope that will eventually produce a sense of despair. He could communicate that what comes easily to him can be easily replicated, when we have found that this is not the case. When participants try to circumvent reflection or limit redesign to strategies alone, we have dis-

covered that they end up using the “right” technical moves as gimmicks. That is, they enact strategies that continue to satisfy the same theories-in-use, thereby leading to the same outcomes. So they might now illustrate inferences but do so in order to nail someone; they might inquire but in ways that are experienced as lawyering, and so forth. Before long, participants begin to realize that they are still stuck, and their despair and anxiety return only to run deeper. In terms of the action map in the previous chapter, the interventionist could end up reinforcing unrealistic levels of aspiration, heightening rather than reducing experiences of failure.

Early on the interventionist prefers not to emphasize “right answers” but instead to use the dissonance generated by failure and inconsistency to direct attention to what leads to them. The question to stress in this early phase is not so much “How should participants act differently” as “What are they doing, what leads them to act as they do, what prevents them from acting differently, and what are the skills they need to answer these questions on their own?” But if participants deflect attention away from such questions, it will be difficult for them to sustain and withstand the process of reflection necessary to answer them. Such deflection suggests, as do their other defenses, that they may wish to avoid looking at their theories-in-use and the inconsistencies they produce. The dissonance generated by these inconsistencies may become so great that it pushes them from a mode of attentiveness to one of protection. The interventionist must therefore help participants continue to make themselves vulnerable in the face of repeated failure and stuckness.

Encouraging Reflective Experimentation

The interventionist takes a stance toward participants’ experience that encourages them to express, reflect on, and begin to reframe it. In part he does this by making himself vulnerable in the optimal sense of the word, consistently communicating to participants, “This is my view. I think it’s right but I might be wrong, so let’s take a look at it.” By communicating

this willingness to learn, the interventionist nurtures a willingness to tell. At the same time he recognizes that this involves risks, so he actively inquires into participants' reactions and invites confrontation of his own views while seeking to reduce the threats involved for participants.

One way he does this is by taking seriously what is expressed. Because reactions that range from anxiety to anger to excitement are often expressed, he anticipates them and is not thrown by them. Yet since the particulars of each participant's experience will vary, anticipating a range of reactions never takes the place of knowing what participants are experiencing in a particular instance. Therefore the interventionist at once affirms the expression of feelings while simultaneously inquiring into them by saying things such as, "That's important. Let's take a look at that." Or: "That's something I had been unaware of. Do others feel similarly?" Such responses encourage the expression of difficulties by communicating that much can be learned from what participants are experiencing.

Once expressed, participants' reactions can simultaneously fuel a process of inquiry and present new obstacles to it. When one participant exclaimed, "I find this really frustrating, and I'd rather leave if it's going to continue because I feel like I'm having a nervous breakdown," she drew attention to her experience of what was happening, yet she held others hostage to it: Others had better act in accord with her view or else. So she simultaneously made possible and warded off the help that might have reduced her frustration. In expressing her experience, she provided a start; but given the way she framed it, she stopped others from inquiring into it. The material she presented—so essential to a process of inquiry and learning—was put forth as an obstacle to it.

This poses the interventionist with a dual and apparently conflictual task. He must encourage the continued expression of her experience of the situation, while at the same time calling into question the way she frames it. These requirements generate a necessary tension. On the one hand, calling into question how she has framed the situation may create additional upset and only lead her to draw back and conceal her reactions.

Yet on the other hand, if her view is a priori accepted, she may simply withdraw and leave the group, while others may pull away from her.

To sustain the expression of such reactions as well as a process of inquiry into them, the interventionist adopts a stance toward participants' experience that takes account of how they frame what they see, while not taking it for granted. To illustrate, we turn to three instances in which the interventionist responds to participants as they express their reactions and try to help one another. He responds in this first excerpt to a participant's fears of being wrong:

Participant: [I'm scared] because I don't want to be wrong. I don't want to be stuck, and I don't want to be onstage.

Expresses her fears.

Interventionist: Okay, that's important. I don't want to skip over that point, because I can fully understand those feelings: Nobody wants to be wrong.

Takes seriously what is expressed.

At the same time, if we're going to be a group that is helpful to our learning, it is important that we feel free to make errors.

Expresses understanding. Communicates that her feelings are universal.

What I'd like help with is: Are there things I do that make it harder for people to say things that might be wrong?

Offers another view that implies an unintended consequence of hers: Being wrong may be the right thing to do. Provides a choice ("if we're going to . . .").

Inquires into obstacles that might make his view unreachable; begins by focusing on his own responsibility.

In a second instance the interventionist pointed out the unintended effect of a participant's advice by saying, "I believe you were trying to be supportive; paradoxically, it may have

had the opposite effect.” And in a third instance he responded to the participant who said she felt everyone was spinning their wheels by saying that he could empathize with her feelings of being stuck and yet had a different view. From his perspective what was happening was productive; people were defending their views in ways that facilitated learning, and they were discovering their theories-in-use for the first time.

In each of these instances the interventionist empathizes with the participants’ experience by taking into account what it is they are feeling or intending. Yet as he does so, he frames the situation before them from the vantage point of his perspective and theory. Some readers may not think this constitutes empathy, since it involves looking at another’s perspective from one’s own. But in our view this approach involves a caring kind of distancing. The interventionist does not just accept the participants’ experience but reframes the situation before them so that it might be experienced differently. More precisely, he frames the situation in a way that will sustain the process of inquiry at hand. In the first excerpt the interventionist focused on the participant’s not wanting to be wrong. As he did so, he recognized the experience as universal, yet he reframed the making of mistakes, stressing that they may be the right things to make. Similarly, he pointed out that supportive moves may undermine one’s peers, and spinning wheels may mean that important discoveries are occurring. Such reframing moves provide participants with a paradoxical lens through which to view their experience. The interventionist does not say, “You think it’s wrong to make errors but *really* it’s okay.” Instead he communicates: “It is possible to not want to be wrong, when making mistakes may be the right thing to do; it is possible to intend good effects while bringing about negative ones; and it is possible for spinning wheels to indicate an important advance and for repeated failures to lead to success.” In short he recognizes their experience while reframing the situation in a way that enables them to better withstand the risks of reflection and experimentation.

This form of empathy takes participants’ experience into account, while not taking it for granted. For this kind of

empathy to be expressed and experienced as genuine, we believe that three requirements must be met. First, the interventionist must be able to accurately and usefully comprehend the participants' experience (Rogers, 1951; Schafer, 1959, 1983). He must therefore have some model or representation of the participants' experience in his head that will be useful to them. The model in the previous chapter (Figure 8) on how participants engage in the learning process is one such model:

- It is what Schafer (1983) calls "one step ahead" of participants' awareness, and it can therefore help participants to see their experience more clearly and usefully, so that they can begin to move into new domains.

- It is accurate and able to roughly anticipate a range of reactions, so the interventionist can predict and more readily manage expressions of difficulty, pain, and resistance.

- It frames participants' actions and reactions as unintended, but meaningful and necessary, expressions of the conditions they face and of the theories-in-use under reflection, thereby making their expression safe enough, reducing the potential for polarization between interventionist and participant, and sustaining "goodwill" toward participants and "good work" with them (see Schafer, 1983).

While such models make useful sense of participants' experience and enable the interventionist to anticipate participant responses, they are nonetheless models, and as such they might be wrong and they are surely incomplete. Because of this the interventionist must collaborate with participants to discover where these models are wrong or incomplete. Such collaboration itself requires that the interventionist take a stance of vulnerability that involves jointly controlling the process of inquiry—both the generation of data and the making of inferences—so that the models can continually be modified and made more complete.

A second requirement is that the interventionist have a position of his own that can sustain inquiry. We believe that this position should be one that can frame errors, difficulties, and resistances in a way that will allow interventionist and participants alike to explore these phenomena without triggering pro-

tective responses that will lead participants to withdraw. Three propositions that contribute to conditions conducive to vulnerability and risk taking are:

- Participants will all make mistakes.
- The consequences their actions yield are necessary, but unintended.
- Errors are puzzles to be engaged.

The first proposition stems from the finding that participants' theories-in-use are widely held and testifies to how successfully individuals have adapted to the world through a shared process of socialization. This proposition tends to make the discovery of one's own theory-in-use less threatening. As one participant expressed it: "If this theory is right, everybody is going to make mistakes, so we are all in the same boat." The second proposition holds that the negative outcomes of an individual's actions are necessary but unintended consequences of a theory-in-use. This proposition allows the interventionist to focus on the negative effects of actions, while simultaneously empathizing with an actor's good intentions. It makes possible the earlier empathic response of "I believe you were trying to be supportive; paradoxically, it may have had the opposite effect." The third proposition goes a step further. Not only are mistakes acceptable, they are the necessary raw material of learning and without them the process of inquiry into theories-in-use would grind to a halt. It is this third proposition that enables the interventionist to remain credible while saying, "Making mistakes may be the right thing to do." But to work, such a paradoxical move must come from the interventionist's own belief that errors, difficulties, and resistances are sources for reflection, the fuel that can keep a process of inquiry moving as long as participants are willing to take a look at them. Without such a proposition, we would predict that an interventionist could not sustain the right technical moves over time in the face of participants' defenses. At some point the interventionist would likely be experienced as inconsistent, insincere, or both. But when this proposition is used correctly, participants are

most apt to respond as one did: “There is a strange paradox. . . . we are learning that we are ineffective. That’s what makes people defensive—being told ‘you are wrong.’ The paradox is that there is something in this work that makes people willing to listen.” And we would add: willing to continue to express and reflect on what it is they are experiencing. What we have tried to do here is explicate a little further what this something is.

So far we have taken a look at how the interventionist draws on norms that aid reflective experimentation by enabling individuals to act in ways that can sustain it. We have seen how he empathizes with their experience of this process while reframing their understanding of it, so that they can better withstand its risks. But what we have discussed so far is not sufficient to enable individuals to reflect on and redesign their actions. That requires in addition some way of making sense of what it is they are doing and of designing alternatives. A third component of the learning context therefore is cognitive, and it involves the teaching of concepts that can be used to understand and redesign actions.

Understanding and Redesigning Actions

Participants seek to redesign their actions from the start of the learning process, as soon as they discover that they have not been effective in consulting to clients. When easing-in doesn’t work, they try being more forthright, or they try different ways of easing-in, or they oscillate between easing-in and being forthright. The unfreezing process really takes hold when participants discover that they are unable to redesign their strategies effectively. In our language, the problem is not the particular strategies they use, but the Model I theory-in-use that informs their design of particular strategies. It is the discovery that they are unable to correct their errors that leads participants to feel vulnerable, out of control, and hopeless.

For example, during the first round of role playing in one group, the participants recognized that their actions were ineffective. When they tried again, they repeated the same errors. At the beginning of role playing, they were confident that

they could design more effective interventions. But as the role playing continued, they began to feel frustrated by their repetition of the same errors and by their inability even to understand what was wrong. One said, "I still don't have any more insight than I felt I walked in here with." Another said that she had tried to figure out how to help but realized that she "couldn't bring anything fresh into it." A third participant added that he couldn't think of an approach different from those that others had tried. He continued: "I find myself kind of floundering at this point, trying to figure out where the problems are, what went wrong. I don't know how anybody else feels, but I need some feedback before I'd even want to experiment at this point."

These reactions are not surprising. Left to their own devices, participants would be unable to redesign the Model I predispositions that lead to repetitive failures. Rather than continue to feel frustrated and hopeless, they might decide that it is impossible to produce Model II action and thereby justify their withdrawal; or they might decide that some Model I strategies are as good as could be expected, and not focus on their counterproductive features. In other words, the defenses that enable people to remain unaware of their theories-in-use in the Model I world would reassert themselves.

The task of the interventionist is to help participants begin to genuinely redesign their theories-in-use. In approaching this task, he can take a cue from the participant's comment that he could not understand "what went wrong." Human beings programmed with Model I theory-in-use will be blind to the features of interaction on which they must focus if redesign is to be successful. An initial step is to provide concepts that enable participants to recognize patterns of which they have been unaware. As they become better able to diagnose their errors, they will begin to feel less out of control. They will gain some satisfaction from their developing ability to recognize their failures. At the same time, if the patterns taught are closely related to designs for Model II action, participants will be laying a foundation for redesigning their actions and developing their expertise.

The use of concepts, we learn from cognitive psychology, is at the heart of expertise. Individuals who are experts in some activity have learned a particular vocabulary of patterns relevant to that activity, they know the implications for action of those patterns, and they have heuristics that guide their designing. For example, studies of chess players have been conducted to determine what cognitive strategies differentiate experts from novices (Simon, 1969; Glass, Holyoak, and Santa, 1979). When experts and novices are shown actual chess positions for a few seconds, the experts can later recall virtually the entire board whereas the novices cannot. But if experts and novices are shown random chess positions (that is, those that do not arise from actual play), there is no difference in their recall. It appears that experts have a large vocabulary of patterns that they encode as meaningful "chunks." Becoming an expert chess player is in part a matter of learning this vocabulary of patterns.

Expert play is also a matter of making the right moves. This means that chess experts have a network of knowledge about the implications of the various patterns. Some of this knowledge is in the form of heuristics such as "control the middle of the board." The expert understands a chess position as an interrelated set of meaningful patterns with implications for subsequent moves, and uses a set of heuristics to choose which of the possible moves deserves consideration. For example, Neisser tells the story of "Capablanca, the former world [chess] champion, [who] was once asked . . . how many moves he typically examined in a difficult position. He said, 'One, but it is the right one' " (Goleman, 1983, p. 56).

The participants in our seminars are already experts in designing action in everyday life. The difficulty is that their expertise is patterned after Model I. Their vocabularies of patterns of social interaction, the implications they attribute to those patterns, and the heuristics that guide their designing combine to inhibit double-loop learning. Moreover, they are not aware of these consequences while they are producing them. In this section we thus describe some of the conceptual tools that we use to help participants to unfreeze the Model I psychological set,

as well as to design and implement Model II actions. Not only do these tools, once learned, help them to gain expertise, they may also be used to help others to do the same.

Concepts for Learning and Acting

Concepts in action science theories, we have suggested, are designed to serve the dual function of (1) describing and understanding reality and (2) enabling individuals to take action. The tools that we use in our seminars are designed to help individuals understand their behavior as well as to change it, should they wish to do so. For example, in using the X and Y case format we ask individuals to write scenarios (actual dialogue) in the right-hand column, and any thoughts and feelings that they do not communicate for whatever reasons in the left-hand column. They are not asked to specify the reasons.

This request derives from several key concepts in the action science approach. First, an individual's theory-in-use can be inferred only from behavioral data such as conversations. Conversations are the result of systematic causal reasoning that is informed by the actor's theory-in-use. In the action science approach, conversations are not viewed as anecdotal data but as systematic productions that provide a means of understanding the causality that actors believe exists in a context, as well as the causality that they use as a basis of action. Second, individuals automatically censor the important ideas and feelings upon which they construct their causal pictures if they believe that communicating these ideas and feelings will upset other individuals and hence make them responsible for causing defensiveness in others. These judgments, as we have seen, are made automatically and tacitly, and individuals tend to be unaware that they are producing them. The left-hand column therefore provides a window onto the self-censoring process, and that process in turn provides a window onto what individuals believe will threaten themselves or others.

Once individuals understand the conceptual basis for these two columns, they may use it to facilitate learning. For example, if they are uncertain what an individual is feeling or

thinking because they suspect that he is censoring his feelings and thoughts, then they can use this approach: "May I ask, what is on the left-hand side of your column?" The question encourages disclosure of the self-censoring process without identifying it as self-censoring. This provides a way to distance adequately or to create what we call a "screen" upon which an individual may disclose information that he would otherwise be reluctant to reveal or would unknowingly distort.

There are six concepts that participants have found helpful. First is the ladder of inference, a concept that sets forth how the human mind reasons when trying to understand, design, and execute action. Second is the concept of prototype or exemplar, which focuses on the fact that some concepts are useful in organizing experience in ways that allow it to be generalized. Third is the puzzle intervention, a concept about how to initiate the processes of self-examination and change of behavior. Fourth is the theory-in-use proposition, a concept that focuses on ways to define in generalizable propositions the rules that individuals use when acting. Fifth is meaning-invention-production-evaluation, a concept about the nature of the learning process that makes it possible to slow it down in order to examine it more carefully. Sixth is the concept of hybrids, which helps to remind participants that early learning produces hybrid conversations that contain Model I and Model II features.

It is our experience that these concepts cannot be taught simultaneously, even though once they have been learned well, several may be used together. Thus individuals may make inferences about the meaning of some conversations by retrieving prototypes. They may then design an intervention to bring out an inconsistency, which means creating a puzzle intervention. In designing the intervention, they may retrieve a rule that they use to produce the intervention.

We strive to decompose the learning problem into one or two of the concepts at a time even though, as will be seen, any given episode may have more concepts embedded in it. As learning progresses, it becomes possible for the players to examine and use several concepts with ease.

The Ladder of Inference. An underlying assumption of the action science approach is that individuals use reasoning processes whenever they strive to diagnose and act. It is our hypothesis that these processes are generalizable in terms of steps that the human mind must go through if understanding or action is to be effective. The ladder of inference is a concept that describes what those processes may be (see Chapters Two and Eight). The first rung of the ladder of inference is directly observable data—for example, a sentence uttered by someone. The second rung is the cultural meaning of that utterance, that is, the meaning that would be understood by anyone who was a member of the relevant language community. The third and higher rungs are the meanings imposed on the cultural meaning by particular actors.

Once students learn the ladder of inference, they can use it to discover the kinds of inferences they are making, the connections or lack thereof between inferences, the data on which they are based, and the conclusions they lead to. It can be used to highlight patterns in the way individuals reason and act and can also be used to design an alternative set of patterns.

For example, during an early episode in the seminar, one participant made the following attempt to produce a Model II intervention:

<i>Actual Dialogue</i>	<i>Comments</i>
<i>Sandra:</i> When Len said, “How do you know [that Ann felt defensive]?” I can’t remember what you [Beth] said.	Begins by trying to recollect the directly observable data: what Beth said that is the basis for the intervention Sandra wants to make.
<i>Beth:</i> I said that I was trying my best to invite her to have a joint conversation about this problem, but she just wouldn’t open up. She kept saying, “No, there’s no problem.”	Beth repeats the data.

Sandra: So, when you said, "It seems like it might be time to think about whether your roles—whether both counseling and being a client is kind of becoming a problem," you thought you were inviting her to respond to you.

Cites a sentence from the case.

States the meaning that she understands Beth to attribute to her behavior in the case. (Hence, tests meaning.)

Beth: That's right.

The actor (*Sandra*) used the ladder of inference in several ways. First, she remembered that she should begin her reasoning processes with the directly observable data. Since she could not recall them, she asked *Beth* to repeat what *Beth* had said. *Sandra* then took a sentence and inferred the meaning that she understood *Beth* to attribute to her case, thereby testing that meaning. *Sandra* could go on to impose her own meaning by drawing on features of her theory-in-use. This could lead her to design whatever action she wishes, presumably another way of dealing with the problem.

The ladder of inference is also a strategy for action. When it is followed, individuals collect directly observable data, connect inferences with the data, make the inferences explicit, and finally test them. This map of how the mind may work becomes a map of how the actor's mind should work when trying to be of help to others.

We will give a second example to show how the ladder of inference can help in the design of a more fully formed Model II intervention. This example, like the previous one, is from the discussion of a case in which *Beth*, a supervisor, is trying to help *Ann*, a counselor. Participants had been intervening with *Beth*, and the instructor was illustrating a Model II design for intervening with one of the participants:

Actual Dialogue

Comments

Instructor: Joan, when you said, "So do you think that

States data (rung one).

circumstance right there could have put a block into your effective handling," I infer that what you were telling Beth is, "Beth, your inconsistency led you to be ineffective." Is that a fair understanding?

Joan: Yes.

Instructor: Yet I also notice that you have put your intervention in question form, such that if Beth answers correctly she will state the evaluation that you are implying. Does that make sense to you?

Joan: Yes.

Instructor: Okay. That's a strategy that we call easing-in. Easing-in is when you ask questions such that if the other person answers correctly, they'll figure out what you're not saying. The difficulty with easing-in is that the recipient is likely to recognize the strategy, hence knows you are making a negative evaluation, and that you are not stating it forthrightly for fear he will become defensive. So the recipient can experience you as unilaterally controlling and may infer he has good reason to become defensive.

What are your reactions?

States inferred cultural meaning (rung two); asks for confirmation or disconfirmation.

States another set of inferred meanings.

Asks for confirmation or disconfirmation.

States theoretical meaning (easing-in) based on previous meanings.

Identifies negative consequences predicted by theory.

Encourages inquiry.

To summarize, the instructor produced an intervention in three steps that began with the directly observable data, and he stated his inferences step by step up the ladder of inference, testing the client's reactions at each step. He chose to test inferences that led to the idea of easing-in, and he also stated the negative consequences predicted by his theory.

Prototypes. Patterns in social interaction are not precisely defined. Their boundaries are often fuzzy. Fuzziness, however, is characteristic of ordinary language. Most concepts in ordinary language identify a class whose elements vary about a prototype. For example, a robin is a prototypical bird; a penguin is not. Observers will readily agree that some objects are tables (those with flat, rectangular surfaces and four legs), but may disagree whether a recycled cable spool merits the label (Glass, Holyoak, and Santa, 1979, pp. 337-353).

It appears that human beings process and store information in terms of prototypes. For example, several experiments have shown that when subjects study a set of drawings that vary about a prototype and then are shown another set of drawings and asked to identify those that are familiar, they recognize the prototype as familiar despite the fact that they had not seen it before (Glass, Holyoak, and Santa, 1979). People learn more quickly to identify objects as members of a category when they have had experience with a prototypical member of the category. They can more rapidly classify as members of a category those objects that closely resemble the prototype.

We suppose that similar considerations apply to social cognition. People identify a particular situation as one or another kind of situation and design action accordingly. The recognition process may be one of comparing the particular situation with prototypes stored in memory that express central tendencies of various kinds of situations (Forgas, 1982). Teaching people to recognize patterns of interaction of which they have been unaware would thus seem to be facilitated by presenting them with relatively prototypical exemplars. Indeed, all the examples used in this section of the book are intended to be prototypical.

The idea of prototypes is relevant not only in learning to recognize kinds of situations but also in learning to produce

new action strategies. We can explain how this is so by returning to our notion of the ladder of inference as a concept to aid action. The ladder of inference may suggest that an actor ask for illustrations, test a meaning, or explain the consequences of not illustrating attributions. Whichever strategy the actor chooses as appropriate must be tailored to fit the unique details of the particular situation.

During an episode a participant said to the instructor, "I thought you mowed over her point." The ladder of inference may help participants to recognize "mowed over" as an attribution at a high level of inference and to think of asking for the directly observable data on which the attribution was based. Indeed, we have a rule for designing a Model II intervention for this situation: If an attribution is unillustrated, ask for the directly observable data. But what is it that the actor should actually say? This rule, like all rules, is quite abstract. Designing a concrete sentence that enacts the rule is a far from trivial problem.

We suppose that an important way that students learn to produce sentences that are consistent with Model II rules is by retrieving sentences that the interventionist has uttered. But there are a very large number of sentences that might enact a given rule. We may think of these sentences as varying around a prototype. For example, a prototypical sentence to enact the rule stated in the preceding paragraph might be, "What have I said or done that you saw as mowing over her point?" Students may remember this sentence and modify it to fit the particular details of a given situation in which they recognize that an unillustrated attribution has been made.

These ideas offer a way of understanding how interventionists become competent. Interventions may be organized around prototypical patterns of interaction that the interventionist recognizes in what clients say. Action is based on maps and prototypes that the interventionist has learned and seeks to pass on to clients so that they too may act in Model II ways. Later we will see how the rules and prototypes that students have learned may conflict or may be used inappropriately, and how inquiry into these errors and conflicts illuminates the reasoning that underlies competent performances.

The episode that follows shows how prototypes may arise during class interaction. The episode occurred while participants were role playing an interaction between Marilyn, the director of a counseling organization, and a member of her staff. After listening to the role playing for several minutes, one participant said:

Doug: Could I cut in? I feel you're both painting yourselves into a corner. Marilyn, I wonder if we could just talk about what happens in terms of painting into corners, and just discuss it and maybe come up with a way that that wouldn't happen.

Interventionist: If I could just point to "just discuss it," "maybe we could come up with a way," is the equivalent of "if you could just be in touch with" [*laughter*]. Do you agree? What is it you want her to do?

Doug: I want, in some way, to get across to her that I'm not going to confront her in a way that's going to push her psychological button, and make her get defensive.

Marilyn: Show me [*laughter*].

Interventionist: Is there anything you saw that was going on in this room that you can use to build your intervention? Seems to me—is this a correct attribution?—you were watching and you said, "Oh, oh, they're both getting defensive."

Doug: That's what I saw.

Interventionist: You interrupted and said, "You're both painting yourselves into a corner." Now, can you reflect on what was the theory behind that intervention?

Doug: It seemed to me that neither one of you was listening to what the other had to say. You were making arguments to support your own theories.

Interventionist: How about if you said, "Both of you were carefully listening to what each of you was saying, and carefully selecting the part you wanted"? Instead of saying "neither of you"—because I think they were really listening [*laughter*]. And they were listening to pick apart—

Doug: Yeah, I like that.

Tom: Write that one down!

The interventionist's suggestion is what we call a *reframing* move. Doug's framing of the problem was, "Neither one of you [was] listening." The interventionist's reframing was, "Both of you [were] carefully listening, . . . and carefully selecting." This formulation of the problem has several advantages over Doug's. First, it is more accurate. Second, it credits both parties with intentions to act responsibly. Third, it offers a means of getting at what is causing difficulty: the ways in which each person is selecting what to respond to.

It would seem that the essence of this reframing is seeing the simultaneous but contradictory intentions that people may hold. Marilyn and the staff member might simultaneously be listening to what the other was saying and seeking to show that his or her own view was correct. Each might be concerned about his or her own vulnerability and about the impact on the other person of any errors that might be made. Vernacular psychology may be oversimplified in assuming that people hold only one intention at a time, leading observers to attribute "not listening" or "not acting responsibly" when they see incompetent behavior. The interventionist's framing is based on a more complex picture of human beings. It is a useful complexity both because it can be stated publicly without causing more defensiveness and because it focuses more sharply on what is causing difficulty.

Notice that participants immediately recognize the interventionist's suggestion as a good one. Tom's comment—"Write that one down!"—suggests that participants see the words as a potential prototype to be stored for future use. The intervention is vivid, it calls to mind the web of reasoning associated with the reframing issues we have just discussed, and it is generalizable. The particular problem to which it refers, that of individuals who may appear not to be listening, is itself quite common; and it exemplifies the reframing of other kinds of problematic situations as well. It may suggest a useful means of reframing in situations in which someone is attributing "not

helping,” “not acting responsibly,” “not caring,” or other nasty motives.

There is another feature of the episode that may be generalizable. Participants were trying very hard to design effective interventions and were finding themselves repeatedly getting stuck. The interventionist then helped them to make public their reasoning, and was able to build on their reasoning to design an intervention that participants recognized as superior. The emotional involvement of participants, their building frustration followed by an “Ah, ha!” when they saw how their problem might be solved, increases the likelihood that the intervention will become prototypical for them.

Puzzle Intervention. A puzzle intervention is a way of pointing out a possible inconsistency in an actor’s reasoning, espoused theory, theory-in-use, and behavior. The value of the puzzle intervention is predicated on the social psychological notion that individuals abhor inconsistency. If clients experience inconsistency, they feel jolted. They may defend themselves and/or try to redesign their behavior. The intervention makes vivid the features it confronts. It helps unfreeze automatic behavior and interrupt unawareness. The intervention risks, of course, evoking inhibiting defenses. However, it can be designed in ways to reduce this risk.

A classic form of the puzzle intervention appears in our opening exercise, the X-Y case. The interventionist asks clients to evaluate Y’s performance and infers a microcausal theory: If someone behaves as Y behaved, then the other person will feel misunderstood and prejudged, and little learning will occur. Clients readily agree that this is their view. The interventionist then identifies the puzzle: If clients revealed to Y the words in their diagnosis, they would be enacting the very causal theory they criticize Y for enacting with X. To tell Y he is blunt and insensitive is itself blunt and insensitive.

This example illustrates three features important to the competent use of the puzzle intervention:

1. *Begin* by illustrating and testing one or two inferences that clients can easily confirm (for example, “There is a micro-

causal theory embedded in your diagnosis, which is: If someone behaves as Y behaved, then the recipient will feel misunderstood and prejudged, and little learning will occur.”)

2. *Use* a short chain of inference from the directly observable data to whatever it is you are inferring.
3. *Show* how this illustrates that the client is acting in ways that the client himself finds unacceptable.

The third step is usually followed by encouraging inquiry, either into the interventionist’s reasoning or into the client’s reasoning. For example, the interventionist might say, “What would lead you to design your action in a way that you yourself criticize?”

Here is an example of a puzzle intervention from our seminars:

Interventionist: When you say, “I guess I’m confused in that you’re sort of alluding to a problem that you think exists, and you’re citing evidence that it exists, but you don’t want to say to her that it in fact exists,” I infer the meanings that “you were withholding” and that “you acted inconsistently.”

These are negative evaluations and negative attributions.

Rather than state them explicitly, you cite the data that should lead the other to infer [what is in your head]. But is that not the very thing that you are criticizing the other for doing? You are alluding to a problem that you think exists and citing evi-

Cites the directly observable data.

States cultural meanings.

States theoretical meanings.

Identifies the participant’s strategy.

States that this is the very strategy that the participant criticizes Beth for using (uses participant’s words to establish puzzle).

dence that it exists, but not saying to Beth that it in fact exists.

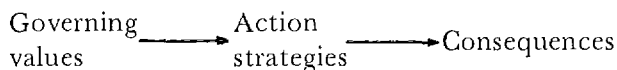
Am I communicating?

Encourages inquiry.

Since the puzzle intervention is high risk, it is also necessary that the interventionist be competent to follow up consistently with Model II theory-in-use. For example, if the intervention evokes what appear to be inhibiting defenses, the interventionist should look first to his personal causal responsibility (“I’m sorry if I’ve upset you; what did I say that distressed you?”). It may be that the intervention was not produced consistently with the norms of Model II.

Theory-in-Use Proposition. Recall that we conceive of theories-in-use as systems of propositions. We provide a very general model of participants’ theory-in-use, Model I. We ask participants to reflect on their own theories-in-use to specify in more detail the patterns that are characteristic of their designs for action. But it is not possible to completely specify a theory-in-use because such theories are enormously complex. We recommend that participants seek to identify propositions in their own theories-in-use.

To illustrate the features of a theory-in-use proposition, let us consider the theory-in-use characterization of easing in: Ask questions such that, if the other answers correctly, he will discover what you are hiding. This is a characterization of an action strategy, one of three elements in the schematic representation of a theory of action:



The theory-in-use definition of easing-in leaves tacit the governing values and consequences associated with the strategy. These could easily be specified. The intended consequences are to get the other to see what the actor sees and to avoid creating defensiveness. The governing values are to define the goal unilaterally and seek to achieve it, to win (in the sense of getting the other to see), and to minimize the generation of negative

emotions. We could also specify unintended consequences such as the generation of defensiveness.

In addition to strategies, consequences, and values, a fourth element that is frequently important is the contextual cue. A contextual cue is a feature of the situation that triggers a particular action strategy. After all, no one eases in all the time. Rather, it is when the actor is making a negative evaluation of another, and attributing that the other would get defensive if he were to state the evaluation forthrightly, that he is likely to ease in.

The customary form of a theory-in-use proposition is:

If (contextual cue), then (action strategy).

For example, one student identified the following two interventions as characteristic of a strategy she frequently used:

1. "Y, I was afraid that you'd ask me what I thought of your interview with X."
2. "Z, I find I do this all the time—asking a question designed to elicit a particular answer. Perhaps that's what you're doing in this case."

After several hours of reflection and with help from the instructor, she developed the following theory-in-use proposition: "If I am about to deprecate someone, I first deprecate myself." Notice that this proposition includes a contextual cue ("If I am about to deprecate someone") and an action strategy ("I first deprecate myself"). The associated consequences and governing values remain tacit. They could be specified, and indeed would be quite similar to those associated with easing-in. In fact, the "deprecate self" strategy itself appears to be a kind of easing-in.

In the early stages of learning we encourage students to specify consequences and governing values, because we want them to develop skills in doing so. But we leave the consequences and values tacit in most cases because brevity helps to make the theory-in-use propositions more retrievable. Indeed,

since the point of identifying theory-in-use propositions is to help actors become aware of patterns so that they can begin to change them, it is quite important that the propositions be memorable. They should be short, dramatic, vivid. The repetition of the word *deprecate*, a word that is itself quite unusual, probably increases the retrievability and hence utility of the proposition.

Another set of criteria for good theory-in-use propositions has to do with the requirement that they be general enough to apply to a significant class of actions. It would be of no value to identify propositions that applied to a single strategy that an actor might use once a year. Neither would it be of value to identify propositions that were so abstract that they might apply to almost anything.

A third set of criteria is related to helping the actor interrupt unawareness of features that the theory of action approach identifies as important. Thus the propositions we design often have a form such as, "When (cue), do (action) and act as if not doing (action)." This highlights the camouflage and self-censorship that are characteristic of so many strategies in a Model I world and to which actors often remain blind. Stated another way, we use Model I as a template to help us identify key features of theory-in-use propositions. As a result, theory-in-use propositions typically characterize strategies in terms that the actor would not use. The strategies are recognizable but formulated in a way that highlights how they are inconsistent with the actor's espoused theory. The theory-in-use characterization of easing-in is an example. The actor who was unfamiliar with the theory of action would typically describe the strategy as "helping the client explore" or "helping him come around to seeing the problem." The theory-in-use characterization is thus often surprising to the actor, a feature that probably increases its memorability.

To propose a theory-in-use proposition, whether attributed to oneself or to someone else, is to propose a hypothesis. It is a way of explaining an actor's behavior by postulating a causal mechanism, a mental program that informs the design of action. It is also a prediction that when similar circumstances

recur (that is, the contextual cue that triggers the proposition), the actor will behave as stated in the proposition. When we work with a client's case, we may propose theory-in-use propositions that we infer from the case data. We encourage the client to test the validity of the proposition by seeing if it is confirmed in the client's future behavior.

Once a client has tested the validity of a hypothesis that he acts according to a given theory-in-use proposition, he may decide that this is something he wishes to change. This can be done by designing a corrective proposition and experimenting with interventions that enact the corrective proposition. For example, a client with the "deprecate self" proposition might design the corrective, "When I am about to deprecate someone, state the data on which my evaluation is based and encourage inquiry." This is an invention that the client must learn iteratively to produce.

Meaning-Invention-Production-Evaluation Model of Learning. Another concept that we have found especially helpful for participants to use in redesigning their actions is based on the process of learning described earlier as discovery-invention-production-evaluation. We use this concept to help slow down the actions that usually occur in redesigning action. In this exercise the participants first write down the meanings they infer from a target sentence. Second, they write down an invention or strategy for dealing with the meanings they have identified. Third, they write the actual words they would say to the client to produce their invention. This format leads participants to deliberately consider inferential steps that would normally occur in milliseconds. It also reduces the inhibiting effects of participants' competitiveness and fear of failure, because they are experimenting privately on a piece of paper and can then choose whether to reveal what they have written.

In the following example, Joyce is apparently intending to reproduce the intervention modeled by the instructor (as described earlier in this chapter). Such mimicry is not a trivial exercise. The differences between what Joyce says and what the instructor modeled point to skills that participants have still to develop.

The target sentence is Joan's statement, "So do you think that perhaps that circumstance right there could have put a block into your effective handling of her perceived problem?"

Meanings: Joan is easing in. Rather than giving a negative evaluation, she's asking a question and trying to make Beth come to the conclusion.

Invention: State the data [what Joan said]; give my inference; and question her on her feelings about that inference. If she agrees, go on to explain the negative effects of easing-in.

Production: "Joan, when you asked the question 'So do you think that perhaps . . .' it seemed like what you were doing was easing in, by asking a question rather than stating how Beth was being ineffective in her approach. What do you think about that?"

"But easing-in has consequences that would create defensiveness. For instance, it makes a person become suspicious that you're holding back information."

Identifies meanings at levels three and four of the ladder of inference ("negative evaluation," "easing-in"). Skips level two, the cultural meaning.

The invention is consistent with heuristics for Model II: state data, give inference, test, state consequences. However, does not propose encouraging inquiry after stating consequences.

Begins with the data.

Jumps to inference at level four (easing-in).

Encourages inquiry.

States negative consequences, but does not make explicit reasoning to explain consequences. Does not encourage inquiry.

The reader may wish to compare Joyce's production with that modeled by the instructor. The differences are noted in the right-hand column. Joyce did not proceed step by step up the

ladder of inference, beginning with the data and cultural meanings. If the client did not already know about easing-in, Joyce might have some difficulty. We might speculate that she left out these intermediate steps because they seemed obvious. The recipient, however, might not see the chain of inferences by which a particular sentence was identified as easing-in. Another explanation for Joyce's not stating the intermediate steps is that she lacks the skills to do so.

However, Joyce did follow several rules for Model II action. She stated the data, made her inference, asked for reactions, and described a negative consequence. In producing this intervention, Joyce tried out what she had understood the instructor to be modeling, and she received confirmation that indeed these were important features of Model II action. Hence she experienced some success in redesign. She also learned where her understanding was incomplete and what she could do to produce a better intervention another time.

This episode illustrates several features that are characteristic of the process of learning to redesign strategies. First, with the help of the meaning-invention-production exercise, a participant slowed down her reasoning, and was able to design an intervention that was significantly different from those she produced when she was acting at normal speed. Second, in designing her intervention, she drew on the concept of the ladder of inference, and she used as a prototype something that she had heard the instructor say. Third, she experienced both success and failure; that is, her intervention was a hybrid.

Hybrids. As we have pointed out, students often have difficulty in producing Model II interventions because they have an unrealistically high level of aspiration. This same unrealistic level of aspiration may act to prevent them from recognizing the progress that they may be making. They may, for example, conceive of progress as a matter of producing meanings that have only Model II features. This makes it unlikely that they will recognize progress as occurring when they are producing a mixture of Model I and II features.

We use the concept of hybrid to help students identify the progress that is being made when their interventions contain

combinations of Model I and II. Using this concept permits them to examine a protocol of their behavior and to see where progress is being made and where further work may be necessary.

Recognizing the value of hybrids also helps students to be more accepting of some mismatches in an intervention. Moreover, there may be some interventions that are effective only if they contain both Model I and Model II features.

We will describe three examples of hybrids. Let us begin with an episode in which Linda attempted to design an intervention with Beth (in the case described earlier). Beth had hesitated to suggest to Ann that a problem existed because she did not wish to upset Ann. Linda wanted to show that the unintended consequence was to create defensiveness in Ann.

Linda: That you neither confirmed nor disconfirmed the existence of the problem may be the part that elicited Ann's defensiveness. It sounded manipulative and probing, with a predetermined conclusion. I inferred you had a hidden agenda.

Unilateral advocacy; negative evaluation ("you caused Ann's defensiveness"); no inquiry.

Unillustrated attributions.

As indicated by the comments in the right-hand column, Linda's production is vintage Model I. What is interesting is that Linda thought that she was following the rules for Model II. She saw herself as publicly testing her inferences. While she did state her attributions and evaluations forthrightly, she did nothing to encourage inquiry. And even if she had asked, "What are your reactions?" she would not have created conditions for public testing because she did not illustrate her attributions or make the steps in her reasoning explicit.

But the fact that Linda stated her views forthrightly represents progress. Her accustomed strategy would be to think that Beth was manipulative, probing, and so forth and to carefully avoid saying this to Beth. In other words, Linda's accus-

tomed strategy would be to ease in. We may understand her view that she was “publicly testing” by noting that, were she to withhold her views, the other person would have no opportunity to disconfirm them. By stating them forthrightly, she at least gives the other person an opportunity to respond.

Linda’s forthrightness is not Model II; and indeed her intervention might well create more inhibiting defenses than would her accustomed strategy of easing-in. In the present context, however, her forthrightness is a step forward because it gets her reasoning into the open. It is very difficult to help people redesign their reasoning if they continue to hide what that reasoning is. In this case, for example, Linda’s forthrightness created an opportunity for others to help her see the gaps in her reasoning of which she was unaware. After Linda stated her production, the instructor asked other participants for their reactions. Their replies indicated that several were beginning to be able to identify Model I features of interaction. For example, one suggested that Linda should have stopped after her first sentence and asked Beth if she agreed. Hence, that participant noticed that Linda did not encourage inquiry. Another participant added that Linda had given no data in her first sentence, so it was an unillustrated attribution. He recommended that Linda say to Beth, “When you said, ‘I’m not saying there is a problem. I’m just saying we haven’t talked about this stuff for a long time,’ you neither confirmed nor disconfirmed . . .” Hence, he was suggesting that Linda cite data and cultural meanings. A third participant continued by pointing out that the second half of Linda’s intervention consisted of unillustrated attributions at a very high level of inference.

It appears, therefore, that Linda’s production provided an opportunity for others in the class to experience success in identifying Model I features in what she had said. Linda, however, felt frustrated at her failure:

Linda: It seems like it requires so much dialogue just to say something [*laughter*].

Expresses frustration.

Instructor: I can empathize with that [*more laughter*].

Empathizes.

Linda: With the culture we live in, and our listening and hearing skills—I don't know. I feel frustrated about it, about the utility of it. It takes so much to say.

Expresses more frustration.

Questions practicality of Model II.

Instructor: Okay, I can appreciate that. Particularly when you're trying to learn, and you're struggling with your normal way of operating, and then trying to follow all these rules, it is going to take you a long time.

Empathizes.

Confirms that it takes time, but frames that as a feature of early stages of learning.

My experience is that when you get good at it, it doesn't take any longer. And in fact it takes less time. Because if you said to Beth, "What you did sounded manipulative and probing," I think you would be creating some defensiveness in Beth, because those are unillustrated attributions. And that would lead to a fair amount of noise in the interaction, which would take time.

Proposes that, when one becomes skillful, Model II will take less time to apply than Model I.

Illustrates time-consuming features of Linda's Model I intervention.

Linda expresses frustration and questions whether Model II is useful. The instructor empathizes with her frustration and confirms that it will be time consuming to design Model II action at first. But he reframes this problem as one that characterizes the early stages of all learning rather than one that charac-

terizes Model II in general. And he substantiates this reframing by pointing out how Linda's Model I intervention could also become quite time consuming.

The instructor also attempts to moderate the unrealistic aspiration level of participants. If their goal is to produce competent Model II interventions in real time, it is certain that they will fail. If participants appreciate the difficulty of interrupting their Model I theories-in-use and consciously designing Model II interventions, however, they will have more patience with their need to design and redesign. A more realistic level of aspiration will help participants to feel less frustration.

The instructor also helped participants to see the positive features of their redesign experiments. It is necessary both to confirm the negative features, so that participants can develop their diagnostic skills, and to identify any progress that has been made:

Instructor: You saw yourself as testing your attributions. And you were stating them, so it's possible for the person to at least know what you're saying. But they are not illustrated, so it's hard to test; and you don't encourage the other person to disagree with you.

I think you're being forthright here. I think that is a step ahead. Because it helps us get it on the table and take a look at the reasoning.

Confirms features that Linda saw as public testing.

Identifies features that inhibit genuine testing.

Identifies forthrightness as a positive interim step.

The second case describes an episode in which the consultant was working on the troubled relationship between Marilyn, the director of a counseling organization, and members of the staff. After a warm-up period in which seminar participants gave their impressions of the case, George began to intervene with the consultant:

George: I made an evaluation that I'd like to share: that your interventions would have been more effective had the group ended with Marilyn making some more clear declaration of what her intentions were.

She's very ambivalent, and she's threatened to leave [cites data]. And she's just been presented with what I'd think would be some very threatening information [cites data]. I can imagine on the basis of that, that she'd have lots of reasons to not want to come back.

So I wonder: Do you think it would have been helpful had she declared herself in some way about her intentions?

And if you do, I have a suggestion. . . . I would ask, "Would you be willing to come to the next meeting?"

State evaluation openly.

Does not give criteria of effectiveness.

Cites data for inference that Marilyn might not return.

Inquires, but has not made explicit the reasoning behind belief that getting a declaration would be helpful.

Suggests alternative, in directly observable language.

George's intervention is a hybrid, with both Model I and Model II features. Consider first the features that could lead George to believe he had designed a Model II intervention. He stated his evaluation openly rather than withhold it. He cited data for his inference that Marilyn might not return, so he both illustrated and made some of his reasoning explicit. He inquired whether the case writer agreed with his evaluation, so he may have seen himself as combining advocacy and inquiry. And he offered an alternative for what the case writer might say, so he focused on increasing competence. However, George did not

make explicit the reasoning that led him to believe that the approach he advocated would be helpful. Hence, he gave the recipient no basis for evaluating the validity of his view. He both advocated and inquired, but he did not state the view he advocated in a way that would make his inquiry likely to generate valid information. Rather, his advocacy and inquiry are at the level of, "I believe X would be good; do you?"

In the third case, another hybrid intervention shows a deepening understanding and increasing use of Model II skills. The episode occurred during the first session of the spring semester after the interventionist had asked participants to give their views of a case that had been written by a participant. One participant, Larry, made a long intervention in which he set forth several unillustrated attributions about the case writer and then went on to make attributions about the people in the case. He was interrupted by another participant, Carol, who said:

I want to go back to—you said a lot—but the very first thing you said was that [the case writer] was demeaning. I don't know how helpful that was, because you haven't given her any data about what she said or where that's coming from, and then you proceeded on to a lot of things, but I just wanted to stop at that first thing.

Two features of Carol's intervention are important. First, it was the first intervention in which a participant intervened with another participant whom she thought was making errors. This is important from the point of view of establishing a norm of confronting and inquiring into errors. Second, Carol's intervention shows that she was able to recognize that Larry had made an unillustrated attribution and that this would reduce Larry's effectiveness. It also shows that in intervening with Larry, she had the skill to give some directly observable data herself ("you said [the case writer] was demeaning"). Tom added:

When Larry was talking, I was having certain reactions. First, he's making lots of mistakes, lots of attributions. Perhaps he's going on too long. And I myself didn't know how to deal with his making mistakes. I didn't know how to intervene. When Carol did it, I felt there was a beginning.

The participants appear to be struggling with competing impulses. On the one hand, they know, at an espoused level, that they should publicly inquire into error. And they have evidence, both from the interventionist's statements at the beginning of the seminar and from their own experience in the fall semester, that confronting error will be positively evaluated by the instructor. On the other hand, at a deeper level, they have the automatic reactions stamped in by years of socialization in a Model I world. These reactions tell them that confronting error is dangerous, either because they might make errors themselves or because the recipient might react negatively.

Later in the same session, Larry said that he would like to make an intervention with Tom, who had just questioned what he had thought was an error on the part of the interventionist. Larry said, "The thing I noticed about your exchange with [the interventionist] is that there was no discussion of feelings. And what I'd like to know is, What are your feelings?" Tom replied that he disagreed that feelings had not been part of the exchange, and explained how he had been feeling. Then other participants intervened with Larry:

What was said

Paul: You said you were going to try an intervention, and you asked about his feelings. How was that going to help him to check out how he was feeling?

Larry: [I thought the exchange did not focus on feel-

Our comments

Cites what it was Larry had said; asks Larry to publicly reflect on his reasoning. Focuses on impact of Larry's intervention on client's (Tom's) competence.

ings.] By not focusing on feelings, which seemed to be the heart of the matter, it was avoiding the heart of the matter.

Doug: What data do you have that feelings were at the heart of the matter?

Larry: It's an attribution.

Doug: Based on what?

Larry: It's based on my impression [*laughter*]. That's not okay?

Robin: Not in this class.

Larry: I thought there was unexpressed anger.

Jim: What stopped you from saying you thought so?

Larry: I guess between those two choices, I'd ask somebody what was going on with them rather than attribute anger to them. I felt if I put it that way, it would make it easier to express the anger. I'd rather let him express it.

Mary: But unless you ask him to disconfirm your attribution that he was angry, he's left in a bind, and can't

Asks Larry to illustrate his attribution.

Same.

Laughter suggests norm that attributions should not be justified simply as "impressions" or "feelings."

Asks Larry to publicly reflect on his reasoning.
Focuses on self-censorship.

Identifies unintended negative consequences of Larry's strategy. Focuses on self-sealing quality.

do anything about your assumption that he's withholding feelings. You might keep that assumption unless he's able to disconfirm it.

As our comments indicate, participants appear to have drawn on several Model II ideas in their interventions with Larry. We could expect this episode to reinforce several norms favorable to learning, including those that ask us to:

- confront and inquire into errors;
- reflect publicly on reasoning behind interventions;
- focus on impact on client competence;
- illustrate attributions with directly observable data;
- inquire into self-censorship;
- identify unintended negative consequences; and
- focus on self-sealing features of interaction.

These are heuristics for designing Model II interventions. Episodes such as the one described here help establish them as norms for group interaction, in the sense that participants begin to have reason to believe that members of the group will approve of interventions designed in accordance with these heuristics. If we are correct that such actions contribute to learning and if participants are indeed increasingly able to design such actions, then participants will be able to take more responsibility for managing the learning environment.

But there are features of the interventions with Larry that indicate some limits to the skills of participants. For example, although they inquire into Larry's reasoning and advocate their own views, they do not encourage Larry to challenge their views. They tell Larry, in effect, "You should have told Tom that you thought he had unexpressed anger." They do not add, "What do you see as less effective in the more forthright approach?" Larry might feel that he is being told how he should behave, and not that the group's standards of competent behavior are open to inquiry and test.

A key early step toward learning is for each individual to map the depth and width of his or her Model I action-space. The concepts discussed here facilitate that process of self-inquiry and mapping. For example, some individuals come to recognize the pervasiveness of the easing-in concept. They see how they use it to understand the actions of others, to design their actions, and to monitor their effectiveness. Easing-in becomes a prototype, which means it draws their attention to control tendencies of action strategies that cause them to be less effective than they intend. It also enables them to recognize the same tendencies in the strategies other individuals use in everyday life. The fact that this is a common way to act permits individuals to create a screen (why do so many of us use easing-in?) in order to eventually examine their own theory-in-use.

The discover-invent-produce-evaluate cycle provides actors with a way to slow down what is happening in order to study it more systematically. The ability to take hold of complexity by slowing down the action helps to reduce failure and individuals' fear that they may not be in control when trying to produce Model II actions.

The concept of hybrid provides a way for individuals to set realistic levels of aspiration and simultaneously to identify progress as it occurs. This, in turn, reduces the probability of experiencing failure and increases the probability of feeling successful.

These concepts, once learned, provide actors with several kinds of help. They help actors to understand or enact reality, they help them to design their actions, and they provide rules for producing action, as well as rules for monitoring the effectiveness of action. Herein lies an illustration of a key feature of action science: The concepts of action science contain within them the power to facilitate understanding, design, and action.

Not surprisingly, these concepts were developed in seminars in which we were trying to help individuals learn a new theory-in-use. Looking back on the discussions that produced each concept, we can see that the instigating factor was trying to make sense of what was happening *in such a way that we*

could help the participants. We underline the last part of the sentence to emphasize that we were never happy with a concept that explained what was going on unless it had the power to help individuals redesign and implement new actions. In all our discussions we kept asking how a given concept could be used in the service of diagnosis and action. Again, not surprisingly, these requirements defined the meaning of understanding to include action. When someone asks us, When do you know when you know something, our answer is, When we can produce whatever it is we are talking about.