

*Two increasing popular approaches to management learning help participants merge knowledge and action to solve real-world problems. Participants and facilitators should understand the benefits and risks involved in each of these action technologies.*

## ***Action Learning and Action Science: Are They Different?***

**JOSEPH A. RAE LIN**

A number of epistemological technologies have evolved in the past 50 years bearing the term "action" as part of their reference label. Although not always credited, Kurt Lewin is this author's nomination as the founder of these so-called "action technologies," in that they seem to have their genesis in his reference to action research as a means of conducting systematic inquiry into group phenomena.

The common basis for most of these technologies is that knowledge is to be produced in service of action. As opposed to "positivist" models that were designed to develop theories purposely separated from practice in order to predict truth, action research applied theory directly in the field, with scholars and practitioners collaborating. This approach acknowledged rather than rejected the role of personal feelings within the research context. Both theorists and practitioners would open themselves to inquiry as they sought to "unfreeze" the assumptions underlying their actions.

Evolving from action research are two of the most popular action technologies or strate-

gies in use today, action learning and action science. Action learning, most practiced in Europe and first associated with the work of Reg Revans, is based on the straightforward pedagogical notion that people learn most effectively when working on real-time problems occurring in their own work setting. Action science, most practiced in the United States and associated with the work of Chris Argyris, is an intervention method based on the idea that people can improve their interpersonal and organizational effectiveness by exploring the hidden beliefs that drive their actions.

The purpose of this article is to distinguish these two technologies in a way that will assist those organization development practitioners who may serve as facilitators in both. Readers who are unfamiliar with either technology may consult the sidebars, pages 22 and 23, for an overview. After reviewing their foundational similarities, we will consider the principal differences between the two methods and address some of the advantages and risks associated with each. Readers who serve as facilitators might wish to reflect on their in-

---

*The author is grateful to Judy O'Neil and Robert Putnam for their stimulating reflections in the preparation of this paper.*

### **What Is Action Learning?**

Action learning describes a developmental approach, used in a group setting but affecting the individual and organizational levels of experience, that seeks to apply and generate theory from real (not simulated) work situations. In Reg Revans' original conceptualization, learning results from the independent contributions of programmed instruction (designated P) and spontaneous questioning (designated Q). P constitutes information and skill derived from material already formulated, digested, and presented, typically through coursework. Q is knowledge and skill gained by apposite questioning, investigation, and experimentation.

For Revans, Q was the component that produces most behavioral change since it results from interpretations of experience and knowledge accessible to the learner. These interpretations are bolstered by feedback from mutual learners who participate in a debriefing of the learner's workplace experiences. Hence, actions taken are subject to inquiry about their effectiveness, including a review of how one's theories were applied to practice. Participants learn as they work by taking time to reflect with peers who offer insights into their workplace problems.

In a typical action learning program, a series of presentations constituting programmed instruction might be given on a designated theory or theoretical topic. In con-

junction with these presentations, students might be asked to apply their prior and new knowledge to a real project that is sanctioned by organizational sponsors and that has potential value, not only to the participant but also to the organizational unit to which the project is attached. Throughout the program, students continue to work on the projects with assistance from other participants as well as from qualified facilitators or advisors who help them make sense of their project experiences in light of relevant theory.

This feedback feature principally occurs in learning teams or "sets" typically composed of five to seven participants. During the learning team sessions, the students discuss not only the practical dilemmas arising from actions in their work settings, but also the application or misapplication of concepts and theories to these actions. Further, the group develops a social culture in its own right, which presents participants with lessons regarding group dynamics. Team members also provide encouragement to one another.

Not all organizational problems are solved or are even meant to be solved in action learning. Rather, the experience is designed to confront learners with the constraints of organizational realities, leading oftentimes to the discovery of alternative and creative means to accomplish their objectives.

intervention styles to determine if they have leanings toward one technology over the other. If they are capable of using both, they are invited to consider whether they should be using them sequentially or simultaneously.

The material that follows reviews these and other issues, drawing on transcriptions from actual facilitator interventions (either mine or those published by others) to illustrate the concepts in use. My hope is that by being more aware of the distinctions in action technologies, OD facilitators will be better able to illustrate the respective methods for participants and forecast their likely effects.

### **ARE THEY DIFFERENT?**

Experienced facilitators tend to acknowledge a fair amount of similarity between action learning and action science. In both action

technologies, the "work" within the group tends to focus on one individual at a time, yet the ultimate aim is improvement of interpersonal and organizational behavioral processes. Both emphasize the use of knowledge in service of action. Both are designed to be participatory and even collaborative. Each employs an experimental (as opposed to pre-set) methodology, predominantly conducted in a group setting. Each encourages the presence of a skilled facilitator who helps the group make use of actual situations, as opposed to simulated experiences.

There is also considerable focus on reeducation and reflection. This means that the participants, normally adult practitioners, seek to improve themselves, especially in regard to their human interactions and practices. They accomplish this primarily through critical self-reflection, which by raising consciousness tends to permit more control over one's actions.

### **What Is Action Science?**

Action science is an intervention approach, also aimed at the individual, team, and organizational levels of experience, for helping learners increase their effectiveness in social situations through heightened awareness of the assumptions behind their actions and interactions. Individuals' mental models—the images, assumptions, and stories of themselves and of others—are often untested and unexamined and, consequently, often erroneous. Action science brings these mental models into consciousness in such a way that new, more serviceable models can be formed.

Action science thus calls for the deliberate questioning of existing perspectives and interpretations, a process referred to as "double-loop" learning. When a mismatch occurs between our values and our actions, most of us attempt to narrow the gap by trial-and-error learning. We also prefer to maintain a sense of control over the situation, over ourselves, and over others. In double-loop learning, we subject even our governing values to critical reflection, creating free and informed choice, valid information, and high internal commitment to any new behavior attempted.

Action scientists refer to the set of understandings with which we group the world as an "action model." In many organizational situations involving interpersonal interaction, especially those involving threat or embarrassment, we may automatically invoke a so-called "Model I"

program. This program allows us to save face, avoid upset, and maintain control. Since this kind of reaction often produces self-reinforcing patterns that seal off self-discovery, action science facilitators work with participants to engage in "Model II" responses. These responses allow for the exploration of interpersonal differences and mutual responsibility.

Donald Schon prefers the term "reflection-in-action" to characterize the rethinking process in which someone attempts to discover how what he or she did contributed to an unexpected or expected outcome. In order to engage in reflection-in-action, participants might start by describing a situation and then, upon reflection, provide a frame that characterizes not only their intentions but also explains the inferences they draw from others' responses. Then, they might inquire as to how others in the group see it. Group members might reflect on these frames, offer feedback, and subsequently begin to surface and test their own underlying assumptions and respective reasoning processes.

The aim is to narrow inconsistencies between one's espoused theories and one's theories-in-use. Espoused theories are those characterizing what we say we will do. Theories-in-use describe how we "actually" behave. The goal of action science is to uncover our theories-in-use and, in particular, to distinguish between those that inhibit and those which promote learning.

Behind these similarities, which are also to some extent generic to action research, lie some significant differences, especially at the level of implementation. Hence, for someone who assumes a facilitation role, it becomes critical to know where, for example, action learning ends and action science begins.

We can begin to distinguish between the two technologies by applying a set of criteria formulated to analyze action research-type interventions. These criteria, in combination with real-world examples chosen to illustrate important qualitative differences in interaction style and process, will clarify the fundamental differences between the two.

#### **Purpose**

Although action learning and action science each seeks to benefit individuals by helping

them become more effective in achieving useful action, especially in their organizations, action science goes deeper than action learning. It explicitly asks learners to examine the reasoning processes they use, based on the belief that a person can improve action only when his or her mental models become more explicit. As people in groups behave more consistently with their espoused beliefs and make their inferences known, the level of public discourse naturally improves.

Action learning, on the other hand, does not require this level of depth. Although one's assumptions about action are typically examined, action learning is more concerned with behavioral change through public reflection on real work practices.

Consider an example. The vice president of a chain of retail outlets (lumber and hardware products) is concerned about low levels



**Joseph A. Raelin** is professor of management at the Boston College Wallace E. Carroll School of Management. His research has centered on two principal areas: executive education and the management of professionals. In the former area, he has been interested in developing a new paradigm for advanced management education that would combine theory with practice by bringing researchers, practitioners, theorists, and students together in collaborative learning environments. In the second area, his applied approach proposes that by understanding the separate cultures of managers and professionals, organizations can develop managerial strategies to reward both professional proficiency and managerial accomplishment. Dr. Raelin has produced some 70 articles from his work.

He is also a management consultant with nearly 20 years of experience working with a wide variety of organizational clients in many areas of executive learning. Most recently, he has provided leadership modules for his client companies while concurrently helping them set up action learning programs. His publications include: *The Salaried Professional: How to Make the Most of Your Career* (Greenwood/Praeger, 1984) and *The Clash of Cultures: Managers Managing Professionals* (Harvard Business School Press, 1991).

Professor Raelin received his Ph.D. in 1977 from the State University of New York at Buffalo.

of commitment from the chain's part-time check-out clerks. He has undertaken a project aimed at determining why their motivation is lower than their full-time counterparts.

In an action learning set, the facilitator might start by having this executive, call him Joe, describe the project and anticipated intervention in clinical detail. In a fairly well-developed set, members may join in by probing the details and the assumptions underlying his plans and actions.

Let's say that Joe determines that the best way to obtain data from the part-time clerks would be through a series of focus groups made up of three or four clerks from each work shift. Someone in the group might challenge this methodology, pointing out that focus groups can be intimidating to part-timers and thus yield unreliable information. In this participant's view, Joe might be better off interviewing selected clerks individually or better yet, have someone else, with less status in the company, interview them.

Joe would then reflect on his intervention approach and decide whether to change his plans. Other questions from the facilitator might attempt to ascertain why Joe has chosen this project over others. Is it one that the company's president has a particular interest in, or is it a genuine concern of Joe's?

In some action learning sets, questions and responses of this nature might ensue for the entire duration of the meeting. Notice that the focus tends to be on one member alone, at least until time is allocated to another member or to the set as a whole. A lot of probing goes on, but it tends to focus on the member's plans and actions that typically take place or are about to take place in a separate work setting. When the focus shifts to the set itself, attention centers on how to make the group more effective as a learning vehicle for its membership. This might require learning how to apply active listening and offer feedback more effectively, how to check on one's assumptions about others, how to apply classroom theories in practice, and so on.

Now, contrast this with the dynamics that might occur in an action science group. Rather than spending a majority of time on Joe's

plans and offering suggestions regarding useful interventions, the facilitator and group members will focus more directly on Joe and his organization. For example, the facilitator might start by asking Joe why this problem has been standing around looking for a solution. Joe might answer by saying it hasn't been a high priority and that management has assumed that the clerks' low motivation couldn't be helped. The facilitator might then ask Joe if he feels the same way as "management." Joe might answer that he has always been concerned but didn't feel that the president considered it a priority.

At this point, the facilitator might ask whether Joe, as a rule, disavows those issues with which he believes the president won't agree. Joe might explain that he carefully monitors what he says, as do others in management. No one, including himself, wants to be seen as contradictory.

In action science terms, Joe has not only offered an observation but also provided an initial inference regarding his perception of the behavior of others.

Although it might be possible to stop here, most action science facilitators would inquire whether Joe would like to pursue the issue further. Assuming he would, the facilitation could proceed using a number of different methods. For example, the facilitator might draw out Joe's inferences by asking what he assumes drives the president's behavior. The facilitator and group might also inquire what makes Joe and his colleagues so reluctant to bring up so-called "contradictory" issues with the president.

Another technique might be to have Joe write out a case in which he recounts a conversation with the president about a controversial issue. In the margin or on one side of the page adjoining the narrative, Joe would write down what he and the president were thinking when they responded in particular ways. A conceptual map might be drawn wherein Joe displays his action strategies using both Model I and Model II learning approaches (see sidebar on action science for definitions of these terms). Joe might be invited to role-play a conversation with the presi-

dent wherein he practices a Model II action strategy. Finally, an "on-line" conversation might be constructed whereby members of the group agree to role-play key figures in the scenario in order to demonstrate Joe's cognitive and behavioral responses. Whatever method is chosen, the ultimate purpose is to surface defensive or inhibiting behaviors blocking operating effectiveness.

Although both technologies seek to benefit the organization, action learning's impact is often more direct and short-term, as this example shows. Projects are undertaken that can have an immediate and projected residual impact on the sponsoring unit. Real problems also constitute the most appropriate data for analysis in action science. But it is only after a reasonable number of organizational members begin to operate under Model II assumptions that a sought-after cultural shift is likely to occur.

Finally, the example points out differences regarding the anticipated depth of change. Although both focus on interpersonal relationships (in this case, between Joe and his co-workers, particularly his boss), an action science intervention also intensifies the focus on Joe's intrapersonal cognitive awareness, namely, his perceptions about how he functions in given situations. Joe is also given the opportunity to examine the inferences behind his decisions to act or refrain from acting. Action learning does not require this level of cognitive awareness. The focus is more instrumental, i.e., more concerned with perceptions about changing work behavior and work relationships.

## Epistemology

Each of the two action technologies approaches the acquisition of knowledge in a distinct way. Action learning is concerned with making new ideas or recently acquired theories tacit by placing them into natural experience. It operates at a practical or rational level of discourse, seeking to make meaning from experience. It thus seeks to help participants enhance their sensitivity to the ways others perceive or react to them as well as

how they, in turn, respond to others. With new information in hand, they can learn to change their communication patterns to become more effective in the workplace.

Action science, on the other hand, is concerned with making explicit or bringing into awareness individuals' theories-in-use. It operates at an emancipatory or reflective level of discourse, seeking to explore the very premises underlying the perceptions we formulate of our world. Hence, whereas action learning seeks to contextualize learning, action science decontextualizes practice so that participants can become more critical of their behavior and explore the premises of their beliefs.

Consider a case involving a participant in both an action learning and an action science group.

Dan is an upper level executive in a multinational firm headquartered in San Francisco. Although he is on a "fast track" to senior management, one flaw might derail his career: his tendency to "blow up" when others don't see things his way or when he perceives them as unsupportive. He presents an example of this to the group. Michelle, his boss, was planning to make a number of organizational changes that would affect his department. During the meeting in question, Dan accused Michelle of acting unfairly and irresponsibly. Michelle responded angrily and warned Dan not to talk to her in that way. The meeting escalated to a point of such emotional fury that it had to be terminated.

An action learning facilitator would encourage Dan to expound in detail about this scenario, testing out his assumptions about his and Michelle's behavior. With the support of the set, Dan might examine what he said that triggered such a strong emotional response by Michelle. Set members might exemplify how he broke the canons of healthy two-way communication by, for example, using accusations rather than descriptive statements. At this point, the focus would be on clarifying what happened through apposite questioning as a means of tracing the causes of the emotional outburst.

Once Dan understands what happened, the facilitator and set might consider ways to

overcome this unfortunate sequence of events. Moreover, Dan might learn to improve the quality of his interactions with others who, like Michelle, might occasionally trigger an uncontrolled emotional response. The set would continue to propose ideas and use questioning to elicit recommendations from Dan himself.

Finally, a set adviser might ask Dan to role play a subsequent conversation with Michelle (or some other colleague). The person playing Michelle would be thoroughly prompted regarding her behavioral style. Dan would try to incorporate any suggestions from the set and would receive ongoing feedback about his revised communication style.

Action science intervention tends to require more direct facilitator intervention. For example, Chris Argyris, in working through an actual case from which this example was drawn (from his book, *Reasoning, Learning and Action*), asked Dan to illustrate what made Michelle angry. He explained that he consciously or subconsciously challenged her and told her that she did not back him up. He went on to say that he had never criticized her that way before because they had developed a norm in their relationship of not criticizing one another. "She knows that I am very sensitive and I know that she is also very sensitive when it comes to feelings about her supportive role with subordinates."

At this point, Dan has acknowledged an espoused theory, namely, that he should not have been criticizing Michelle. However, he is unaware of his theory-in-use, which is, in effect, that when attacked, he responds in kind. Argyris used the following intervention:

I can understand how you could resent [her accusations as the conversation escalated]. On the one hand, she was telling you not to attack her. On the other hand, she was, in your view, attacking and putting you down. So the first thing that hit me was that each of you is doing to the other what neither of you wants the other to do to you. Does it make sense to you that you are behaving in the same way?

As this case demonstrates (and this is a minor portion of the complete case, which goes on for 29 pages), the facilitator in action science attempts to help the learner elicit the deepest defensive reactions that he or she brings either into the group or into workplace interactions. In this case, Dan is led to understand the preconceived inferences he draws from others' behavior and how his responses can lead to an escalation of error.

As in action learning, the facilitator also helps Dan design more constructive communication, but does so by probing his theory-in-use. He or she would help Dan recognize his deep defenses and learn to diagnose and implement his own actions with more insight. Finally, a session might be devoted to methods of uncovering the assumptions underlying behavior in Michelle's group. This could lead to an analysis of the defensive routines that reinforce ineffective exchanges (e.g., no one criticizes anyone else around here).

At the point of intervention, facilitators need to acknowledge whether they plan to engage in a practical or an emancipatory level of discourse. The practical level solicits inquiry regarding how others see someone who has been or is currently engaged in action. By using emancipatory discourse, action science takes the intervention into another, perhaps sequential level. It becomes permissible to challenge not only the actor's theories-in-use but the questioner's perceptions and inferences to the point of challenging the entire system's assumptive frame of reference.

For many participants and even for the system under scrutiny, action science intervention can be threatening, as it has the potential to cause an entire reframing of the practice world. Even participants in responsible positions may not have sufficient authority or independence of action to challenge their cultures at the level of exposure sanctioned by action science.

### **Ideology**

Although both approaches are committed to the expansion of participants' self-awareness, they use processes arising from different ide-

ological foci. Action learning insists that learning emanate from the set participants themselves as they wrestle with live but puzzling natural phenomena. It refutes the view that knowledge can be reduced to a single all-inclusive perspective. Rather, it not only accepts but encourages contributions from different and contradictory points of view. The basis for inquiry can be expert advice or folk wisdom arising from a community of practice. However, the ultimate aim is to help members discover solutions to their own problems.

An example of this form of inquiry comes from Judy O'Neil, an action learning practitioner, who reported how, in a set she was observing, a set member (rather than the facilitator) suggested a strategy known as "stop and reflect." During stop and reflect periods, participants stop and take time to gather their thoughts—often in writing—and then publicly let others in the set know what they're thinking. In this particular set, the member introduced this technique when two other members simply could not agree on an intervention strategy. One of the members recalled what happened:

Stop and reflect...[was] sort of mind shattering... We were going through a number of discussions where we were really at odds, that we just couldn't see each others' points of view. We finally did stop, and we wrote each thing down... And when we wrote it down, [the two points of view] were almost identical... By taking that little bit of time to actually understand the other person's viewpoint, we took a giant leap to where we were going.

Action science, in contrast, is committed to a particular kind of self-awareness, in particular, Model II double-loop learning. Accordingly, participants take personal responsibility to ensure that valid information is presented such that they and others in the group can make free and informed choices. Working toward win-win rather than win-lose solutions, participants operate under the criterion of justice to ensure a fair and mutu-

al examination of personal data including feelings, assumptions, and inferences.

The different ideological foci expose participants to contrasting experiences. Action learning keeps the focus on project work under the assumption that the skills applied will generalize to other situations. Participants look to improve their effectiveness in their current work settings. Action science participants may be asked to create here-and-now, on-line scenarios to help them work through blockages arising from contrasts between their reasoning and their actions.

It is typically more comfortable to begin a team intervention using action learning, since its ideology does not prescribe a particular line of inquiry. As long as queries from set members focus on a target member's assumptions and actions and are considerate and empathic as opposed to self-interested and opinionated, they are generally endorsed. At the same time, it is sometimes advisable to move from an action learning to an action science intervention. Consider an example.

In one group I facilitated, a member talked about her struggle to create a unified team culture in a staff group drawn from two different organizations that had recently merged. She recounted one constraint after another, and for each, the group responded with a myriad of suggestions for overcoming the problem. Some issues involved interpersonal matters between particular staff members, others were structural concerns related to the roles these team members were to assume in the newly constituted team.

The 45-minute exchange was lively and frank. Other than offering a paraphrase to help her clarify her response to a vice president's request about formulating a mission statement, I saw little need to intervene. She finished her time slot by saying how much she appreciated everyone's suggestions and that she "might even use some of them." This was followed by an awkward silence. Another team member interrupted the silence by offering to "go next." At this point I asked if everyone was ready to move on. All nodded agreement.

Nevertheless, I decided to make an inter-

vention of the type that is more associated with action science ideology. As the next member began, I interrupted and said:

Excuse me, Paul. I'm sorry for interrupting, but I detect that there may be unfinished business left over from Jennifer's work. Would you or anyone else mind if I shared my concerns? [No one voiced a concern, so I went on]. I would like to propose a different kind of dialogue from the kind we've typically had. It will require us to look a little deeper into our defenses and how we choose to handle them when faced with an event characterized by deep emotion.

I went on to describe my inferences regarding the group's feelings: we all "felt" for Jennifer in her role in the new team, but we may also have felt our efforts to provide suggestions were somewhat rebuffed. I illustrated my inference by referring to her comment about "possibly" using some of them. I then asked what reactions members, including Jennifer, had to my comments.

When people began to concur that they were somewhat perturbed by her apparent callousness, I asked if the group wanted to dig deeper into our interaction patterns as a group. It was at this point that the group chose to make a transition from an instrumental action learning orientation to an ideology that values introspection of intrapersonal reasoning processes and resulting interpersonal patterns.

The implication of this case suggests that OD practitioners, when serving as facilitators, may need to clarify ahead of time whether they will be pursuing action learning or action science change. Participants need to know in advance whether anticipated changes will arise from frequent questioning of their action interventions, common in action learning, or from in-depth exploration of their reasoning processes, more typical of action science. Likewise, organizational sponsors need to know whether they'll get a completed project of significance in addition to prospectively more effective interventionists or an organizational



culture in which there is far more consistency (even under stressful conditions) between what people say they will do and what in fact they do.

## Methodology

The methods employed in action learning and action science are compatible in the sense that both use groups as the primary vehicle of participation and both focus on real problems. Further, although group development can be a secondary goal of the experience, both tend to focus on one individual at a time. Both also attend to real problems occurring in the participants' work settings, though less so in action science. What differentiates the two is what is being processed at any given moment as well as the content of the discussion.

Action learning focuses more on problems arising from the handling or mishandling of "there-and-then" on-the-job project interventions. For example, PepsiCo's "Building the Business" leadership program for senior executives sandwiches a three-month "growth project" between preparatory five-day and culminating three-day workshops. In the first workshop, participants hear from CEO Roger Enrico regarding his model of leadership and receive feedback on their leadership styles. At this time, they also develop action plans and visualize obstacles they'll need to overcome in implementing their projects. The projects are substantial: combatting private label competitors, for example, or working out joint ventures.

In the follow-up workshop, participants review their progress, including successes and shortcomings. Throughout the dialogue, they evaluate the contribution of Enrico's model of leadership as well as the application of their own theories of action to their project.

This program demonstrates that although action learning is concerned with current problems, the issues tend to be strategic rather than here-and-now concerns arising from ongoing interactions among members of the set. Interpersonal issues may well surface, but their elicitation is designed more to increase the communication effectiveness

among set members than to probe individual members' mental models. When the action learning set is functioning effectively, feedback to individuals is open, direct, and unburdened by hidden agendas.

Although concerned with workplace problems, an action science process is just as likely to focus on here-and-now interactions occurring among members of the group. Where workplace problems are chosen, the group process is designed to not only improve the work activity but also to serve as a means to help participants initiate Model II action models. Facilitators are also inclined to create on-line experiments to help participants focus on their mental models. For example, they might elicit the attributions and evaluations the participants are making about themselves, about others in the group, or about the situation being depicted. The idea is to slow participants down so they can focus on the inferential steps taken in leaping from data to conclusions.

One familiar method is known as "left-hand column." A page is split into two columns. Participants use the right-hand column to depict an actual or contemplated conversation with a co-worker. On the left-hand side, they write what they thought or felt but did not say. For example, on the right side, a participant (call her Darlene) might respond to a co-worker's unexpected absence from an important meeting by writing:

That's all right that you couldn't make it in yesterday. I know you had a bad cough and, as it turns out, I was able to finish the proposal on my own anyway.

On the left-side, Darlene writes:

I was furious at you! How could you let me down like that. Without your cost analysis, the proposal didn't have a prayer. Big deal that you had a cough. I can't tell you how many times I've come in with far worse.

After presenting her left-hand column to the group, Darlene might be invited to re-

spond to a number of queries leading to some extensive reflection. For example, what prevented her from saying all or some of her feelings? What inferential leaps was she making from the data to which she had access? If she had more data, would she be drawing the same conclusions? Were her espoused beliefs consistent with her own actions? What action strategies could she have engaged in to produce more effective consequences?

### Management

Both approaches require the presence of a skilled facilitator, but the skills used are different and in some instances might even be contradictory. In classic action learning, the facilitator's role is clearly more passive than in action science. Revans conceived of the role as that of a "mirror" to merely reflect conditions in the set in such a way that members could learn by themselves and from each other. Others have suggested that the role of facilitator be elevated to that of a critical contributor of the overlooked P (programmed instruction) or of theory. P's role is to inform spontaneous inquiry and offer alternative frames of problems.

Moreover, creative problem-solving devices, such as synectics, which introduces metaphor or analogy in an informal interchange, can be introduced to stimulate group and individual problem exploration. Many standard group process techniques are also available to advance the development of learning teams, resulting in improved efficiency and effectiveness.

The amount of direct intervention taken by action learning facilitators will vary depending on each facilitator's comfort level. The early proponents called for infinite patience in order to permit skills in insight and inquiry to develop. Naturally, some early modeling of active listening might be required. Facilitators, however, were not to forget that the ultimate aim was to make the learner the center of the experience.

One way to talk about facilitator differences is by referring to the level of inference used to diagnose and intervene in the respec-

tive technologies. Facilitators and group members need to make inferences, since decisions often have to be reached without all the information being known or expressed. In action learning, facilitators tend to be content working at a low level of inference. For example, if a group member named Jane talks about avoiding a co-worker because "he is discourteous," the facilitator might ask Jane to describe what this co-worker does that leads to the inference of discourteousness.

In this instance, an explanation is required since the team may need to (1) determine how closely Jane works with this individual, (2) identify what he does that implies discourteousness, and (3) assuming that the behavior is indeed discourteous, suggest how she can learn to either work around the co-worker or confront him to change the behavior. The inference in this case is considered to be low level, since a relatively small amount of information is needed to clarify the behavior in question. Higher level inferences tend to concern such issues as trust, power, and defensiveness.

Action science facilitators, when given permission by members, will often probe into members' defensive behavior. For instance, a salesperson named Jay complained that his two colleagues broke a trust built on a "one for all" mentality that they had long agreed on. When encouraged to explain what they did, he alleged that they were planning to "ace him out of a commission" on a joint endeavor. However, he admitted that he had no real evidence of this presumed plot.

By engaging in an on-line simulation with some fellow team members who volunteered to play the part of his colleagues, Jay was able to work through his own fears of losing control in this three-way arrangement. He was able to analyze his fear of a loss of trust as his own defensive behavior arising from feelings of vulnerability whenever he had to work closely with others.

Although action science facilitators would subscribe to the action learning precept that the group eventually assume management of the experience, action science skills require considerable practice and development. It is

difficult to learn how to surface inconsistencies between a participant's governing values and action strategies. Besides modeling, the facilitator needs to spend time actually teaching and demonstrating Model II learning skills. In working through individual and interpersonal problems, learners may have to reveal their defenses, placing themselves in a personally vulnerable position.

Facilitators thus need to be not only adequately trained but also active in helping the group member or members surface and deal with their feelings. Eventually, as the group gains confidence in using action science skills, learners can serve as co-facilitators and even begin to challenge the facilitator's action strategies. At this point, the facilitator and the membership can transform themselves into a collaborative learning community.

### **Risk**

No group experience is without some threat to individual members, but action science potentially subjects participants to more personal threat than normally occurs in action learning sets. Action science intervention is inevitably psychological since it often explores innermost feelings and emotional reactions, some of which are protected by sophisticated personal defenses. As these defense mechanisms break down, members may feel vulnerable and exposed. Of course, they work through problems in the presence of a sensitive and well-trained facilitator and caring group members. Moreover, the action science session is not therapeutic, in that it aims at changes in work-based and interpersonal behavior rather than personality adjustment.

Action science participants often talk about the difficulty of leaving their group and having to face "the real world," both between sessions and after the training is over. They long for an organizational culture that appreciates their hard work and endorses double-loop learning as an organizational standard. It is unfortunately rare to find corporate management that collectively commits not only to acquiring and storing new knowledge but

also to interpreting it in a way that reveals organizational patterns, processes, and defensive routines. Only in organizations with such management can the risk of action science be considered worthwhile in light of the potential learning afforded the organization.

Although it took five years of personal and interpersonal trial and development, the directorship of Monitor Co., a 350-person consulting firm, seems to have produced a predominant Model II learning pattern, according to their consultant, Chris Argyris. Their meeting transcripts, for example, illustrate significant reductions in the number of untested or undiscussable inferences and attributions that the directors make of each other. There is more encouragement of double-loop learning and inquiry, not only at the director level, but among staff consultants and even, in some cases, with clients.

Action learning subjects its participants to a different level of risk, which can again be characterized as instrumental. Normally, set members are working on a project in conjunction with learning team meetings. Although they are well-advised throughout the process, they may end up working on a project that they cannot bring to a successful conclusion. In some instances, a project may fail due to circumstances beyond a member's control. In other instances, a participant may attempt a change that goes beyond the organization's coping capacity.

In either case, failure may imply incompetence, leading to possible career derailment. The personal risk described here can be overcome by organizational support that conceives of failure or suboptimal performance as an opportunity for organizational learning. Lack of management support, however, can seriously expose the participant.

In one project, a commercial sales representative for a utility undertook a project to expand the company's economic development activity. Unfortunately, in the middle of the project, his supervisor was transferred. The new supervisor had little interest in the project and withdrew financial support. The project was scrapped, leaving the participant both resentful about the company's commit-

**EXHIBIT 1**  
ACTION TECHNOLOGY CRITERIA AND DISTINCTIONS BETWEEN  
ACTION LEARNING AND ACTION SCIENCE

<i>Criteria</i>	<i>Action Learning</i>	<i>Action Science</i>
Philosophical Basis	Humanism and action research	Humanism and action research
Purpose	Behavioral change through reflection on real practices	Behavioral change through articulation of reasoning processes and improved public disclosure
Time Frame of Change	Short and mid-term	Long-term
Depth of Change	Interpersonal and instrumental	Interpersonal and intrapersonal
Epistemology	Placing theories into tacit experience	Making explicit tacit theories-in-use
Nature of Discourse	Rational, making meaning from experience	Emancipatory, exploring the premises of beliefs
Ideology	Arising from intrinsic natural learning processes within the group	Subscribing to particularistic double-loop learning concerned with elicitation of mental models
Methodology	Processing of there-and-then problems occurring within one's own work setting	Processing of here-and-now reasoning, or of on-line interactions
Facilitator Role	Passive, functioning as mirror to expedite group processing	Active, demonstrating and orchestrating on-line Model II learning skills
Level of Inference	Low	High
Personal Risk	Political, peer dissatisfaction or career derailment resulting from poor project performance	Psychological, exposure of personal defenses and vulnerabilities
Organizational Risk	Moderate, needs top management and supervisory management support	Heavy, requires all management levels to expose their assumptions
Assessment	Project effectiveness, systemic change	Managerial effectiveness, systemic change
Learning Level	Second-order, challenging assumptions underlying practice interventions	Third-order, challenging premises underlying theories-in-use and underlying management's governing values

ment to change and anxious about his future career progression.

**Assessment**

As action research technologies, both action learning and action science subscribe to an assessment that values participant learning as an ultimate goal. Both also have a secondary objective of changing the participants' organizational systems through more effective action by these same participants. Hence, both need to be evaluated against a meta-competency

of learning to learn, such that the lessons of the training experience carry over to new and unique situations. As both technologies profess a learner-centered humanist philosophy, they also need to be evaluated against a standard of free consent.

A critical difference concerns the level of learning expected in each approach. Action learning primarily focuses on what Gregory Bateson terms "second-order learning." In first-order learning, we move from using pre-existing habitual responses (zero-order learning) to learning about them. In second-order

learning, we learn about contexts sufficiently to challenge the standard meanings underlying our responses. Accordingly, action learning helps participants learn to challenge the assumptions and meanings they use in planning and undertaking their project interventions. As they perfect their reflective skills, they tend to develop confidence in transferring their learning outside the group context.

At Cable & Wireless PLC, a global telecommunications giant, a top leadership workshop features five-month projects undertaken by cross-business and cross-cultural teams. One project endeavored to improve customer value by coordinating account management activities around the world. Comparable projects have been undertaken at Grace Cocoa, which has been using a form of action learning called Action Reflection Learning since 1993. The company's vice president of human resources credits action learning with helping managers become more proficient working across cultural boundaries, a key objective in a company that operates on five continents.

Although some action learning facilitators risk moving their sets into third-order learning, it is undoubtedly an important province of action science. Third-order learning brings the very premises of tacit theories-in-use into question. It is learning about the "context of contexts" so that participants can hold a virtual reflective conversation with their situations. In this way, action science reconceives our practice world to reveal the tacit processes that underlie our reasoning.

Action science intervention is more difficult to assess, in that its effects can be measured only over the long run. Systemic change is likely to occur when a critical mass of organizational members begin to act in accordance with a Model II learning strategy. Action learning can bear nearly immediate results, at least in terms of finished and, in some instances, successful projects that can impact the organization's bottom line.

The participants' learning orientation is designed to be contagious. For example, a participant in one of our school's executive development programs designed as his action learning project a program to arrest the

spread of an oral disease as part of his company's dental health program in less developed countries. His commitment to involve multiple stakeholders was so effective as to constitute an eventual framework for launching other strategic initiatives.

Throughout the planning process, however, little attention was paid to the possible negative consequences of using the company's charity as a public relations ploy. Such a probe might well have ensued, however, under action science effectiveness criteria, which would have sanctioned not only an examination of the project's underlying assumptions but also the very governing values of its genesis and operation.

## CONCLUSION

To those practitioners interested in humanistically derived cognitive and behavioral change in organizations, there may not appear to be significant distinctions among the burgeoning action technologies in use today.

Nevertheless, at the point of implementation, these approaches may vary considerably in the impact they have on participants as well as on the organization or unit sponsoring the change. Hence, facilitators need to understand the philosophical assumptions underlying each approach. A number of significant distinctions between two of the more popular strategies have been drawn in this article and are summarized in Exhibit 1.

OD facilitators need to understand these distinctions so that they can forecast and illustrate respective methods and likely effects. Those who may be experienced in both approaches also need to know whether and how to shift gears in the midst of an intervention as they lead a group into transition, say from action learning to action science. As OD intervention strategies become more specialized, practitioners must become more skilled in their own theory and practice.



To order reprints, call 800-644-2464 (ref. number 8321). For photocopy permission, see page 80.



## SELECTED BIBLIOGRAPHY

The major British works in action learning can be found in two of Reg Revans' books, *Action Learning* (London: Blond & Briggs, 1980) and *The Origins and Growth of Action Learning* (Bromley: Chartwell Bratt, 1982). Also consult M. Pedler (editor), *Action Learning in Practice*, second edition (Aldershot: Gower, 1991); I. McGill and L. Beaty, *Action Learning: A Guide for Professional, Management and Educational Development* (London: Kogan Page, 1992); and K. Weinstein, *Action Learning: A Journey in Discovery and Development* (London: Harper Collins, 1995). Some North-American references are: V. J. Marsick, L. Cederholm, E. Turner, and T. Pearson, "Action Reflection Learning," *Training and Development Journal*, 1992, Vol. 46, No. 8, pp. 63-66; J. A. Raelin and M. LeBien, "Learning by Doing," *HRMagazine*, 1993, Vol. 38, No. 2, pp. 61-70; and P. Froiland, "Action Learning: Taming Real Problems in Real Time," *Training*, 1994, Vol. 31, No. 1, pp. 27-34.

To obtain a background in action science, consult the works of Chris Argyris, by himself, e.g., *Reasoning, Learning and Action* (San Francisco: Jossey-Bass, 1982) and *Knowledge for Action* (San Francisco: Jossey-Bass, 1993); with his colleague, Donald Schon, e.g., *Theory in Practice: Increasing Professional Effectiveness* (San Francisco: Jossey-Bass, 1974) and *Organizational Learning: A Theory of Action Perspective* (Reading, MA: Addison-Wesley, 1978); or with other associates, e.g., C. Argyris, R. Putnam, & D. M. Smith, *Action Science: Concepts, Methods, and Skills for Research and Intervention* (San Francisco: Jossey-Bass, 1985). Schon's separate works may also be consulted, i.e., *The Reflective Practitioner: How Professionals Think in Action* (New York: Basic Books, 1983).

As the grandfather of today's "action technologies," action research was designed to solve practical, real-life problems while also

contributing to theory about social systems. One of the best known references is Kurt Lewin, "Action Research and Minority Problems," *Journal of Social Issues*, 1946, Vol. 2, No. 4, pp. 34-46. Also see M. Peters & V. Robinson, "The Origins and Status of Action Research," *Journal of Applied Behavioral Science*, 1984, Vol. 29, No. 2, pp. 113-124 and the special issue on action research in *Human Relations*, 1993, Vol. 46, No. 2. A variant of action research called "Participatory Action Research" (PAR) has also evolved to underscore the need for collaboration between outside researchers and people inside the focal system. See W. F. Whyte, *Participatory Action Research* (Newbury Park, CA: Sage, 1991). A comprehensive review of the action technologies in use today can be found in A. Brooks & K. E. Watkins (editors), *The Emerging Power of Action Inquiry Technologies* (San Francisco: Jossey-Bass, 1994).

To explore the critical parameters of facilitation, consult R. Harrison, "Choosing the Depth of Organizational Intervention," *Journal of Applied Behavioral Science*, 1970, Vol. 6, pp. 181-202 or R. M. Schwarz, *The Skilled Facilitator* (San Francisco: Jossey-Bass, 1994).

The epistemological discussion regarding levels of discourse is drawn from the work of Jurgen Habermas, a contemporary German social theorist. Two of his most familiar works are *Knowledge and Human Interests* (Boston: Beacon Press, 1971) and *The Theory of Communicative Action* (Boston: Beacon Press, 1984). Readers who do not want to wade through Habermas may wish to consult a review of his contribution to adult learning in Chapter 3 of Jack Mezirow's *Transformative Dimensions of Adult Learning* (San Francisco: Jossey-Bass, 1991).

Gregory Bateson helped us focus on the context and culture of learning. See his *Steps to an Ecology of Mind* (London: Paladin, 1972).

Copyright of Organizational Dynamics is the property of Elsevier Science Publishing Company, Inc. and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.