

The Challenge of Learning

Jeffrey Loewenstein and Leigh Thompson

This essay offers one attempt to apply insights from educational psychology to the teaching and learning of negotiation skills. First, we suggest a key reason why becoming an expert is challenging, namely, people's naïve theories about negotiation need to be challenged and largely put to rest. Second, we examine how professional schools typically teach negotiation. Third and finally, we offer suggestions for improving our negotiation pedagogy. To this end, we describe and review our research on analogical learning and how it can be used in classrooms to enhance learning.

Professional schools of management are in the business of creating management experts. Professors attempt to provide students with managerial “toolboxes” filled with the tools they will need in their careers and advice about when to bring those tools to bear. Negotiation (or the knowledge of how to work with people so as to achieve one’s goals) has become an essential component of the school of management toolbox. Lax and Sebenius (1986) called negotiation the core of a manager’s activity — a skill that most managers need on a daily basis. By any measure, negotiation is a key area in which managers need to become experts, particularly within the new economy, as individuals engage in an ever-increasing number of entre-

Jeffrey Loewenstein is a Dispute Resolution Research Center Postdoctoral Fellow at the Kellogg Graduate School of Management, Northwestern University, Evanston, Ill. 60208. His email address is loewenstein@northwestern.edu. **Leigh Thompson** is the J.L. and Helen Kellogg Distinguished Professor of Management and Organizations at the Kellogg School. Her email address is leighthompson@kellogg.nwu.edu.

preneurial activities. The question of how to achieve expertise in negotiation is paramount.

Examination of the literature on expertise provides some important, yet daunting facts about the development of expertise in every field from mathematics to tennis. One often cited claim is that it takes a minimum of ten years of dedicated study to become an expert (e.g., Chase and Simon 1973; Hayes 1989; Simonton 1996). A recent claim is that it takes thousands of hours of deliberate practice to perform at high levels in a domain (Ericsson, Krampe, and Tesch-Roemer 1993). Unfortunately, most managers do not have thousands of hours to devote to learning to negotiate, nor can companies afford to provide such long periods of training – companies are, if anything, shortening, rather than lengthening, the management education process.

The obvious question arises as to alternative methods for developing expertise in managerial activities, particularly in negotiation. This essay offers one attempt to apply insights from educational psychology to the teaching and learning of negotiation skills. In the first of this essay's major sections, we suggest a key reason why becoming an expert is challenging. We argue that people have naïve theories about negotiation that need to be confronted and largely put to rest. Next, we examine how professional schools typically teach negotiation. We briefly examine experiential learning, expectation failure, and explanation as they are currently used in negotiation pedagogy. Third and finally, we offer suggestions for improving our current practices in business schools, law schools, and international relations schools that offer negotiation training. To this end, we describe and review our research on analogical learning and how it can be used in classrooms to enhance learning.

Learning is Hard: Supplanting Our Naïve Theories

There are many signs that achieving business expertise is a challenging endeavor. Pfeffer and Sutton (2000) recently described numerous examples of companies that paid large sums of money for training, education, and advice, yet changed little in their practice. This “knowing-doing” gap is clear evidence for the need to confront the challenge of learning. We believe that part of the answer to address this challenge is confronting people's entrenched belief systems about negotiation. Professional students have naïve, or “folk,” theories about how negotiation works. They have developed these theories so as to be able to make predictions about and act in negotiation situations.

Naïve theories are causal systems in which concepts are embedded (Carey 1985; Keil 1989; Wellman 1990). Understanding people's naïve theories can provide greater leverage for describing their understanding of a domain than their grasp of any one particular concept. Examination of naïve theories has been of particular research interest among scholars studying the cognition of novices. Since children are the ultimate novices, there is exten-

sive work on this topic in developmental psychology. Developmental theorists have examined children's naïve understandings of such domains as physics (e.g., Baillargeon 1987; Spelke 1994), biology (e.g., Carey 1985), and psychology (e.g., Flavell, Flavell, and Green 1983; Wellman 1990).

For example, Carey (1985) explored young children's initial understandings of such biological concepts as *death* and *growth*. Carey's studies demonstrate that grasping these biological concepts requires appreciating larger causal frameworks. Consider the following anecdotes: A three-year-old, attempting to understand death, first thought it might have something to do with not moving (e.g., when watching television: "He's dead — I can tell because he's not moving"). After being confronted by the fact that inanimate objects don't move but aren't dead, the three-year-old struggled with the distinctions between alive/dead and animate/inanimate. This led to the idea that death means not being able to be seen, but this too led to problems, for example: "Isn't it funny — statues aren't alive but you can still see them?" (Carey 1985:27). The concept of growth is also challenging. For example, some children believe that growth results from having birthdays, and in particular, eating birthday cake. Hence, a four-year-old, after being told that the Munchkins in *The Wizard of Oz* were played by adults, said: "Why are they so small? Why didn't they grow? Oh, I bet I know; I bet their mothers didn't let them eat birthday cake" (Carey 1985:66). Empirical studies confirm the suggestion conveyed by these anecdotes that children are not just having difficulty grasping individual ideas, but fitting them into larger causal frameworks that constitute early naïve theories of various domains.

Children are not the only ones with naïve theories. Cognitive psychologists have examined novice adults' understandings of such topics as mechanics (e.g., diSessa 1982; McCloskey and Kohl 1983), electricity (e.g., Gentner and Gentner 1983) and navigation (e.g., Hutchins 1983). As an illustration, consider the fact that many people's folk theories lead to their constructing a faulty mental model of their thermostats. Kempton (1986) suggested that as many as 50 percent of Americans talk and act as if their thermostats worked like gas pedals on cars or knobs on faucets: the more you turn up the dial, the faster the house will be heated. Yet most thermostats work like a switch, not like a valve. Thermostats simply turn on a furnace until a certain temperature is reached, at which point they turn the furnace off. For this reason, setting the thermostat to a higher-than-desired temperature will not cause the house to heat up faster — rather, it tends to lead to more frequent adjustments to the thermostat, less efficient heating, and higher heating bills. We argue that managers hold similar inaccurate and costly naïve theories about organizations, people, and negotiation.

Educators have discussed the implications of naïve theories for learning in classrooms. Perhaps most simply, the old model of the learner's mind being a *tabula rasa* (or blank slate) cannot hold if people walk into the classroom with preconceived notions of the topics they are studying. Hence

learning is at least partly recast as a process of *theory change*, somewhat like the process of scientific theory change (e.g., Carey 1985; Kuhn 1962).

If learning requires theory change, then teachers need to expose learners' existing theories and provide alternative systems in which the new concepts may be embedded. This constitutes a substantial challenge. Howard Gardner (2000) referred to revising naïve theories as "razing the barn of the uneducated mind," highlighting the importance of dispelling naïve theories before progress can occur. We concur, and further make the claim that managers have naïve theories about negotiation that are necessary to dispel before they can become effective, much less expert, negotiators.

Probably the most well-known component of students' naïve theories of negotiation is the *fixed-pie model*. This is the belief that there is a unitary, fixed amount of value on the negotiation table and the purpose of the negotiation is to arrive at how that value will be distributed among the parties. A direct implication of this model is that students assume that gains for one person in a negotiation come at the direct expense of the other party or parties. Bazerman, Magliozzi, and Neale (1985) provided early evidence consistent with the fixed-pie model. They had students engage in a multi-issue negotiation whose structure allowed for the opportunity for integrative, value-added agreements — that is, allowed for agreements of differing values. The question was whether students could ascertain which issues were of greatest worth to them and thereby maximize the value of the agreement for both parties.

The strategy of trading off less important issues to gain on more important issues was defined by Froman and Cohen (1970) as *logrolling*. It is intuitively simple, yet in practice surprisingly rare — at least among untrained negotiators. Bazerman et al. (1985) found that students' initial agreements were largely compromises, leaving over 75 percent of the potential joint gains on the table. The claim was that students' faulty assumption that the other party wanted exactly the opposite set of terms limited the value of their negotiated agreements.

Thompson and Hastie (1990) directly measured negotiators' perceptions with respect to the fixed-pie model by asking negotiators questions before, during, and after negotiating. As in the Bazerman et al. (1985) study, negotiators left money on the table, suggesting the presence of a value-robbing, fixed-pie model. Of central importance, the protocol analyses showed that the majority of negotiators indicated they believed that the amount of value in the negotiation was fixed and the other negotiators' interests were completely opposed to their own (Thompson and Hastie 1990). Taken together, these studies suggest that untrained negotiators have faulty theories about negotiation that lead to the creation of poor agreements.

Naïve theories appear to be a fact of mental life — after all, one must act on the basis of some set of beliefs. The good news is that we almost always have some interpretation of a problem, and consequently some guesses about how to resolve it. The bad news is that because we almost

always have an interpretation of a situation, we typically feel we understand that situation and are satisfied with our solutions. Further, because these theories are entrenched, they are difficult to dispel. This presents educators with a clear challenge: Learning a new, expert theory of a domain requires not just simply learning new ideas, but also demands a “paradigm shift” — supplanting an old theory with a new and better theory that accounts more accurately for reality.

The Dominant Approach to Solving the Challenge of Learning

How are professional schools taking on the challenge of supplanting old, faulty theories about negotiation with more accurate theories? The Program on Negotiation at Harvard Law School’s “Negotiation Pedagogy: A Research Survey of Four Disciplines” found that overwhelmingly, negotiation instructors rely on simulations to help students become better negotiators (<http://www.pon.harvard.edu/>). This constitutes a reliance on experiential learning to address the challenge of learning. Our analysis suggests that professional school educators appear to take a three-step approach to teaching negotiation:

1. *Learn by doing*: Provide a real-world-like activity that engages people’s naïve theories of negotiation, such as a one-on-one buyer-seller negotiation simulation;
2. *Reveal expectation failures*: Provide feedback about how people did, specifically to show them the limits of their naïve theories - there is more students need to know to succeed; and
3. *Offer explanations*: Provide insights into the expert model through outlining alternative interpretations and listing courses of actions that students can take to reach better outcomes.

Learning by doing. Engaging students in actual negotiation exercises as opposed to artificial tasks should provide help for learning. Grounding learning in “authentic activity” is often heralded as key to learning (e.g., Brown, Collins, and Duguid 1989; Lave and Wenger 1991; Rogoff 1990). By actually negotiating, there is little ambiguity about what it is that students should be learning to do or why they are learning about it. Additionally, students are accumulating a set of negotiation experiences that they might be able to draw upon later. Finally, students typically enjoy engaging in negotiation simulations; hence they are motivated to engage in the task. For these reasons, providing students with a negotiation simulations appears justifiably widespread in negotiation classrooms.

Reveal expectation failures. There is a sense in which one is not ready to learn the answer until one is able to ask the question. Therefore, an additional purpose of the negotiation simulation is to provide an opportunity to give students immediate feedback about the quality of their agreements. If students realize that they reached poor agreements, their failure should trig-

ger them to try to find out why they did poorly. Educators, such as Schank (1982), have argued that it is precisely when students' expectations (e.g., that their agreement was as good as it could be) are proven wrong that students have a reason to learn. That is, just as for scientific theories, if someone's naïve theories can make accurate predictions, then they probably do not need to be changed. Yet if they lead to faulty predictions, that might signal the need to form an exception, examine a situation more closely, or some further course of action.

Offer explanations. Once students have asked the question about why they reached poor agreements, an instructor might then effectively provide an explanation that students will be willing to work to understand. Explanations can be used to convey causal chains of reasoning behind inferences. If students make faulty inferences — for example, that the other party had exactly opposite preferences — then they not only need to know that these inferences are wrong, but also need to be given some insight into why the basis for their inferences were wrong. An explanation is thus an attempt to supplant parts of students' naïve theories that are faulty with causal models that should work. If there is sufficient background knowledge, an explanation combined with one example might lead to learning (Ahn, Brewer, and Mooney 1992).

Careful use of this three-part approach typically results in confidence by both educators and students that concrete lessons have been learned. As a result, students seem ready to tackle the next set of exercises. At the end of the two-day/week-long/semester-long negotiation course, educators expect their students to venture off into the world as competent negotiators.

Unfortunately, although this framework provides a reasonable beginning, it does not appear to work as well as one might hope. To take just one recent example, consider the results of a group of executives who recently engaged in a full-day negotiation training seminar that we taught. As would be expected, roughly four out of every five negotiation pairs failed to reach an agreement that capitalized on the integrative potential of the situation — in short, about 80 percent left money on the table, without knowing it. We then thoroughly debriefed the executives for 90 minutes, and presented a detailed explanation of parts of the expert model of negotiation. These executives appeared confident in their ability to do better on a subsequent negotiation. We then provided a test of this confidence and the preceding learning intervention. We asked the executives to engage in a second negotiation simulation that contained an opportunity to reach an integrative agreement. This time, roughly 90 percent of the groups left money on the table. In short, the executives who exhibited such high confidence in their ability to find the hidden integrative potential following failure on the first task also failed on the second task. This is not an isolated example. We have repeatedly found transfer failures in our laboratory and classroom experiments (e.g., Loewenstein, Thompson, and Gentner 1999; Thompson,

Gentner, and Loewenstein 2000). In sum, we feel we have substantial evidence of the challenge of learning, and consider this evidence a call to improve our negotiation pedagogy.

New Tools to Help in the Transfer of Knowledge

The experience of the executives is strong evidence of what Whitehead (1929) called the *problem of inert knowledge*. Whitehead partly blamed students' motivation (or lack thereof) as the reason for their failure to use knowledge gained in one setting to solve problems in new settings. However, we have repeatedly found evidence of inert knowledge among our highly motivated executive and MBA students. Therefore, although there may be some motivational component to learning for transfer, we turned to examine the strong cognitive reasons for learners' limitations. We reframed the question of students' failure by asking why students are conservative in their learning (Medin and Ortony 1989).

A possible explanation is that the knowledge people learn is tied to the context of learning (Gentner, Rattermann, and Forbus 1993; Ross 1987). For example, Carraher, Carraher, and Schliemann (1985) found that Brazilian child candy vendors were far better at arithmetic in the context of selling candy than in the context of standard mathematics problems. Saxe (1988) found that these candy vendors had particular difficulty with printed numbers. They succeeded with their arithmetic on the basis of recognizing the images on particular coins and bills. Therefore, these children would be likely to perform well on arithmetic problems only for tasks using Brazilian currency. That is, these children's knowledge of arithmetic would be limited to situations in the same context — situations with highly similar surface aspects.

Learners often focus on surface aspects and are generally poor at noticing structural similarities, even within a single context (e.g., Muthukrishnan and Weitz 1991; Novick 1988; Ross 1987). For example, in a marketing study, Muthukrishnan and Weitz (1991) found that expertise in a product line was associated with higher ratings for structurally similar products than surface-similar products. The reverse association was found for novices: surface-similar products were given a higher similarity rating than structurally similar products. In the context of mathematics instruction, Ross (1987) found that students who learned a principle of statistics from a medical problem were more likely to use that principle to solve a second problem about medicine than a problem about graduate admissions.

The above examples suggest that novices and experts use a different set of concepts to understand a given situation. Whereas a negotiation novice might remember, say, a negotiation about shipping toys to Chicago and a negotiation over a wheat farm, the negotiation expert might remember a negotiation that required making a contingent contract and a negotiation that provided a perfect logrolling opportunity. Interpreting

negotiation situations in light of their underlying structure as opposed to their contexts allows one to create categories of experiences grouped by negotiation principles.

We argue that it is more useful to be reminded of a negotiation with a matching structure — i.e., one in which the same solution might apply — than to be reminded of a negotiation with a matching context — i.e., one in which the same objects might be at stake. In an ideal world, contexts and solutions might be correlated. However, given the broad range of human experience over which negotiations occur, we are doubtful that contexts thoroughly determine negotiation solutions. Therefore, the key question is how can people learn negotiation principles or schemas that are not contextually bound, but rather are portable to new situations.

One way to help people acquire portable problem-solving schemas is through analogical learning. Simply put, learning by analogy means learning by comparing multiple examples that embody the same principle. Making a comparison prompts a focus on the commonalities between two examples, helping to make clear their common structure (Gentner 1983 and 1989; Gentner and Markman 1995). Having a grasp of the common structure — the principle common to the two examples — can enable the learner to form a schema that is less cluttered by the particular and largely irrelevant surface and contextual details than the original examples. The result is a grasp of a principle that is more likely to be portable to new situations than if the principle was not abstracted from its original context. Consider an example from early childhood development: Loewenstein and Gentner (in press) found that comparing two highly similar model rooms helped preschool children grasp the spatial schema common to the two rooms, thereby facilitating their performance on a difficult mapping task between two model rooms that did not look alike but nonetheless shared a common configuration. Children who merely saw the two original models one at a time were not successful on the difficult mapping task, suggesting that the act of making a comparison is critical to drawing out a portable problem-solving schema.

Making comparisons might help children grasp nonobvious properties of examples, but does this process also facilitate learning in managers? If so, the implication is that making comparisons might be a domain-general cognitive process by which people can learn underlying principles from examples. The available evidence is largely consistent with this claim. Our research has found that even brief examples are sufficient to enable managerial students to grasp complex negotiation principles and enable them to transfer those principles to solve analogous negotiation problems in new contexts (Loewenstein, Thompson, and Gentner 1999; Thompson, Gentner, and Loewenstein 2000).

For instance, more than half of the MBA students who read and compared two brief examples of contingent contracts showed a grasp of the idea of a contingent contract and produced agreements with contingencies when actually negotiating. In contrast, less than a quarter of the students who read

the two cases one at a time (that is, they did not compare them) displayed an understanding of contingent contracts and used them in their negotiations (Thompson, Gentner, and Loewenstein 2000). This is evidence that the process of comparing examples promotes learning the underlying principles in those examples sufficiently well to use those principles in new contexts. The ability of these students to learn and transfer negotiation principles is in stark contrast to our executives given standard classroom training who showed no ability to transfer knowledge gained from their first negotiation to their second negotiation. Therefore, analogical learning offers distinct promise for overcoming the challenge of learning.

Implicit in this discussion is the fact that the literatures in cognitive, developmental, and educational psychology yield insights into managerial education. If we are teaching students to negotiate, it behooves us to know not only about negotiation, but also about teaching and learning. Otherwise, given the challenge of learning, students may well leave our hard-won wisdom about negotiation behind in the classroom.

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